

Agricultural Genetic Resources in the Alps

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1. Preface

Since the first study on »Agricultural Genetic Resources of the Alps« (ISBN 3-905209-03-9) was published in 1995, fundamental changes have taken place with regard to the conservation of endangered livestock breeds and cultivated plant varieties. Important EU-programs such as, for example, the Decree 2078/92 with funding for animal keepers, only took effect after the publication of the study. A further important event was the passing of a global action plan in Leipzig to implement the »Convention on Biological Diversity« (Rio de Janeiro 1992) in the field of agriculture. All Alpine countries have, as a result, committed themselves to protect the genetic resources of the Alps and to elaborate so-called »National Action Plans«. New prerequisites for conservation work were thereby created.

The present study therefore attaches great importance to reconsidering the endangered status of cultivated plants and livestock breeds in individual countries. Priority was given to cultivated plants and to Italy. Neither topic could be conclusively dealt with in the first study in 1995.

The individual countries were scanned again in detail with regard to livestock breeds. In France, Italy, Austria, Switzerland and Slovenia, further breeds were found which had not been known before or which had been considered to be extinct. In Germany, Austria and Switzerland, the current state of affairs of conservation efforts is far advanced. The situation has improved since the first study. The situation in the French Alpine region has aggravated, especially with regard to sheep and goat breeds. In Italy, the state of conservation efforts is still unsatisfactory. Uncertainties are found, especially concerning sheep and goat breeds, and concrete conservation projects are missing. Slovenia is well organised at the governmental level. However, only *ex situ* conservation is covered.

Conservation efforts for cultivated plants from the Alpine region have made progress in Austria and Switzerland on both the private and the governmental level. In Germany, the Alpine region is still insufficiently taken into account. In Italy, numerous efforts are made, which are, however, not sufficiently coordinated. The situation in Slovenia and France has become worse in the 1990s.

The present study shows that a transfer of effort into developing a system for continuous monitoring, equipped with an efficient alarm system, is urgently needed. This seems at present the most efficient way of dealing with a situation which might change fast, and to react in time to negative trends.

2. Synthesis

2.1. Problem formulation and assignment

Today, not only the biodiversity of wild plants and animals is endangered, but also the formerly rich diversity of agriculturally utilised plants and animals which are directly used for human consumption. The diversity of breeds and varieties has suffered under the economically required orientation of breeding towards high-performing plants and animals. The breeds that did not comply with modern standards – more meat and milk from cattle, more ham than bacon from the pig – lost their breeding value, were dropped and disappeared. Some breeds have already died out, while only a few individuals of others have survived.

Even if yields of the old varieties remain unsatisfactory according to modern standards, they possess qualities such as high fertility, hardiness and resistance against cold and diseases. These might regain importance in an economically different environment. Traditional breeds and varieties were adapted to human needs as well as to the special conditions of their environment through a breeding process lasting over many generations. They are not only genetically interesting, but also represent a valuable cultural asset well worth being conserved.

For these reasons, at least remains of the still existing breeds and species should be kept to secure their *in situ* survival.

A broad diversity of breeds and varieties developed in the Alpine region with its very different landscape segments, and its somehow more difficult production conditions. Thus, they can be regarded as especially undemanding and hardy. They are particularly interesting because they are adapted to high altitude and the respective ground, strong solar radiation and short vegetation periods, differing thus very much from the current breeding lines. Because of that, the acknowledged scientist N.I. Vavilov describes the Alps as “secondary genetic centre”. Fortunately, the extrusion process through high-performing breeds has started much later in the Alps, thus increasing the chance for survival for some of the traditional animal breeds and plant varieties.

Still, robust animal and plants are important in the first line in the Alpine region. In order to be prepared for dry or wet, cold or warm years, a broad diversity, especially of cultivated plants, is still of importance today. Not only highest performance rates do count in the mountains, but also a good average yield. Most of the time, extensive production is also quality production. When qualities adapted to local conditions take effect, these forms are even today economically viable. In some cases, it is possible to market the products of these forms under a specific quality label. In any case, they add a special touch to the region which is reflected in typical regional products and menus. At present, these products are undergoing a renaissance in gastronomy and tourism. Should the agricultural production in the Alps undergo extensification systematically and on a larger scale, some of these old and robust species might gain importance.

This fact led to the study „Agricultural Genetic Resources of the Alps” (ISBN 3-905209-03-9), subsequently called “Alp study”, initiated by CIPRA and financed by the Bristol-Foundation. The study was elaborated between 1992 and 1995. This first and multilingual work covered the whole area between the French Maritime Alps and Slovenia. It was carried through by the Swiss foundation Pro Specie Rara. Its records include not only the endangered cultivated plants and livestock breeds, but also the initiatives working for their survival and the not covered need for action. Following the study, app. 40 of the barely hundred endangered breeds are not subject to conservation efforts. A number of projects were initiated following the results of the study:

- In Germany, Austria and Switzerland, already existing conservation projects were expanded, and new ones started. In Slovenia, a governmental funding program was initialised.
- The founding and set-up of a European umbrella organisation for the safeguard of agricultural diversity was accelerated. SAVE today coordinates the conservation of five border-crossly endangered breeds in the Alpine region. The results are published in the SAVE Focus every second year.
- Main consequence of the study was the founding of a “Monitoring Institute for Rare Breed and Seeds in Europe” in St.Gallen which deals with the recording and constant observation of endangered breeds and seeds. For that purpose, a warning system is set up.

The 1995 study was only a snapshot of the year 1993. The situation of endangered livestock breeds and cultivated plants changes continuously. Even then, a regular screening has been called for. The Monitoring Institute has now, by order of CIPRA and again financed by the Bristol Foundation, updated the study. The results are summed up shortly in the following, according to countries. Detailed information on endangering, the governmental and private conservation initiatives (actors) as well as on not covered additional need for action are found in the other chapters.

2.2. Plant Genetic Resources: Results summarised according to countries

2.2.1. France

Retrospect

In 1983, the BRG (Bureau des Ressources Genétiques) received the assignment to elaborate a program for the protection of genetic resources. Since then, especially *ex situ* conservation efforts have been extended and numerous collections emerged as result of the process. Unfortunately, the organisation “Groupement PAGE PACA“, very active in the 1980s, dissolved. Their collections were integrated into other already existing ones.

Situation

During the last 10 years, genetic erosion has proceeded. This development concerns the Alpine region as well as the other regions. Vegetables and vines are most affected.

In France, numerous conservation initiatives exist which are supported both by private and public institutions. Fruit trees enjoy most of the attention. The BRG - Bureau de Ressources Génétiques (Office for Genetic Resources) – has taken over the task of coordinating conservation activities. Conservation measures in the French Alpine region are to the largest part coordinated by the ‘Conservatoire botanique alpin de Gap-Charance’. Until now, no network exists which nation-wide coordinates the NGOs conservation work. NGOs are little known in the whole of France and cooperation with public institutions is only marginal. Besides, many of these organisations fight for their own survival.

In France, many hurdles still exist for the circulation of local varieties. Vegetables, which are most acutely endangered of all cultivated plants, have to be listed in the official catalogue. Until now, only few efforts were made to compare unofficial varieties. Only during the most recent past, evaluation work has received more attention.

Outlook

Because of economic pressure, many farmers are forced to replace old varieties by modern varieties. This tendency is not likely to change in the future. Therefore, especially home gardens which are not exposed to economic pressure are important for the conservation of old cultivated plants. Besides, consumers’ demands for products from old cultivated plants are growing. Here, chances stand good to promote the old varieties by marketing their products.

In the sector of organic agriculture, an encouraging tendency is to be noticed: old cultivated plants are increasingly used.

Need for action

General:

In France, the political side needs more sensitisation for the topic of agricultural genetic resources. It is urgently required to loosen the Seed Decree, which has up to date obstructed the marketing of local varieties. A network uniting the actors does not exist at present in France. It is urgently necessary to increasingly integrate the NGOs into conservation work and to coordinate their activities with public conservation activities. Furthermore, a network should urgently be created which connects all actors. It would be desirable that the public side takes more notice of the NGOs and supports them financially. A cooperation between university institutions and private persons committed to the conservation of cultivated plants is imperatively required.

Need for action for different groups of cultivated plants:

- Fruit:

In the area of fruit, it is necessary to revive the overaged fruit tree plantations and to hand over cuttings to existing collections. In the departments Drôme and Var, inventories in

cultural gardens should be taken. A systematic collection tour for nuts is urgently required in the French Alps. Furthermore, monocultures of walnuts are to be replaced by mixed cultures in order to reduce the risk of epidemics.

- Vines:

The need for action is reduced as these are nearly exclusively conserved in public collections, but barely by private persons.

However, it is required to set up variety gardens for vines from the Alpine region. The integration of private persons into conservation activities is also necessary.

- Vegetables:

Inventories and collection tours in the Alps should be taken up again. Furthermore, a loosening of the Seed Decree would facilitate the marketing of local vegetable varieties. Local vegetable and cereal varieties could additionally be promoted by specific marketing strategies. The documentation and evaluation of local varieties should have absolute priority in the future.

2.2.2. Italy

Retrospect

The need for action has not changed considerably during the 1990s. Now as ever, it is immense. Only in the area of fruit conservation, some competent actors have emerged, e.g. in the region of Piedmont. Lacking support for private efforts has in the past been the reason that initiatives came to nothing.

Situation

Numerous private initiative exist, which, however, deal mostly with individual plant species and specific areas. According to region and species, efforts are often insufficient. Governmental activities concentrate mainly on *ex situ* conservation.

As governmental bodies receive the main support at present, the quality of conservation work depends immediately on the political and economic situation. The situation might therefore change dramatically from one day to the other.

The implementation of the National Plan for Action focuses mainly on taking inventories of the existing governmental collections. Private actors do not receive any governmental support.

Outlook

A change of the current situation from the governmental side is not visible in the near future. The private network 'Rete Semi Rurali' (Rete per la Conservazione Rurale delle Razze e Varietà Locali) wishes to extend its conservation efforts and the national coordination during the next years. The group will have a hard time as necessary support is insufficient.

Need for action

General:

The need for action is great for all species of cultivated plants. Both the active search for old varieties of vegetables, pulses and chestnuts and *in situ* conservation are classified as priority.

Concrete conservation projects based on *in situ* conservation are missing. The specific set-up of private organisations for species and regions with large need for action is indispensable for any successful conservation work in Italy. Private actors should be included into the implementation of the national plant of action. The protection of governmental collections should urgently be improved.

Need for action for the single groups of cultivated plants:

- Fruit and further fruit varieties:
Although the fruit tree genus *Malus*, *Pyrus* and *Prunus* were subject to relatively intensive conservation activities when compared to others, the need for action is not covered. Further fruit species were only marginally subject to collection activities. Collection tours are of utmost importance.
- Citrus fruit:
There is an urgent need to secure the caretaking and conservation of existing collections in citrus gardens (so-called Limonaies). Such efforts are presently only made for the 'Limonaia di Gargano'.
- Chestnuts:
Despite the fact that a few chestnut collections have been set up, large gaps do remain. At present, only some actors are actively searching for old varieties. In the Northern Italian regions, an overall search should urgently be initiated.
- Olives:
In suitable locations, the cultivation of olives reached a certain importance in the Alpine regions, too. However, no concrete conservation efforts are made in the respective regions. Therefore, the elaboration of a conservation concept has become an urgent matter. Conservation activities of both the private and the governmental organisations are unsatisfactory.
- Walnut and hazelnut:
There are some larger collections run by the governmental side. However, the search for old breeds has to be continued with urgency.
- Vines:
A search for old wall vine varieties should especially be conducted in remote Alpine regions.
- Vegetables (incl. pulses):
The need for action concerning vegetables in the Italian Alpine region is huge. Conservation efforts are very poor! The need for action is not covered in the entire Alpine region.
- Cereals:
The collection of old varieties has only been sufficiently covered for wheat and maize. An active search is necessary for all other cereal species. However, it will be too late for most varieties.
- Medicinal plants, spice plants, ornamental plants:
An enormous need for action does exist with regard to their conservation. The collection of the governmental IRSA-Institutes shows big gaps – merely 26 collections do exist.

2.2.3. Switzerland

Retrospect

Gaps in conservation work (for example an overall stock-taking of Swiss fruit varieties) were found out in the 1990s and subject to specific measures. The dialogue between actors was strengthened. Thus, an urgently needed definition of positions and differentiation between actors was made possible. The coordination and cooperation between private and governmental bodies has clearly improved.

Situation

The need for action is well covered by the private organisations Pro Specie Rara and Fructus, both active at the national level. The public side guarantees especially *ex situ* conservation. In Switzerland, the implementation of the National Action Plan integrates private organisations in a singular way when compared to other Alpine countries. The coordination between the different actors is secured by the SKEK (Swiss Commission for the Conservation of Cultivated Plants), founded in 1991.

First attempts to take old varieties out of gene banks and variety gardens are presently made by Pro Specie Rara and the Society for Alpine Cultivated Plants (Verein für alpine Kulturpflanzen).

Outlook

Conservation work in the Alpine region will be stimulated by the set-up of variety gardens. Well directed search for disappeared vegetable varieties will in future be made possible by the 'Historical Inventory for Swiss Cultivated Plants'. The inventory is presently being drawn up by the Monitoring Institute.

Need for action

General:

The efforts to get old varieties out of gene banks and variety gardens, to cultivate them in a larger extent and to offer them at the market are still in their infancy. In the first line, suitable marketing concepts are needed, e.g. product promotion by labels.

In order to be able to guarantee the conservation of Plant Genetic Resources in the long term, the activities of private organisations have to be integrated into a national concept on a long-term basis and to be acknowledged. Especially in the canton Ticino, gaps exist.

Need for action for individual groups of cultivated plants:

- Fruit:
On the surface, arboreta are missing which specifically accommodate varieties from higher altitudes.
- Nuts:
Stock taking of walnuts has reached an advanced level only in Western Switzerland. Almonds had a certain tradition in the Valais and Ticino. There, search for old varieties should be conducted. The conservation of hazel nut varieties received no attention to

date. An inventory should be taken in the whole of Switzerland. Old hazel hedges might house rare varieties.

- Chestnuts:

Inventories are completely missing for the cantons Vaud and Valais. Central Switzerland is covered only insufficiently.

- Vines:

It can be assumed, especially for wall vines, that old varieties may still be found. Stock taking, especially in remote valleys, would be worth the effort.

- Vegetables, pulses and potatoes:

Stock taking and setting up variety gardens is deficient or missing for the entire Alpine region.

- Cereals:

The search for buckwheat, foxtail millet and common millet might be worth the effort in the canton of Ticino and the Grisons (Puschlav and Misox). With regard to dinkel, Switzerland might miss the boat! Governmental dinkel programs were given up. The conservation of the genetic variation of dinkel is threatened.

- Olives: There is an urgent need for action to search for olive varieties in Ticino and to conserve the so-called olivettos.

2.2.4. Liechtenstein

Retrospect

During the 1990s, no efforts were made to conserve the still existing genetic resources. It therefore has to be assumed that a part of the varieties (especially fruit and vines) was thus lost.

Situation

Only the Rheintaler Ribelmais varieties receive a certain protection through the efforts of the association 'Rheintaler Ribelmais'.

Outlook

In 2001, the Board of Agriculture has initiated the project 'Genetic variety of cultivated plants in Liechtenstein'. Within the frame of this project, inventories are to be taken. The first results of the project are expected in 2002.

Need for action

General:

It is very important to take an inventory of old cultivated plants in Liechtenstein. Practical conservation measures for genetic resources should be integrated into the current project "Genetic Diversity of Cultivated Plants in Liechtenstein" as soon as possible.

Need for action for the individual groups of cultivated plants:

- Fruit:

Need for action concerning stock-taking and conservation of Liechtenstein fruit varieties is urgent. Governmental support is indispensable in this context.

- Vines:
The spectrum of Liechtenstein varieties and the old and small viniculture areas should urgently be screened for possible local varieties.
- Garden and field plants:
Direct need for action cannot be defined as purely Liechtenstein varieties never existed.
- Ribelmais:
The need for action is taken care of by Swiss organisations. Conservation measures should urgently be supported by the Liechtenstein side, too.

2.2.5. Germany

Retrospect

The Bavarian Alpine region has been neglected for a long time by official quarters. Only in the latest future, the attention has been directed to this region. It is difficult to demarcate the Alpine region from neighbouring areas. The spreading of cultivated plants took place across borders, many transitions to neighbouring regions are found. Especially cereals were collected systematically in the Alpine region.

In the area of fruit, many local varieties are still existent despite the high losses caused by climatic conditions. During the last years, a number of stocks has been secured. The chance to find more old varieties is low for other cultivated plants. However, the example of the Bavarian turnip shows that it is still possible to discover local breeds. Still, not many salvage collections have been carried out for horticultural plants.

The plant breeding organisations have recognised the value the indigenous adapted plants represent with regard to breeding. It is encouraging to find many breeding enterprises involved in the breeding of locally adapted seed.

Situation

Especially in the higher altitudes of the Bavarian Alps, field crops are suffering from fast genetic erosion. Horticultural crops are less affected. Field crop cultivation has since long been replaced by grassland farming. In gene banks, cereals form the largest part of the assortment. Three different gene banks (Braunschweig, Gatersleben and Tyrol/Austria) keep samples.

Other species such as e.g. legumes have been recorded, too. Vegetables, medicinal plants and herbs have to date never been collected systematically. Medicinal plants and herbs are still grown in many house and farm gardens. The situation for vegetables does not look better. No broadly laid out collecting activities have been conducted until now, as vegetables are not focused on by German gene banks.

The conservation of old cultivated plants has so far not been taken over by any institution or private organisation. Some conservation initiatives exist for individual plant groups.

Conservation activities for fruit are the most advanced ones, the conservation of most species and varieties seems secured.

Outlook

In more recent times, a new conscience for the *in situ* conservation of individual cultivated plants has developed. After the storm “Lothar”, an increased interest has been signalled by foresters to recolonise wild fruit which do not only deliver fruits but which are also valued because of their wood. *In situ* conservation is also recorded in the grassland belt. This type of conservation seems most useful for forage plants. In addition to that, the trade with local cultivated plants is supported by the governmental side. Quality and origin labels are used to promote local trade activities.

It is planned to unite both German gene banks, the future institution will be well equipped in personal as well as financial respect. Altogether, a tightening of activities and qualitative improvements in the area of collection management are planned for the next years in the field of *ex situ* conservation.

Need for action

General:

The legal framework of the Seed Traffic Act obstructs activities for an overall on farm conservation. It urgently requires revision.

Need for action for different groups of cultivated plants:

- Fruit:

In the Bavarian Alpine region, fruit receive most of the conservation efforts. The main attention is dedicated to the economically important apples, pears, plums and cherries. The situation is different for fruit planted for personal needs. It is necessary to integrate those representatives in conservation activities.

- Vegetables:

In the area of vegetables, there is an urgent need for action to conduct salvage collections in house and farm gardens. The valleys of the Central Alps and the Alpine upland should be included. Specific search tours should be carried out by means of search lists basing on historical data. An inventory of formerly cultivated plants could facilitate the search for old vegetable varieties. Today, no collection for vegetables from the Alpine region exists. The existing collections urgently need to be extended and complemented with variety gardens and on farm management. On farm conservation of vegetables is at present mainly carried out by private and non-governmental organisations. These organisations should be supported with the necessary funds and an intensified cooperation with public bodies.

- Potatoes:

Potatoes, too, were never subject to broad collection activities in the Alpine region. A specific salvage collection in the valleys of the Central Alps and in other remote areas in Bavaria would certainly be worth the effort. It is also necessary to set up variety gardens for potatoes.

2.2.6. Austria

Retrospect

Austria has already recognised the necessity to conserve old cultivated plants at the beginning of the 20th century and taken respective measures. Mountain farming was and still is an important branch of Austrian agriculture. Thus, the Alpine region was subject to specific collection activities.

Situation

Conservation measures have reached a very high standard in the Alpine region. In Austria, 5 federal and regional agencies maintain independently set up *ex situ* variety collections (gene banks). In 1992, the “Index Seminum Austriae” was elaborated as a first common paper on Austrian variety collections. It is today accessible to the public on a common platform in the Internet. The joint work is exemplary and singular in Alpine countries. The individual institutions have set up priorities for their collection activities. Main focus has up to date been laid on *ex situ* conservation. *In situ* conservation has reached a very high standard through the work of the private organisation “Arche Noah”. Old varieties (i. a. gardening plants) are being cultivated and propagated in a central variety garden close to Schiltern, and also decentralised by numerous active gardeners.

Outlook

The conservation of old breeds by the 5 governmental gene banks and “Arche Noah” is secured for the time being. The gene banks, whose collection activities focus very specifically on certain breeds, are planning conservation measures in different areas for the future.

Need for action

General:

The conservation of the existing collections is very important. It is, however, endangered by staff shortage. It is therefore necessary to continue documentation, characterisation and evaluation of varieties by additional staff. Well directed collection tours should be conducted with search lists based on historical data. It would be very valuable for the completion of the Index Seminum Austriae if Arche Noah as additional partner could contribute its data.

Need for action for the individual groups of cultivated plants:

- Fruit:
In the area of fruit, especially pome fruit were collected in Upper and Lower Austria and in Styria. Need for action exists with regard to collection activities in other states and for the systematic collection of stone fruit, nuts, berries and rare fruit which have up to date been neglected.
- Vines:
Only few investigations were made with regard to the conservation of old vine varieties. Need for action does also exist for investigations concerning the to date neglected fruit and for collection tours outside Styria.

- **Vegetables:**
Need for action is considerable for vegetables. A historical inventory of cultivated plants could be of use for well directed collection tours, as a large part of vegetables formerly cultivated in Austria is already lost. It is also necessary to set up variety gardens. The governmental side should support vegetable breeding in order to put locally adapted vegetables increasingly back into circulation.
Collection of pulses was mainly carried out in Styria and Burgenland. Need for action exists for collection tours in the other Federal states.
- **Cereals:**
Cereals were collected to a satisfactory extent by the gene banks. It has to be assumed that, especially in the mountainous region, wheat, rye and emmer can still be found. Useful on farm cultivation as a means of promoting old cereal varieties could be furthermore supported by marketing rare cereal varieties and special bread, cakes and pastries.
- **Medicinal plants, spices and forage plants:**
In the area of medicinal plants, future collection tours should increasingly keep an eye on spice plants and tea plants. A collection tour for forage plants does not seem urgent at present, as other questions have to be clarified before, such as e.g. the extent of gene flow between modern cultivars and local varieties.

2.2.7. Slovenia

Retrospect

In Slovenia, the conditions for agriculture have considerably altered since the introduction of a market economy. The political aim to become a member of the EU adds to the aggravation of the situation. The need for action in Slovenia has increased since the publication of the last Alp study. As before conservation work is institutionalised in 3 public institutes.

Situation

The genetic erosion of local breeds in Slovenia is alarming. Only a few local varieties are still conserved by local farmers, the knowledge about the subject is disappearing. Mainly 3 public institutions are responsible for the conservation of old cultivated plants in Slovenia. Their focus is on *ex situ* conservation. However, storage conditions do not meet modern requirements. Usability and utilisation possibilities are given special emphasis in collection activities. Private persons and NGO's are only poorly integrated. Information on the conservation situation are very hard to obtain. On farm conservation is only practised in the organic or biodynamic agricultural sector. Many farmers linked up to a network via their respective federations.

Outlook

It has to be reckoned with a further proceeding gene erosion and with the introduction of foreign varieties. It is thus very urgent, especially in Slovenia, to initiate respective conservation measures.

Need for action

A very big need for action exists for entire Slovenia, not only the Alpine region, in the area of plant genetic resources. It is urgently required to integrate private persons and NGO's into conservation work. All actors working for the protection of cultivated plants should be more efficiently connected in a network and cooperation between them should be intensified. More efforts in conservation work as well as creation of awareness are absolutely needed. Political

decision-makers should be better informed about and sensitised for the subject. The largest problem obstructing the implementation of conserving genetic resources is the lack of financial means. Here and also with regard to the cooperation, Slovenia depends strongly on the support of foreign countries.

Certain plant groups were recorded very well during collection tours, e.g. forage plants (grass and grass-clover), buckwheat, certain cereals, beans, cabbage, apples, dessert pears, and vines. Not all areas of the Alpine region were included. These left-out regions should have unconditional priority during the next annual collection tour. Tours should focus on the respective above mentioned plant groups.

2.3. Animal Genetic Resources: Results summarised according to countries

2.3.1. France

Comparison with and retrospect to the 1993 study

The situation for breeds in the Alpine region has deteriorated during the last years. The dissolution of the groupings 'PAGE PACA' and 'Association GEYSER' in the region of Paca has left a gap. In the region Rhône-Alpes, regional attempts are still missing.

In the present study, the following changes with respect to the portrayed breeds in the first Alp study (1995) have been found:

Risk status:

- Cattle: The Swiss stock of the breed French Herens (*Hérens*) has increased. The risk status for the breed 'Villard de Lans' has not changed (it keeps on being classified as 'Endangered').
- Goats: The situation for the breeds *Alpine Polychrome* and for the pure-bred Provençal (*Provençale*) has deteriorated. For that, both must be put into the risk status 'Critical'. The situation for the *Chèvre de la Roya* remains unclear, presumably, the breed can not be saved any more.
- Sheep: The situation of the Brigasca (*Brigasque*) sheep deteriorated – they are not classified as 'Vulnerable' any more but as 'Endangered'. However, Brigasca (*Brigasque*) sheep are also kept in Italy. The type 'Mouton Noir de Fumex' of the breed Thones-Mathod (*Thônes et Marthod*) which was not mentioned in the first study is classified as 'Critical'.
- Donkeys: The situation of the 'Âne gris de Provence' has slightly improved, it now has the risk status 'Endangered' and not 'Critical'.
- Dogs: the situation for the dog breed 'Berger de Savoie' remains crucial.

Additionally breeds portrayed:

- The dog breeds 'Patous des Pyrénées' and 'Berger de Crau' are described for the first time, both having a certain importance for the French Alpine region. The situation is classified as crucial for both of them.

Situation

Conservation in France is to a great extent linked to governmental bodies (Institut de l'Elevage) and thus dependent on political decisions. From the governmental side, different conservation programmes are available for cattle and horse breeds. Goat, sheep and dog breeds are insufficiently supported on the other hand. For breeds from the French Alpine region, virtually no conservation projects were implemented in the last years. In France, private conservation efforts exist only for individual breeds – in the Alpine region for 6 of 15 endangered breeds. There is no national organisation at the private level which currently takes care of the conservation of endangered French breeds.

Outlook

A change of the current situation does not appear likely in the near future..

Need for action

General:

The set-up of private conservation efforts and networking of the same ones is to be striven for and to be supported. The elaboration of a conservation concept for goats, sheep and dogs should be started in the coming years.

Breeds and types with acute need for action:

- Goats: *Alpine Polychrome*, *Chèvre de la Roya*
- Sheep: Brigasca (*Brigasque*), French Alpine (*Commune des Alpes*) (pure-bred animals), *Mouton Noir de Fumex* (type of the breed Thones-Marthod (Thônes et Marthod))
- Dogs: *Berger de Savoie*, *Patous des Pyrénées*, *Berger de Crau*

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Goat	Chèvre de la Roya	?	?	-
Goat	<i>Alpine Polychrome</i>	Ca. 100f/m OP (2000)	?	-
Goat	Provençal / <i>Provencale</i>	Ca. 100f/m OP (1999)	↑	+
Sheep	Mouton Noir de Fumex	?	?	-
Dog	<i>Berger de Crau</i>	?	?	-
Dog	<i>Berger de Savoie</i>	?	?	+
Dog	<i>Patous des Pyrénées</i>	?	?	+

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Cattle	French Herens / <i>Hérens</i>	591f/m OP (1999)	↑	-
Cattle	Villard de Lans	593f/m OP (1999)	↑	++
Cattle	Brigasca / <i>Brigasque</i>	646f/m OP (1999)	↓	+
Donkey	Âne gris de Provence	112f OP (1999)	↑	++

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.3.2. Italy

Comparison and Retrospect to the first Alp study

As already emphasised in the first Alp study, non-governmental organisations are still missing in Italy. The conservation work of governmental bodies is today still strongly dependent on economic trends and politics.

Comparison of the present study with the first Alp study of 1995:

- Cattle: The breed Red Mountain (*Montana*) is additionally being portrayed. The breed Grey Adige (*Grigia di Val d'Adige*) is meanwhile regarded as extinct. The breeds Evolene (*Evolenarde*) and French Herens (*Hérens*) (conserved in Switzerland) are not mentioned any more. In fact, small stocks are kept in the Valley of Aosta, however, these are neither pure-bred nor looked after by any breeding association. The risk status for the breeds Oropa (*Pezzata Rosso d'Oropa*) (new: Vulnerable) and Rendena (*Rendena*) (new: Rare) has been redefined.
- Sheep: The breeds *Plezzana*, *Rosset* and *Merinizzata Italiana* are additionally being portrayed. The breeds *Ciuta*, Friuli (*Friuliana*) and *Livo* are meanwhile regarded as extinct. The names *Pusterese* and *Val Badia* are synonyms. For 6 breeds/types, the risk status has improved (*Frabosa* (*Frabosana*), *Lamon*, *Tacola*, *Villnösser*, *Pusterese*, *Varese* (*Varesina*)) and for two further breeds, it has deteriorated (*Di Corteno*, *Saltasassi*).
- Goats: The breeds *Verzasca* (*Verzaschese*) and *Passeier Gebirgsziege* have additionally been portrayed. The breeds *Valdostana*, *Grigio Alpina* and *Tibetana* are not listed any more because no unambiguous indications of occurrence could be established. Meanwhile, the breed '*Locale di Corna*' is regarded as extinct. A population of more than 1000 animals of the *Livo*, described as presumably extinct, was discovered. The situation of the breed *Bionda dell'Adamello* has been clarified.
- Horses: The breed *Sella Italiano* is additionally described. The situation of the Noric (*Norico*) horses has improved (new: Endangered), that of the Hafling (*Haflinger*) in Italy deteriorated (new: Rare). The Samolaca (*Samolaco*) must presumably be considered as extinct since no pure-bred stallions are available any more.
- Poultry: 6 poultry breeds are portrayed for the first time in this study – 3 of those are put into the risk status 'Critical' !

Situation

The promotion of endangered breeds and the implementation of the Nation Plan of Action is carried out only at the governmental level. At present, private breeder organisations are not supported by the governmental side. A national coordination of private actors is lacking. Breeds which are listed in the 'anagraphical register animal populations with limited population size' often show decreasing population numbers.

The situation of sheep breeds in the Alpine region is very diffuse. An unclear abundance of local types and varieties exists. Need for action is especially not covered for those sheep and goat populations which are neither officially acknowledged nor contained in the register for endangered autochthone sheep and goat populations.

Outlook

Riccardo Fortina of WWF Piemonte intends to built up a national coordination for conservationists of endangered breeds, the organisation "R.A.R.E. (Razze Autoctona a Rischio di Estinzione)". Relief with foreign know-how is planned (promised by SAVE Foundation).

Need for action

General:

Concrete conservation projects must urgently be set up. For breeds which are neither officially recognised nor contained in one of the anagraphical registers, the situation has urgently to be clarified. A best, a concrete promotion should take place. The set up of further private organisations should be supported in future.

The need for action is especially acute for the following populations and breeds:

- Cattle breeds: Red Mountain (*Montana, Tortonese*)
- Sheep breeds: *Bellunese, Garessina, Plezzana*, Steinschaf
- Goat breeds: *Bormina, Livo, Sempione*
- Horses: Samolaca (*Samolaco*)
- Chicken: *Bianca di Saluzzo, Bionda Piemonese, Millefiori*
- Dogs: *Pastore Bergamasca*

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Red Mountain / <i>Montana, Tortonese</i>	31w HB (1999)	↓	+
Sheep	Ciavenasca	Extinct?	?	-
Sheep	Bellunese	130f/m OP (2000)	↑	+
Sheep	Brianzola	150f/m OP (2001)	↑	++
Sheep	Garessina	80f/m OP (1998)	→	+
Sheep	Plezzana	40-50f/m OP (2000)	?	+
Sheep	Rosset	Several animals (1998)	?	+
Sheep	Saltasassi	3? f/m OP (1998)	↓	(+)
Sheep	Savoy / <i>Savoirda</i>	65f/m OP (1998)	→	+
Sheep	<i>Steinschaf</i>	40f/m OP (1993)	?	-
Goat	Bormina	Few animals (2001)	↓	-
Goat	Istrian/ <i>Istriana</i>	<100f/m OP (1998)	→	-
Goat	Sempione	10-15f/m OP (2000)	↓	-
Horse	Samolaca / <i>Samolaco</i>	Few mares (2000)	↓	-
Chicken	Bianca di Saluzzo	<100f/m OP (2001)	↑	(+)
Chicken	<i>Bionda Piemontese</i>	<100f/m OP (2001)	?	(+)
Chicken	<i>Millefiori</i>	<100f/m OP (2001)	?	(+)
Dog	<i>Bergamasca</i>	>100 (1992)	?	+
Rabbit	Grigio di Carmagnola	70f (1999) – OP?	?	(+)

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Burlina	209f HB (1999)	→	+
Cattle	Pusteria / <i>Pustertaler Sprinzen</i>	128w OP (2000)	↑	++
Sheep	Alpago / <i>Alpagota</i>	1400f/m OP (1998)	→	+
Sheep	Broгна	1200f/m OP (2000)	↓	+
Sheep	Corteno	500f/m OP (2000)	↓	+
Sheep	Istrian / Istriana	300f/m OP (2000)	↑	+
Sheep	Lamon	<400f/m OP (2000)	↓	+
Sheep	Pusterese	250f/m OP (1998)	↓	-
Sheep	Tacola	633f/m HB (1998)	↑	++
Sheep	Sampeirina	<500f/m OP (1998)	→	-
Sheep	Val Senales / <i>Val d'Ultimo</i>	970f/m HB (1998)	↑	++
Sheep	Villnösser	900f/m HB (2000)	↑	++
Goat	Roccaverano	630f/m OP (1998)	↑	++
Goat	Vallesana	200f/m OP (2000)	→	+
Horse	Noric / Norico	142f HB (2000)	↑	++
Chicken	Padovana	<1000f/m OP (1994)	→	+
Chicken	<i>Polverara-Schiatta</i>	<1000f/m OP (1994)	↑	+

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.3.3. Switzerland

Comparison and Retrospect to the first Alp study

Unlike the beginning of the 90s, work is honoured today by private organisations and keeping old breeds is financially supported. An important aim was reached by the official acknowledgement of the endangered breeds. Out of some conservation projects realised by Pro Specie Rara, own breeding organisations developed.

In comparison to the first Alp study from 1995, the situation has changed as follows:

Breeds additionally portrayed:

- *Capra Grigia*: Conservation activities were started only in the 1990s.
- Skudde (*Skudden*) : This heavily endangered breed is lately also conserved in Switzerland.
- Original Freiberg (*Original Freiburger Pferde*): In this study the ,*Original Freiburger Pferde*' are separately portrayed besides the ,*Freiberger Pferde*' .

Not considered as an individual breed:

- White Swiss Improved (*Zürcherziege*): Is no longer listed as individual breed, belongs today to the Saanen (*Saannenziege*), as it shows close to 100% Saanen blood.

Extinct sheep breeds:

- *Luzeiner Schaf*: The few remaining animals can today only be conserved within the Spiegel (*Spiegelschafe*).
- *Roux de Bagnes*: Proved to be extinct as already assumed in the first Alp study.

The situation concerning the risk status changed as follows:

- Cattle: The breeds Raetian Grey (*Rätisches Grauvieh*) and Hinterwald (*Hinterwälder*) are newly put into the status 'Vulnerable' (both formerly 'Endangered'). The situation of the Original Brown Cattle (*Original Braunvieh*) has deteriorated (formerly not endangered), it is today being classified as 'Rare'.
- Sheep: The Engadine Red (*Fuchsfarbiges Engadiner Schaf*) is not classified any more as 'Endangered'. Its situation has improved, it is today put into the status 'Vulnerable'. For the remaining 3 acknowledged endangered breeds, the risk status has not changed. The situation of the *Elbschafe* remains unclear.
- Goats: The Peacock Goat (*Pfauenziege*) is no more classified as, 'Critical' but as 'Endangered'. A deterioration of the situation resulted for the Valais Blackneck (*Walliser Ziegen*), they are today classified as 'Endangered' (beginning of the 90s: Vulnerable).

Situation

The state of conservation efforts has advanced very far in Switzerland. The need for action in Switzerland is taken care of sufficiently, both at the national and the private level, with some exceptions (see below). An own breeding organisations exists for most breeds which explicitly looks after their conservation. At the private level, the organisation Pro Specie Rara is active in the field of conserving endangered livestock breeds. All endangered breeds which are connected to the breeders association of Pro Specie Rara are acknowledged officially today by the Federal government as being endangered.

The governmental side supports the conservation activities of breeders and breeders' associations financially.

Outlook

Within the frame of the National Plan of Action, specific measures are planned for especially endangered breeds.

Need for action

General:

Due to an urgently needed international cooperation for the conservation of endangered livestock breeds, endangered foreign breeds (*Hinterwald (Hinterwälder Rind)*, *Mangalitsa (Wollschweine)*, *Skudde (Skuddenschafe)* and Grey Cattle (*Grauvieh*) with a population in Switzerland should profit from Swiss support measures. This goes especially for the Grey Cattle, which was indigenous in Switzerland and had survived directly behind the border.

Breeds with acute need for action:

Capra Grigia, Original Freiberg (*Original Freiburger Pferde*), *Elbschaf*, *Spitzhauben* and *Zwergschweizerhuhn*.

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Evolene (<i>Evolenarde</i>)	117f/m HB (2000)	↑	+
Sheep	Elbschaf	?	?	-
Goat	Capra Grigia	app. 100f/m OP (2001)	?	++
Chicken	<i>Spitzhauben / Appenzeller Spitzhauben</i>	179f OP (2000)	?	++

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Sheep	Bündner Oberland / <i>Bündner Oberländer Schaf</i>	394f HB (2000)	↑	++
Sheep	Skudde / <i>Skudden Schaf</i>	430f HB (2000)	↑	++
Sheep	Spiegel / <i>Spiegelschaf</i>	650f HB (2000)	↑	++
Sheep	Valais Red / <i>Walliser Landschaft</i>	328f HB (2000)	↑	++
Goat	Appenzell / <i>Appenzellerziege</i>	828f HB (2001)	↑	++
Goat	Grisons Striped / <i>Bündner Strahlenziege</i>	931f HB (2001)	↑	++
Goat	Peacock Goat / <i>Pfauenziege</i>	502f HB (2001)	↑	++
Goat	Booted goat / <i>Stiefelgeiss</i>	429f HB (2001)	↑	++
Goat	Valais Blackneck / <i>Walliser Schwarzhals Ziege</i>	502f HB (2001)	↑	++
Horse	Original Freiberg / Original Freiburger	300f OP (1999)	↓	+
Horse	Hafling / Haflinger	506f HB (1999)	↓	+
Dog	Bernese Mountain / Dog Berner Sennenhund	<5000f/m OP (2000)	?	++
Dog	St. Bernhard / <i>Bernhardiner</i>	800f/m OP (2100)	↓	++
Dog	Entlebuch Mountain Dog/ Entlebucher Sennenhund	Several hundred animals (2001)	↑	++
Dog	Large Swiss Mountain Dog/ <i>Grosser Schweizer Sennenhund</i>	500f/m OP (1999)	↑	++
Pig	Swallow-bellied Mangalitsa /	243f HB (2000)	→	++

	<i>Schwalbenbäuchiges Wollschwein</i>			
Chicken	Appenzeller Barthuhn	308w OP (2000)	↑	++
Chicken	Schweizerhuhn	261w OP (2000)	↑	++
Chicken	<i>Zwergschweizerhuhn</i>	?	→	-

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.3.4. Liechtenstein

Comparison and retrospect to the first Alp study

The situation in Liechtenstein did not change in comparison to the first Alp study. A participation in the conservation of breeds from the Greater Rhine Valley ('Swiss Breeds') is not included.

Situation

None of the still known livestock breeds originated in Liechtenstein. Swiss or international breeds are kept exclusively. Animal breeding is strongly orientated on the Swiss development. Funding for keepers of endangered Swiss breeds is not allocated.

Outlook

A change of the current situation does not show in the near future.

Need for action

The need for action for Swiss breeds is covered by Switzerland. It is, however, necessary that Liechtenstein participates in conservation programmes for breeds from the Greater Rhine valley. A participation in the conservation of the Booted Goat (*Stiefelgeiss*) and the Spiegel (*Spiegelschaf*) should be started as fast as possible, within the frame of the ratification of the Rio Convention on Biological Diversity.

2.3.5. Germany

Retrospect

In the 1990s, one of the most important steps in Germany was that data on endangered livestock breeds were made publicly accessible. Within the project TGRDEU – Development of the Central Documentation of Animal Genetic Resources in Germany – the available data were summarised and made available for consulting and coordination measures. The Bavaria free state built up gene reserve herds of selected breeds in the 1990s.

In the present study, no changes with respect to the portrayed breeds in the first Alp study (1995) have been found. The situation concerning the risk status changed as follows:

- Of the 4 portrayed cattle breeds, 3 are still classified as 'Critical' and one as 'Endangered'. Stock numbers, however, have slightly improved in comparison with 1993.
- All of the 5 old sheep breeds had to list increasing stock numbers, too. In the first Alp study 4 were classified as 'Critical' and one as 'Endangered'. Today only two have to be put in the stage 'Critical', further two apply to the stage 'Endangered' and one is classified as 'Vulnerable'.
- The Carinthian bee which was classified as not being endangered in the first study is today threatened in its pure-bred stock by the Buckfast bee.

Situation

The need for action in Germany is attended to to a large extent both by private and national organisations. The financial support in the Alpine region is guaranteed by the Federal state of Bavaria. On private level, the GEH - society for the conservation of old and endangered livestock breeds – supports endangered livestock breeds. For most breeds, an own breeding organisation exists which explicitly looks after their conservation.

Outlook

The implementation of the national plan of action will take place on the basis of the 'National Special Program Animal Genetic Resources'. The program is supposed to be drawn up until March 2002.

Need for action

General:

The state of conservation efforts has advanced very far in Germany, the need for action is generally being attended to.

Breeds with acute action requirement:

For the cattle breeds Murnau-Werdenfels (*Murnau-Werdenfelser*) and Pinzgau Old Type' (*Pinzgauer alter Zuchtrichtung*) a well-directed support of the breeding of pure-bred animals is urgently needed.

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Pusteria / Pustertaler <i>Schecken</i>	123 f/m OP (2000)	↑	++
Sheep	Alpine (<i>Alpines</i>) Steinschaf	117f/m OP (2000)	↑	++
Sheep	Bovec Sheep / <i>Krainer</i> Steinschaf	65f/m OP (2000)	↑	++

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Murnau-Werdenfels / <i>Murnau-Werdenfelser</i>	<550f/m OP (2001)	↓	+
Cattle	Original German Brown Cattle / <i>Orig. Dt. Braunvieh</i>	559f/m OP (1999)	↑	++
Cattle	Pinzgau Old Type / <i>Pinzgauer</i> <i>Rind - alte Zuchtrichtung</i>	2800f/m OP (1999)	→	+
Sheep	Carinthian / <i>Kärntner</i> <i>Brillenschaf</i>	348w HB (2000)	↑	++
Sheep	Waldschaf	app. 800f/m OP (2000)	↑	++
Pigeon	Bohemian Pigeon <i>/Böhmentauben</i>	800f/m Op (1993)	?	++

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.3.6. Austria

Comparison and Retrospect to the first Alp study

The financial situation of the conservation of endangered breeds has improved. Because a breed receives only governmental support when being represented by a breeders association, the situation has clarified during the last years in Austria.

Compared to the first Alp study in 1995, the situation has changed as follows:

Breeds additionally portrayed:

- Cattle: Pusteria (*Pustertaler Schecken*) (breeding group existing since 1998)
- Pigs: Turopolje (*Turopolje Schweine*) (Croatian Breed)
- Sheep: Alpine (*Alpines*) Steinschaf, *Original* Steinschaf, Zackel (Ungarisches Zackelschaf)
- Goats: *Salzburger Strahlenziege*, *Vierhornziege*, *Steirische Scheckenziege*, Peacock Goat (*Pfauenziege*).

Risk status:

- Cattle: The status has improved for 5 cattle breeds: Carinthian Blond (*Kärntner Blondvieh*), Murboden (*Murbodner Rind*), pure-bred Pinzgau (reingezüchtete Pinzgauer), Waldviertel (*Waldviertler Blondvieh*), Tux-Zillertal (*Tuxer-Zillertaler*).
- Horses: Lipitsa (*Lippizaner*) horses are newly classified 'Critical' (formerly: 'Endangered'), Hafling (*Haflinger*) are classified currently as 'Rare' (formerly: 'Vulnerable').
- Sheep: The risk status has improved for 4 sheep breeds Bovec Sheep /*Krainer* Steinschaf, *Waldschaf*, Carinthian (*Kärntner Brillenschaf*), Tirolyan (*Tiroler* Steinschaf).
- Goats: The status of the Pinzgau (*Pinzgauer Ziege*) and the *Scheckige Tauernziege* has improved from 'Critical' to 'Endangered'.
- Chicken: The status of the *Sulmtaler* and the *Wildfarbigen Altsteirer* has improved.
- The situation of dogs, pigeons and rabbits has been rolled up again.

Situation

Conservation efforts are well organised at private and national level. A majority of the endangered breeds is represented by an own organisation – governmental funding is only allocated if a responsible organisation exists.

Despite of that, the need for action is not covered for a number of breeds and types.

The ÖNGENE – National Union for Gene Reserves- makes, in cooperation with governmental bodies, an reinforced effort to receive more scientific care for old livestock breeds.

The private VEGH – Association for the Conservation of Endangered Livestock Breeds – accomplishes a valuable task by coordinating activities in the area of *in situ* conservation in the agricultural environment.

Outlook

A change of the current situation does not show in the near future.

Need for action

General:

The state of conservation efforts in Austria has proceeded far and the need for action is generally being attended to. In spite of that, the situation is unsatisfactory for a large number of breeds (see below).

The need for action and/ or necessity of clarification is especially acute for the following breeds:

- Cattle: Original Brown Cattle (*Original Braunvieh*), Zillertaler Ruckerl (type of Pusteria (*Pustertaler Sprinzen*), Zillertal (red type of Tux-Zillertal), Waldviertel (*Waldviertler Blondvieh*)
- Sheep: Montafon (*Montafoner*) Steinschaf, Salzburg (*Salzburger*) Steinschaf, Alpine (*Alpines*) Steinschaf,
- Goats: *Steirische Scheckenziege*, *Vierhornziege*, *Salzburger Strahlenziege*
- Horses: Hafling old type (Haflinger alter Zuchtichtung)
- Chicken: Weisse Altsteirer Hühner
- Pigeons: *Waldviertler Kröpfer*, *Österreichischer Ganselkröpfer*, *Alt. Österreichischer Tümmeler*, *Wiener Kurze*, *Wiener Gansl*
- Rabbit types: Original type of *Blaue Wiener*, dark type of the *Graue Wiener*, *Schwarze Wiener*

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Bergscheck (<i>Ennstaler Bergschecken</i>)	43f OP (1999)	?	+
Cattle	Jochberg Hummel (<i>Jochberger Hummeln</i>)	20f/m OP (2000)	↓	+
Cattle	Original Brown (<i>Original Braunvieh</i>)	56f OP (1999)	?	+
Cattle	Pusteria (<i>Pustertaler Schecken</i>)	25f/m OP (2000)	?	++
Cattle	Zillertal (<i>Zillertaler</i>)	?	?	-
Cattle	Hungarian Grey (<i>Ungarisches Steppenvieh</i>)	15f OP (1999)	?	(+)
Sheep	Black Mountain (Schwarzes Bergschaf)	?	?	?
Sheep	Alpine <i>Alpines</i> Steinschaf	30f/m OP (2000)	?	(+)
Sheep	Montafon <i>Montafoner</i> Steinschaf	70f OP (1999)	↑	+
Sheep	Original Steinschaf	40f OP (2000)	?	(+)
Goat	Peacock Goat (Pfauenziege)	50f/m OP (2000)	?	+
Goat	Salzburger Strahlenziege	?	?	-
Goat	<i>Steirische Scheckenziege</i>	50-100f/m (2000)s	?	(+)
Goat	<i>Vierhornziege</i>	50f/m OP (2000)	?	-
Horse	Old Austrian Warmblood / <i>Alt-österreichisches Warmblut</i>	40f OP (1999)	↓	+
Horse	Lipitsa / <i>Lippizzaner</i>	83f OP (1999)	↓	+
Donkey	<i>Österreichisch-Ungarischer Albinoesel</i>	20f/m OP (1997)	?	+
Pig	<i>Swabian-Hall (Schwäbisch-Hällisches Schwein)</i>	3 breeders (2000)	?	-
Pig	Swallow-bellied Mangalitza / <i>Schwalbenbäuchiges Mangalitza</i>	100f OP (2000)	↓	++
Pig	Turopolje / <i>Turopolje Schwein</i>	40f/m OP (2000)	↑	++
Chicken	Altsteirer Wildfarbige	20 breeders (2000)	?	++
Chicken	Weisse Altsteirer	10 breeders (2000)	?	(+)

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Carinthian Blond / <i>Kärntner Blondvieh</i>	800f OP (1999)	↑	++
Cattle	Murboden / <i>Murbodner Rind</i>	624f HB (2000)	↑	++
Cattle	Tux / <i>Tuxer</i>	392f OP (1999)	↑	++

Cattle	Waldviertel / <i>Waldviertler Blondvieh</i>	161f OP (1999)	↓	+
Sheep	Brown Mountain / <i>Braunes Bergschaf</i>	464f OP (1999)	→	++
Sheep	Carinthian / <i>Kärntner Brillenschaf</i>	900f OP (2000)	↑	++
Sheep	Bovec Sheep / <i>Krainer Steinschaf</i>	250f/m OP (2000)	↑	++
Sheep	Waldschaf	495f OP (2000)	?	++
Sheep	Zackel / <i>Ungarisches Zackschaf</i>	150f/m OP (2000)	↑	++
Goat	Pinzgau / <i>Pinzgauerziege</i>	400f/m GO (2000)	↑	++
Goat	Scheckige Tauernziege	200f/m OP (2000)	→	++

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.3.7. Slovenia

Comparison and Retrospect to the first Alp study

Conservation work is still in governmental hands. A large part of the endangered breeds have been included into the program 'Slovenian Gene Bank'.

In comparison to the first Alp study of 1995, the situation has changed as follows:

Breeds additionally portrayed:

- *Posavski* (horse breed), Slovenian White (*Slovenska Bela Zlahtna Pasma*) (pig breed), *Bela Krajina Pramenka* (sheep breed), *Bovcka Koza* (goat breed)
- The situation for dogs, pigeons and rabbits was rolled up again. Additionally, a local trout breed was portrayed.

The situation has changed as follows with regard to the risk status:

- The situation of the horse breed Lipitsa (*Lipicanski*) and the sheep breed *Istrska Pramenka* has improved, they are now classified as 'Endangered'.

Situation

Conservation efforts are exclusively in governmental hands in Slovenia. For most of the breeds, funding for keepers is allocated when governmental conservation programs exist. Private actors are missing completely. Therefore, conservation work is on the one hand dependent on the political and economic situation and on the other hand on the question whether the persons in whose hands the task is put will raise the necessary commitment. At present, mainly *ex situ* conservation is promoted in Slovenia. An *in situ* conservation system has not yet been implemented.

Outlook

A long-term program (2001-2010) for the conservation of endangered livestock breeds in Slovenia at the national level is in its initial stages.

Need for action

General:

As a next step, the governmental side should tackle the set up of an *in situ* conservation concept. For *in situ* conservation, it would be advantageous if conservationists were organised in own breeding organisations.

Breeds with acute need for action:

- Cika (Cikasto Govedo) Cattle (types *Tolmin* and *Bohinj*), pig breed Slovenian White (*Slovenska Bela Zlahtna Pasma*) and Noric (Norican) horses.

Breeds and types classified with risk status 'Critical'

Species	Breed	Stock**	Trend	Initiative*
Horse	Noric (<i>Norican</i>)	49 breeding mares (2000)	?	-
Pig	Slovenian White / <i>Slov. Bela Zlahtna</i>	35f HB (2000)	→	-
Goat	Bovcka Koza	287 OP (2000)	?	(+)
Dog	Koroski	?	?	?
Chicken	<i>Stajerska Kokos (brown type)</i>	Extinct?	?	-
Chicken	<i>Stajerska Kokos (white type)</i>	Several animals (1999)	?	-

Breeds and types classified with risk status 'Endangered'

Species	Breed	Stock**	Trend	Initiative*
Cattle	Bohinj + Tolmin	400 OP (1999)	?	++
Horse	Lipitsa / <i>Lipicanski</i>	600 OP (1999)	↑	++
Horse	Ljutomer Trotter / <i>Ljutomerski Kasac</i>	315 breeding mares (2000)	↑	+
Horse	Posavski	263 f HB (1999)	?	+
Horse	<i>Slov. Toplokrvni</i>	194 breeding mares (2000)	→	-
Pig	Krskopolje Saddleback / Krskopolje	400 OP (1999)	↑	+
Sheep	Bela Krajina	250f OP (1999)	?	+
Sheep	<i>Bovska</i>	? (300-1500)	?	+
Sheep	<i>Istrska</i>	600f OP (1999)	↑	+
Dog	Krasevec	>1000 OP (2000)	↑	++
Chicken	<i>Stajerska Kokos (partridge coloured)</i>	1000 OP (1999)	↑	+
Pigeon	<i>Slov. Beloglavcek</i>	<600 OP (2000)	?	+
Rabbit	<i>Slov. Kunec</i>	<250 OP (2000)	?	+

* ++ (existing, with success), + (existing), - (not existing)

** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

2.4. General Need for action in the Alpine region

Continuous monitoring

As the present study shows, the transfer of observations into a continuous monitoring is urgently required. This is the only way to pay credit to a fast changing situation and to register negative developments in time.

Product marketing

The efforts to bring old varieties out of gene banks and type gardens, to cultivate them increasingly and to offer them at the market are still in their infancy. In the first line, suitable marketing concepts are being asked for, e.g. product promotion by labels.

Variety gardens, arboreta, and rescue stations at higher altitudes

The set up of variety gardens and arboreta, especially for varieties from higher altitudes, is still poor in the entire Alpine region. Rescue stations for breeds from mountainous regions are

missing, too. Such establishments should be set up together with a suitable on farm management.

Network cultivated plants

For the Alpine region, transborder cooperation for beans, cabbage, cereals and potatoes is estimated as important.

Elaboration of a record of formerly used varieties

A well-directed search for old types is necessary for many species and regions. Taking historical inventories of varieties which were initially grown in different areas would allow to set up search lists based on historical data and to search specifically for these varieties.

3. Introduction

3.1. Update of the study ,Agricultural Genetic Resources of the Alps’

In the following, the study ‘Agricultural Genetic Resources of the Alps’ is referred to as ,Alp Study’.

3.1.1. Problem formulation

During breeding work over decades and centuries, livestock and cultivated plants have become adapted both to the needs of people and to the conditions of their environment. Thus, numerous different breeds and varieties have developed, each with its own special quality. Some are especially undemanding, while others are particularly robust, fertile or resistant against humidity, low temperatures or diseases. This diversity is threatened worldwide today. With breeding aimed one-sidedly at performance-oriented breeds and varieties, species which do not comply with new standards (more milk, more meat etc.) are disappearing. Breeds and varieties giving rise to little profit are dropped by breeders and disappear. This means that some valuable genotypes are irretrievably lost, yet the genetic make-up of these breeds and varieties could in future gain greater importance in a different economic environment (for example, during extensification of agriculture). The old forms are not, however, only genetically interesting, but they also represent a valuable and conservation-worthy cultural asset. They are often part of the traditional cultivation of a specific ecological niche.

3.1.2. Update of the Alp Study

The Alpine region is not only rich in wild animals and plants. In the area of both livestock breeds and cultivated plants, a broad diversity has developed over centuries and adapted to fast changing and often extreme environmental conditions. More than 100 livestock breeds in the Alpine region alone will face extinction if countermeasures are not taken quickly, according to a 1995 published study by Pro Specie Rara, St. Gallen, which was initiated by CIPRA (International Commission for the Protection of the Alps) and funded by the Bristol Foundation, Zurich. Cultivated plant varieties present a similar picture.

One of the main conclusions of the study “Agricultural genetic resources of the Alps“ (ISBN 3-905209-03-9, subsequently referred to as the 1995 study) was that the approach taken in the 1993 snapshot should be used in continuous monitoring. According to the synthesis of the 1995 study: “ *The situation of endangered breeds and varieties changes continuously. In order to be able to recognize negative developments in time, the set-up of an effective monitoring system is of utmost importance. It should advisably function across borders.*” Continuous monitoring was and still is urgently needed but for the Alpine region. Many recording efforts have to be made, especially in eastern and southern Europe, before actual observation can start. In order to initiate and coordinate activities and to guarantee cross-border monitoring, the “Monitoring Institute for Rare Breeds and Seeds in Europe“ was founded in autumn 1995, with its headquarters in St.Gallen, Switzerland. It serves as an international "service-centre" which records and manages scientific basis data for all governmental and private bodies interested in the *in-situ* conservation of endangered farm animals and cultivated plant varieties.

Data on the agricultural genetic resources of the Alpine region, recorded in 1993/1994 and published in 1995, attracted attention and called for action. As a result, numerous initiatives

were taken. National and international conservation projects were intensified or partially re-initiated, especially in the area of livestock. The cross-border coordination of breeding efforts for breeds endangered in several countries was taken over by the European SAVE Foundation (see also chapter 5). The SAVE Focus has since then been published every second year, reporting on work done and action needed. Meetings of experts responsible for breeding are called as required.

Experience has shown that the situation of endangered breeds and varieties changes continuously and sometimes with dramatic speed. This happens in particular when individual consultants or groups are no longer available. In order to analyse the need for action and to estimate any action deficits, CIPRA – again funded by the Bristol Foundation Zurich - asked the Monitoring Institute to update data on the Alpine region and to close some of the gaps of the 1995 study.

3.1.3. Investigation/research methodology

First, literature and Internet searches were carried out for the different subjects of the study. Mason's 'International Dictionary of Livestock breeds' may be considered the fundamental work for livestock breeds. In the field of plants, it was not possible to refer to such a comprehensive publication. Information was gathered from publications concerning the different countries, species and varieties.

In a second step, selected institutions, groups and individuals were contacted and sent a written questionnaire. Thus, it was possible to gather information about their approaches to conservation and to find out about current, possibly previously unknown activities. The response rate was unsatisfactory, particularly in the area of plants. Key figures were therefore contacted personally in a next step.

A further objective of the monitoring project is the description of the socio-political situation in the individual countries with regard to the conservation of genetic resources. By contacting governmental bodies and private organisations, it was possible to find out what action was being taken the national level in the individual countries. Relevant programmes, projects and regulations of the EU were also described.

3.1.4. Assessment of the Need for Action

A central leitmotif of the study and thus also the basis for the assessment of individual breeds and varieties is the maintaining of genetic diversity. Economic and agronomic criteria were not taken into account. Special attention was given to the activities of non-governmental organisations (NGOs) and to in-situ conservation projects as utilisation is the best way of conserving diversity. Genebanks can only be regarded as part of the solution as they alone cannot guarantee the long-term conservation of biodiversity. Moreover, they do not allow the gene pool to adapt continuously to changing environmental conditions.

For the assessment of farm animal stock, there are several different national and international customary used systems available and used. In the present study, individual animals breeds were divided up into four risk categories according to the FAO system (from 'Expert consultation on the management of global animal genetic resources', 'Animal Production and Health paper Nr. 99: *In situ* conservation of livestock and poultry' by E.L. Henson). A breed or type is in this system primarily rated by its population size, e.g. the number of reproducing females. The existence or non-existence of additional specific risks (e.g. very narrow genetic basis with a very small number of male animals, high cross-breeding rate with other breeds etc.) can additionally lead to down- or upgrading.

The four above mentioned categories are:

Number of reproducing females	Risk Status
< 100	critical
100 – 1000	endangered
1000 – 5000	vulnerable
5000 – 10'000	rare

For plants, an assessment according to comparable criteria to those for livestock taking into consideration population dynamics is not possible. So, risk categories were not used. Instead, an individual evaluation of the risk status of plant groups was carried out on the basis of available data. Furthermore, a traditionally cultivated plants were monitored. Lists of the most important plants traditionally grown in particular regions were drawn up. It is assumed for each area that species diversity is or was relatively large in the respective area and that conservation strategies are particularly important. Some of these traditionally cultivated plants are already supported by labels (for example EU or Slowfood). Others are still on the market as regional specialities or already protected by concrete conservation work. Action is required for those plant groups for which no conservation strategies appear to be currently realised.

3.2. The Global Plan of Action

The Global Plan of Action (Leipzig, in1996) was developed after the Rio Convention on Biological Diversity 1992 (Convention on Biological Diversity – CBD) by the FAO commission for plant genetic resources. The signing countries are obliged to pursue the objectives designated in the Convention on Biological Diversity. All countries located in the Alpine region signed the Rio Convention.

3.3. EU Projects and Regulations concerning Agricultural Biodiversity

Internet information on agricultural genetic resources in the EU is available on the homepage of the commission under the headword “Agriculture“. (<http://www.Europa.eu.int>)

3.3.1. EU-Commitment to conserve Agricultural Biodiversity

The EU signed the 1992 Rio Convention on Biodiversity (Convention on Biological Diversity – CBD), too. It is thus obliged to conserve biological diversity and consequently local breeds and varieties as well as other signing countries. The individual states are responsible for the realisation of the Global Action Plan.

3.3.2. Variety lists in the EU

Varieties can be propagated freely for personal purposes in the EU. Commercially used varieties, however, may only be traded, exchanged and given away in the European Union if they are specified in the variety lists of the EU. In order to be included into the EU variety catalogue at all, varieties have to fulfil the requirements concerning differentiation, homogeneousness, permanence and suitability. In order to obtain the registration, the seed producer has to verify in extensive tests that his seed differentiates in essential features from other varieties. It is particularly difficult for small specialised seed producers and bio-seed

producers to meet the requirements as either they cannot or do not want to guarantee the prescribed uniformity or as the extensive testing method is too expensive.

3.3.3. Local varieties

Local varieties are approved through EU resolution 98/95/CE. They are characterised as conservation varieties in the EU variety lists. Conservation and marketing areas are defined. The amount of seed to be marketed is limited, too. In the case of not registered varieties, governmental bodies in the individual states must control seed distribution so that it does not reach the market. Registration in the list is connected with high costs and large expenditure. It is therefore only profitable for sorts which may be marketed commercially to a certain extent. For local varieties conserved out of the market, this does not represent a solution.

3.3.4. Legal framework for variety conservation

The 1993 changes of the seed regulation (KOM(93)598) supply the legal basis for licensing conservation measures for varieties within the legal framework for seed traffic. This applies in particular to *in situ* conservation and to sustainable use of plant genetic resources by cultivation and marketing of local and other varieties which are naturally adapted to local and regional conditions and which are threatened by genetic erosion.

3.3.5. Protection of varieties

Regulation 2100/94 regulates protection for varieties in the EU. The person who has developed, bred or discovered a variety is entitled to the right of protection. The holder of the variety protection has the right to decide on sale, propagation and processing of the variety. Free access to protected varieties in order to develop new ones must, however, be guaranteed as well as cultivation for non-commercial purposes and propagation for private use. The International Agreement on the Protection of Plant Varieties was concluded in 1961 in Paris. Its realisation is controlled by the International Association for the Protection of new Varieties of Plants (UPOV), Geneva.

3.3.6. Regulation 2078/92 (Now: Regulation CEE 1257/99)

Regulation 2078/92 – supporting a non-polluting and protecting the natural living space agricultural production - was introduced as an accompanying measure to the reform of the CAP (Common Agricultural Policy) in 1992. It replaced the former regulations 2328/91 and 4115/88.

An environmentally friendly agriculture is promoted through the regulation. A 2/3 part of the costs is borne by the EU, another 1/3 by the receiving country. EU-Funding is carried through by the EAGGF (European Agricultural Guidance and Guarantee Fond).

Amongst others, regulation 2078/92 includes an annual premium for keeping endangered livestock breeds and for growing and propagating cultivated plants which are threatened by genetic erosion. After the expiration of the regulation at the end of the year 1999, it was followed by regulation 1257/99 (regulating the support and development of the rural area through the EAGGF). 1257/99 contains a revised concept of 2078/92 whereby subsidy regulations continue.

Livestock:

Regulation 2078 allocates a compensation of 100 Euro per LU (large animal unit) for breeding endangered livestock. This sum was increased to 120.8 Euro: cattle older than 2 years and equidae older than 6 months are counted only as 0.6 LU, a ewe or a goat are rated as 0.15 LU. Conditions for grants are defined by the member states as well as the control of entered obligations. Member states can also define the breeds subject to this regulation. More detailed information is available in the chapters on individual countries.

In regulation 2072/99, a special measure is designed to conserve the genetic diversity of cultivated plants by special initiatives. These measures complete the initiatives of regulation 1467/94. Highest premium level for the cultivation and propagation of varieties adapted to local conditions and threatened by genetic erosion was 250/Euro per hectare at the beginning and increased to 301.9 Euro per hectare in regulation 1962/96. The realisation of 2078/92 in the area of plants was poor compared to the animal sector. For the following reasons, the commission has licensed only a few programmes and plant varieties for conservation. According to the opinion of the commission, *ex situ* conservation (genebanks) has to be preferred to on farm conservation in most of the cases (reasons: cost/benefit relationship). The commission argues that seed conserved in the latter mentioned way is not endangered. Many local breeds suggested by the member states were rejected as they are not licensed as varieties according to legal regulations. Their population is not considered to be “stable, distinguishable and homogeneous”. The commission keeps on declaring itself open for suggestions on *in situ* conservation. Among other things, however, it demands an explanation why *in situ* and not *ex situ* conservation is advisable. Furthermore, plans for the utilisation of cultures and plants must be submitted. More detailed information is available in the chapters on individual countries.

3.3.7. Regulation 1467/94

The EU regulation 1467/94 supports initiatives active in conserving, characterising, collecting and using genetic resources. Till the end of 1999, 20 millions of Euro were made available for the projects. The regulation will remain effective from the year 2000. Non-governmental organisations tried to reach an agreement allowing them to submit projects directly in future which has up to date only been possible for universities and governmental bodies. In 1994, 20 millions of Euro were made available for the programmes initiated under 1467/94. A plant-animal project relationship of 3:1 is being aimed at. The effective relationship was 4. 3:1. Switzerland, too, is involved in some 1467/94 projects despite not being an EU member.

The following projects have up to date been granted:

FIRST CALL

- GENRES #12: European genebanking project for pig genetic resources.
- GENRES #20: Protecting future European Community crops: a programme to conserve, characterise, evaluate and collect *Allium* crops and wild species.
- GENRES #29: Conservation, evaluation, exploitation and collection of minor fruit tree species.
- GENRES #34-45: Genetic Resources of Potato including 'Conservation, characterization and utilization of secondary potato varieties for ecological production systems in Europe'.
- GENRES #37: *Constitution, description et gestion dynamique des ressources génétiques du riz (Oryza sativa) à vocation Européenne.*
- GENRES #42: Evaluation and enhancement of *Beta* collections for extensification of agricultural production.
- GENRES #52: European network for characterisation and evaluation of genus *Rosa* germplasm.
- GENRES #60: Inventory, characterization, evaluation, conservation and utilization of European rabbit genetic resources.
- GENRES #61: International network on *Prunus* genetic resources.

SECOND CALL

- GENRES #78: Coordination for conservation, characterization, collection and utilization of genetic resources of European Elms.

- GENRES #81: European network for grapevine genetic resources conservation and characterization.
- GENRES #83: A permanent inventory of European farm animal genetic resources and of activities on characterization, conservation and utilization of those resources.
- GENRES #88: Implementation of the European Network for Evaluation, conservation and utilisation of European maize landraces genetic resources.
- GENRES #97: Conservation, characterization, collection and utilization of Genetic Resources in Olive (*Olea Europaea*).

THIRD CALL

- GENRES #104: Evaluation and conservation of barley genetic resources to improve their accessibility to breeders in Europe.
- GENRES #118: Towards a strategy for the conservation of the genetic diversity of European cattle.

3.3.8. Regulation 2081/92

Regulation 2081/92 controls the protection of agricultural and food products linked to a certain region. These can, among others, be products gained from a local variety or breed. For this purpose, the EU has introduced the following quality seals:

- Protected Designation of Origin (PDO), Geschützte Ursprungsbezeichnung (gU) = Denominazione d'origine Protetta (DOP), Appelation d'Origine Protégée (AOP),
- Protected Geographical Indication (PGI), Geschützte Geographische Angabe (GGA) = Indicazione Geografica Protetta (IGP), Indication Geographique Protégée (IGP)

A definition of the cultivated plants and livestock breeds protected by these seals is to be taken from the individual country chapters.

3.3.9. Regulation 2082/92

Regulation 2082/92 regulates the protection of agricultural and food products which are regarded as specialties. Within the frame of this regulation, the quality seal Certificate of Specific Character can be awarded.

The regulation would also make it possible to protect products produced from local varieties or breeds. However, no endangered cultivated plant or breed is protected by the seal up to date.

3.3.10. LEADER

The realisation of the EU initiative LEADER aims at strengthening rural development and economic efficiency and at supporting innovative solutions. Realisation is supposed to be carried through particularly by local autonomous groups. Support is mainly granted for networking, organisation and technical aids. A few programmes support the conservation of cultivated plants and livestock breeds. Information can be found in www.rural-Europe.aedil.be. Information on those LEADER programmes supporting agro biodiversity can be found in the respective country chapters.

3.4. Important international Bodies and Databanks

3.4.1. IPGRI/CGIAR

In 1974, the IBPGR (International Board for Plant Genetic resources) was founded by the FAO. From the IBPGR, the IPGRI (International Plant Genetic Resources Institute) arose. 48 countries participate in the institute at present. They are responsible for financing. The IPGRI is a part of the CGIAR (Consultative Group on International Agricultural Research). The CGIAR aims at the elimination of poverty, securing of foods and environmental protection.

18 research centres in different countries and various projects in the area of plant genetic resources are supported:

IPGRI, Via dei tre Denari, 472a, 00157 Maccarese/Roma, Tel: 0039-06/611'82'32, Fax: 0039-06/5750309, E-Mail: ipgri@cgiar.org, Web: <http://www.cgiar.org/ipgri>

3.4.2. ECP/GR

Since 1980, the programme ECP/GR (European Cooperative Programme for Crop Genetic Resources Network) is running. It is financed by the 33 member states. All countries of the Alpine region have taken part since the foundation of the ECP/GR. ECP/GR is coordinated by the IPGRI. Since 2000, the groups '*In situ* Conservation Task Force' (wild relatives of cultivated plants) and 'On farm Conservation Task Force' (cultivated plants) deal with the realisation of those Leipzig resolutions (Global Plan of Action, 1996) concerning the *in situ* and on farm area.

ECP/GR created the following work groups:

- Allium
- Avena
- Barley
- Beta
- Brassica
- Forage Plants
- Grain Legumes
- Malus/Pyrus
- Potatoes
- Prunus
- Umbellifer Crops
- Wheat

ECP/GR International Coordinator:

Lorenzo Maggioni, IPGRI, Via dei tre Denari, 472a, 00157 Maccarese-Roma, E-Mail:

l.maggioni@cgiar.org, Tel: 0039-06/51 89 22 31, Fax: 0039-06/575 03 09,

<http://www.cgiar.org/ecpgr/>

Each country has its own national coordinator. Respective information and information on the individual work groups and representatives is included in the individual country chapters.

3.4.3. FAO and 'Global Databank for Farm Animal Diversity'

The FAO – Food and Agricultural Organisation of the United Nations – contributes to the administration of the conservation of genetic resources as an international task by consulting and coordination. The FAO has developed the Global Plan of Action for the conservation and sustainable use of genetic resources in consequence of the Rio convention. The FAO runs a worldwide online databank on rare breeds, the 'Global Databank for Domestic Animal Diversity'. The World Watch List for Domestic Animal Diversity (WWL-DAD) is elaborated on its base.

The CGRFA - Commission on Genetic Resources for Food and Agriculture – was founded in 1983 in the FAO. It is, among other tasks, responsible for the realisation of the Global Plan of Action.

Address: FAO – Food and Agricultural Organisation of the United Nations, Viale delle Terme di Caracalla, 00100 Roma, databank in the web: <http://wwwdad.fao/cgi-dad>

3.4.4. EAAP

The EAAP - European Association of Animal Production – already exists since approx. 50 years. In 1987, a Europe-wide databank ('Hannover' databank) on autochthonous livestock

breeds was founded at the 'Institute of Animal Breeding and Genetics of the Hanover School of Veterinary Medicine'. The EAAP published the first report on 'Genetic diversity of European livestock breeds' in 1993.

URL-address: <http://www.tiho-hannover.de>

3.4.5. Information Centre for Genetic Resources (IGR)

The IGR – Information Centre for Genetic Resources – at the German centre for Documentation and Information in Agriculture ZADI presents on its homepage <http://www.genres.de> information on the activities of Alpine countries in the area of agro biodiversity, too. In January 2000, an initiative was started which aims at setting up an European network for information on animal genetic resources ('European Information Networking in Animal Genetic Resources'). That way, research in several online databanks shall be made possible.

IGR – Department Information Centre for Genetic Resources, c/o ZADI, Villichgasse 17, 53177 Bonn, Tel. 0049-228/95 48-0, Fax 0049-228/954 81 11, E-Mail: zadi@zadi.de

3.4.6. SAVE Foundation

The SAVE Foundation (Safeguard for Agricultural Varieties in Europe) dedicates its activities as an European umbrella organisation for NGOs to the conservation and support of genetic diversity in agriculture. More and detailed information is available from the website of SAVE Foundation where individual projects are presented:

<http://www.save-foundation.net>

The activities for the conservation of genetic resources by SAVE Foundation cover the following main topics:

Conservation work: SAVE conserves endangered breeds and varieties as living stock in their areas of origin. Only if conservation in a specific region cannot be secured, animals and plants are transferred to another region. Operations are preferably carried through in cooperation with local partner organisations. If local organisations are missing, SAVE itself initiates projects.

Coordination: Formerly, hardly any cross border conservation measures for *in situ* conservation of traditional breeds and varieties existed. Therefore, SAVE has elaborated transnational coordination programmes which are carried through in coordination with existing breeding organisations. The state of the efforts is published regularly in the 'SAVE Focus'.

Investigations: SAVE Foundation tries to discover the remains of lost breeds and varieties by means of search activities. Stock control of remaining livestock population and rare cultivated plant stock is conducted and assessed regularly. The "Monitoring Institute for Rare Breeds and Seeds in Europe", a SAVE headquarters, is responsible for the scientific part.

Networking: The networking of regional and national activities is of great importance for SAVE Foundation in its role as an European umbrella organisation. Thereby, SAVE is effective as a turntable in the NGOs' exchange of information and know-how and establishes contacts to international organisations. All services of SAVE Foundation are free of charge at the disposal of its partner organisations.

Address: SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

3.4.7. Monitoring Institute for Rare Breeds and Seeds in Europe

The «Monitoring Institute for Rare Breeds and Seeds in Europe» was founded as a backup of cross border monitoring. The institute is designed as an independent scientific branch (headquarters) of the European SAVE Foundation. The Monitoring Institute serves as a

service centre for all governmental and private bodies interested in the conservation of endangered livestock breeds and cultivated plant varieties. It acquires scientific basic data for the safeguarding and long-term conservation of genetic resources in European agriculture. Its task may roughly be described with mapping, watching, alarming:

- Registration and recording of endangered livestock breeds and cultivated plant varieties by research in agricultural and veterinary literature of former times and by on-site search (mapping)
- Continuous observation of the situation of the endangered stock and the perception of need for action (watching).
- Regular estimation of arising action deficits and alarming of the competent federal bodies respective federal organisations (alarming).

This requires the set-up and development of comprehensive databanks. The institute itself does not carry through conservation projects. The results of the institute are in principle available for anyone interested in the matter.

Address: Schneebergstrasse 17, 9000 St. Gallen, Schweiz, Tel: 0041-71/222 74 10, Fax: 0041-71/222 74 40, URL: <http://www.monitoring-institut.de>

3.4.8. AKKU

Akku is an open interest group of organisations and people in the German-speaking area which dedicates its activities to the conservation, development, distribution and utilisation of cultivated plant diversity. Main objectives of the working committee in the field of agriculturally and horticultural utilised cultivated plants are as follows:

- to offer a panel for the exchange of experiences
- to promote practical cooperation in common projects
- to hold common political positions
- to coordinate public relation activities
- to coordinate participation in experts' committees

In addition, the working committee deals with the current discussion about the fair distribution of the benefit taken from cultivated plants ("benefit sharing") and dedicates efforts to prevent that respective future regulations are designed in a way which favours only few benefactors.

3.4.9. International Commission for the Protection of the Alps CIPRA and Alp Convention

The International Commission for the Protection of the Alps CIPRA supports an improvement of the transborder exchange of experience and information. CIPRA has furthermore official observer status in the Alp Convention (Alpenkonvention), which it co-initiated authoritatively. The Alp Convention is a skeleton agreement to guarantee protection and a sustainable and environmentally friendly development in the Alpine region. It was signed on the 7th of November 1991 by the seven countries of the Alpine region (Austria, France, Germany, Italy, former Yugoslavia, Liechtenstein and Switzerland) and the European Union. Monaco joined the convention on basis of additional minutes. The former Yugoslavia was replaced by Slovenia. The convention became effective on the 9th of March 1995.

Address: CIPRA International, Im Bretscha 22, FL-9494 Schaan, Tel: 00423-237 40 30, Fax: 00423-237 40 31, E-Mail: cipra@cipra.org, URL: <http://www.cipra.org>

3.4.10. Slow Food

In 1989 the organisation Slow Food was founded in Piedmont, Italy. Slow Food supports selected foods and their producers. The products have to fulfil certain criteria. They must, for example, be produced by specific traditional culturally and regionally developed processes

and in a limited amount. Today, branches of the organisation exist in 42 countries. The headquarters is in Bra (Piedmont).

An important aim of Slow Food is the conservation of biodiversity. The project l'Arca or Ark of Taste deals with the conservation of endangered foods. Products falling in this category are supported by the so-called steering committees. In Italy, the project l'Arca has already been realised to a large extent. Many Arca products are produced from autochthonous cultivated plants or endangered breeds of livestock. Plans exist to extend the project to other Alpine countries.

Address:

Ufficio Arca e Presidi Slow Food, Giovanni Bellingeri, Via delle MendicITÀ, 14, 12042 Bra (CN), Tel: 0039-172/1 96 24 or 0039-172/419625, Fax: 0039-172/42 12 93, E-Mail:

presidi@slowfood.it, g.bellingeri@slowfood.it

Contacts in the individual countries are found in the country chapters.

3.5. Threat to agrobiodiversity by diseases

3.5.1. Fire Blight

The fire blight kept on spreading rapidly in the year 2000 and led to the cutting down of thousands of trees. For those endangered varieties only found at a few sites, this means additional danger. Further spreading of the fire blight might have devastating effects for the existing standard tree population.

3.5.2. Epizootic diseases

The European Mainland got off lightly in the course of the Foot and Mouth epidemic in 2001. However, the course of the epidemic showed the great danger to old breeds through livestock epidemics. Other livestock epidemics (CAE, Scrapy, BSE) could suddenly be an acute threat for endangered breeds, too. The method of cautionary slaughtering the animal stock of an entire region as a means of epidemic control acutely threatens long-term efforts to conserve biodiversity in its domesticated forms as well.

3.6. Cultivated plants in the Alpine region

In the course of the settlement of humans in the Alps approx. 4000 before Chr., the first cultivated plants arrived. Since space for fields was not sufficient at the bottom of the valleys, the farmers laid out their fields on top of each other along the mountain slopes. Here, they had to particularly pay attention to the varying climatic conditions at the respective height intervals. The settlement of the Alps presumably followed the main valleys and then branched out into the secondary valleys. The settlers of the secondary valleys often lost contact to their starting point to a large extent. In search of new settlement possibilities, the farmers took their respective plants along. As the Alps are very multiform and show large climatic differences on smallest space, the cultivated plants carried along had to adapt themselves continuously to new environments – new breeds developed which were true specialists for very specific environmental conditions.

Biotopes in the Alps differ in many respects from biotopes in the low mountain range: the vegetation time is short, solar radiation intensive, and the soils are not very fertile. The short vegetation time is caused by the snow cover which stays up to nine months/year. Many plants cannot grow sufficiently in the residual time, which often has a negative impact on seed production. As a precaution, plants were therefore often harvested before reaching maturity

and dried in the dry mountain air. The intensive solar radiation causes plants to grow faster indeed than in the valleys, but requires respective protective measures to prevent burning. Soils are often meagre and acid. Farmers opposed these conditions by purposeful cultivation measures, for example the transport of suitable earth to well-sited places.

3.7. Livestock in the Alpine region

First traces of domestication date back to 13000 before Chr. when man started to utilise the dog in Siberia. Domestication is regarded as one of the most important cultural achievements of man at all. It offered the first opportunity to settle down and to secure his food systematically. At the Western edge of the Alpine region, the Mediterranean Sea, traces dating back to 5500 before Chr. of first domesticated animals are verified. However, it still took some time until animal breeding could prevail in the hardly accessible and densely wooded Central Alps. Only above the timberline, sheep were already kept in prehistoric times in the High Alps.

In the Alpine region, livestock is indigenous since millenniums. Despite of the diverse contacts of its inhabitants, animals were rarely exchanged. By selection of the offspring, they are optimally adapted to the respective local conditions in each valley. In view of the limited means, the poor knowledge of veterinary medicine, the hard climatic conditions and the meagre food, robust animals were important in the first place.

In order to be able to react to unexpected events, the variety and not the maximum performance was important for the survival of man.

3.8. Situation of agriculture in the Alpine region

3.8.1. Germany/Bavaria

Situation in the Bavarian Alpine region

The proportion of the output value in agriculture was 9.6% for cereals, 5.5% for tuber crops, 4.8% for fruits and vegetables and 2.1% for other plant products. The relative Bavarian proportion in the former federal territory reached the highest value in 1988 with 25.2% (1990: 27.0%). It has meanwhile shrunk to 19%. The reasons for this development are found in a smaller agricultural enterprise structure and in extensive and environmentally friendly production methods (KULAP, Öko) in Bavaria. The number of farms has continuously decreased during the last decades in Bavaria, at the same time, productivity has grown enormously. A Bavarian farmer (enterprise) supplied the food for 15 people in 1950, in 1999 already for 100 people. The technical development in agriculture will favour the trend of feeding more people per farmer (Bavarian Agriculture Report, 2000)

Development of the agriculturally utilised area

The area used for agricultural purposes decreased slightly from 3.5 millions in 1979 to 3.3 millions in 1999. The gardening area showed considerable losses, as well as fruit yards and nurseries. Their proportion was 25 800 ha in 1979 and only 12 300 ha in 1999. The area used for viticulture increased from 4 200 ha to 5 800 ha in this time period. The crop area remained constant with approx. 2.1 millions of ha. The proportion of grassland decreased along with the agriculturally used area from 1.4 millions to 1.2 millions.

In the Agriculture Report 2000, biotechnology and genetic engineering are named as important future technologies. Up to date, no genetically changed plant variety has been licensed according to the Seed Traffic Act (Bavarian Agriculture Report, 2000).

3.8.2. Italy

Situation of agriculture

In 1951, 8.6 millions of workers were employed in Italian agriculture. In 1990, their number had already decreased to 1.9 millions, which corresponds with 9% of all employees in Italy. The deficit in agriculture amounts to 19.2 billions of Lire. Main reasons for the backwardness of Italian agriculture are as follows:

- - Excessive fragmentation of properties (often < 5 ha)
- - Necessary modernisation could only partially be carried through because of fragmentation.
- Distortion of production by integration into the EU. This caused surpluses on the one hand and losses on the other hand.
- Economic pressure

The backwardness together with the disappearance of traditional lease forms ('forme di conduzione tradizionali') as for example share leasing result in farmers giving up less productive area such as mountain valleys and hill areas. As a consequence, the water balance of these abandoned areas is massively disturbed.

Agriculture in the Alpine region

The Italian North is typical mountain area. In these valleys, the old traditional "storey" agriculture survived till the 20th century.

At the bottom of the valleys, mainly crops were cultivated whereas higher altitudes were used for grazing animals. This type of utilisation enabled the farmer to reach a high degree of self-supply. It required, however, a continuous seasonal change of residence.

Today, the most intensive cultivation methods are found in the valley bottoms. In higher reaches, agriculture is limited to animal production. Only in very remote valleys, the traditional and self-supplying storey agriculture is still in use. It has, however, to be assumed that this form of cultivation is lost in the near future.

In the Italian Alpine region, the agriculturally used area amounted to a total of slightly more than 3 million hectare in the 1990s. Only 1.1% of the area consisted of fields, and 2.4 % of fruit cultures and vines. Alpine pastures and forests form the largest part. Cereal production had a 7.6 % share of the agricultural net production in 1956 and decreased to 1.3% in 1993. Vegetable and fruit production, however, has increased to 29.1 % of the agricultural raw production in 1992 (1953: 16.4 %). Traditional self-sufficient agriculture collapsed in the 1960s when rye cultivation was stopped. The far-reaching structural change in the last decade towards land use for animal production, milk production and forestry is to be attributed to the competition with favoured sites in flat country. Massive migration of people from the mountain areas was the serious result. The Italian Mountain Law, 1994, (Nuove disposizioni per le zone montane, Legge 31 gennaio 1994, n°97) tries to counteract this development. Among others, it includes support of younger entrepreneurs, support for maintaining settlements and the introduction of a quality label "Product from the Italian mountain region". The label is supposed to guarantee that typical Alp products are in fact produced in the Alps. The regional realisation of this law, however, is very slow. Competence assignment is subject to special difficulties in Italy. These difficulties affect particularly payments in the agricultural sector. Centralism of the regions towards the provinces is an additional problem.

Special cases

South Tyrol: The proportion of the population active in agriculture decreased less in South Tyrol compared to the other mountain regions. This has to be attributed to the strong support of mountain agriculture in this region. Arable farming was only reduced perceptibly at the beginning of the 1980s in South Tyrol. The part of the population active in agriculture is relatively high with 14%. Along the river Etsch, fruit production dominates today (particularly apples). In lower reaches, viticulture plays a slightly decreasing, but still important role. Maize cultivation, potatoes, vegetables and special products (e.g. strawberries) are locally important.

Aosta Valley: The climate is mild and sunny in the valley. Rye cultivation is possible up to 1900 m and vines up to 1200 m. The valley extends from East to West. Economy bases particularly on tourism and agriculture (cattle breeding, cultivation of forage plants, potatoes, vines and fruit trees).

MiPA - Ministero per le Politiche Agricole e Forestali (Ministry for Agriculture and Forest Politics)

With the 'decreto legislativo (regulation) n° 143/97', governmental and regional competences for agriculture, forestry and fisheries are newly regulated. The MiRAAF (Ministero delle Risorse Agricole, Alimentari e Forestali) was wound up on its base and its functions were distributed to the regions and autonomous provinces as well as on the newly founded MiPA (Ministero per le Politiche Agricole e Forestali – sometimes also called MiPAF), Ministry for Agriculture and Forest Politics. The MiPA has the task to represent the national interests of agriculture politics, forestry and “nutrition by agriculture” (agroalimentari) in the EU and to develop and coordinate political guidelines for these areas in agreement with the EU. The MiPA is also responsible to carry out common (EU) and international duties.

Address:

Ministero per le Politiche Agricole, Direzione Generale delle Politiche Agricole e Agro-industriale Nazionali (D.G.P.A.A.N.), Via XX Settembre n. 20, 00187 Roma, Tel: 0039-06/46 65 40 54, Tel 2: 0039-06/46 65 40 35, Telefax: 0039-06/481 43 26, E-Mail:

polnaz@politicheagricole.it, Web: <http://www.politicheagricole.it/MiPA/servizi>, Director: Dr. Ferdinando di Maio

3.8.3. France

France stretches over total area of 550,000 km². With 100 inhabitants per km² France has the lowest population density in Europe. Because of this fact, in addition to the country's moderate climate, its extensive flatlands and plateaus, 87% of the area are used for agriculture and forests. 12 % of the area rise higher than 1000 m (Alps and Pyrenees). The agriculturally used area of more than 30 millions of hectare reflects the enormous variety of agricultural products. 60 % of the area is arable land, 36 % grassland and 4% fruit and vine cultures. Close to 50% of the arable land is planted with cereals, one fifth of the area with forage plants followed by oil plants (8%) and vegetables (7%). 10% of the arable area are fallow. With 330'000 hectare production area, France is the largest seed producer in Europe and the second largest world-wide.

3.8.4. Austria

General

Approx. 45% of Austria's total area is agriculturally used. This part consists of 39% arable land, 29% meadows, 25% alpine grassland, 4.8 % pastures, 1.6% vineyards and 1.2% gardens and fruit cultures. A considerable decrease of species and varieties could be observed in this sector, especially in the last decades. Reasons for that are in particular the increase of

production intensity, elimination of special sites (loss of biotope diversity), change of land use (conversion of grassland into arable land, change of crop rotation) and the application of agrochemicals. This trend is still intensified within agriculturally used species by modern breeding measures.

Agricultural production units in the Austrian Federal States

Borderland:

The average level above sea is 430 m, the climate is moderately hot in summer and, towards the Eastern edge of the Alps, cold in winter with moderate humidity. One quarter of the full-time holdings is active in viticulture. Fruit cultivation and intensive livestock farming are the least of all represented.

Lower Austria:

At an average level of 625 m, shadily exposed sites are present on 40% of the total area. Suitability is poor for arable cropping but good for grassland. Forage production and market crop enterprises prevail, viticulture and fruit production reach a proportion of 10% of producing enterprises in some regions.

Styria:

Wide regions are dominated by very steep, rock interspersed slopes with very limited land use possibilities. The average level above sea is 907m. Forage production and combined agriculture-forestry enterprises make up the majority of farmsteads. Partially, fruit producers are important, wine is produced by 1.1% of the enterprises.

Carinthia:

Main source of income is to the greatest part the combination of agriculture and forestry. Fruit and market fruit cultivation occupies only a subordinate place. The average altitude reaches 1546 m, the transition area of glacier, rock and reverse slopes to usable land is hard to work from an agricultural point of view.

Upper Austria:

Forage growing farms represent the largest part of the enterprises, mixed enterprises have furthermore great importance, followed by market fruit producers. The average altitude reaches 587m, the proportion of shadily exposed areas amounts to 40% of the total area.

Salzburg:

With an average altitude of 1391 m and large, partially with rock interspersed, very steep slopes, forage production dominates clearly. The combined agriculture and forestry economy is very important. Only a minimum proportion is occupied by other enterprise forms.

Tyrol:

55.3% of the full-time holdings produce forage, the combined agriculture and forestry economy occupies more than 33%. The average altitude is 1355 m, the mainly utilised area is situated in the Alpine region.

Vorarlberg:

Forage farming is most important with 72% of the enterprises. Besides, farms operate both in agriculture and forestry. Only in individual communities, for example in the Rhine valley, other farming systems are practised. The main utilised area is cold in winter with warm summers, the humid, steep grassland areas are situated at an average altitude of 850m.

3.8.5. Switzerland

Situation of agriculture in Switzerland

Far-reaching changes in the agricultural sector (saturation of the markets, changes values of the population, WTO agreement etc.) indicated at the beginning of the nineties that Swiss agriculture needed new frame conditions. Agricultural policy was reformed in two steps. The separation of price and income policy started in 1993 with the introduction of supplementary direct payments and eco-contributions. Since 1999, a new agricultural law is in force. The new laws smooth the way for the Agricultural Policy 2002. They introduce a basic reshaping of agricultural legislation and are thus supposed to liberalize agricultural markets till the year 2002. An increase of the capacity to compete in the agricultural sector is expected through a far-reaching reduction of price and sales security. The sustainability of agricultural production is to be conserved and supported by means of direct payments. To release additional payments, ecological efficiency must be proved.

The situation of Swiss farmers aggravates at present as incomes are really decreasing. Especially enterprises which produce intensively on small areas suffer under the increasing economic pressure. Pressure is particularly high in the Alpine region. Future prospects are good for efficiently managed, large-area enterprises which can afford to practise more extensively on some of their grounds and secure additional income through ecoservices. Migration trends are intensified by attractive income possibilities outside agriculture. Many farm enterprises operate increasingly as part-time enterprises. Information on laws and regulation concerning agriculture are found on the following websites:

- Agricultural Information Service: <http://www.lid.ch>
- Federal Office for Agriculture: <http://www.blw.admin.ch>

Agricultural Agreement Switzerland – EU

Switzerland is surrounded by the gigantic agricultural market of the EU. Developments on this market have a considerable influence on the country. Large differences exist with regard to the price level, which is considerably lower in the EU. A huge potential of consumers can be reached with the so-called unity of the market, that is free traffic for all agricultural products in the EU. For this purpose, all customs and commercial hindrances were eliminated in the EU. Therefore, the cost environment is completely different for Swiss farmers. With regard to a change towards organic agriculture, the EU as a whole is left far behind by Switzerland.

On the 21st of May 2001, the bilateral agreements of Switzerland with the EU were accepted by the Swiss nation. These agreements significantly concern agriculture. The bilateral Agricultural agreement Switzerland – EU plans both quantitative and qualitative relief of the mutual access to the market for some agricultural products. That is, customs barriers are supposed to be reduced on the one hand and border formalities shall be simplified on the other hand. Mainly specialities are affected. Basic foods such as cereals and meat are excluded as well as processed agricultural products. Furthermore, border formalities are simplified or completely eliminated in the areas of plant protection, seed, animal food and organic agriculture. The bilateral agricultural agreement with the EU completes the Agricultural Policy 2002 reform which is being realised since 1999.

Markets are mutually opened for some agricultural products. With that, Swiss farmers can now, amongst other things, export food into the EU.

3.8.6. Slovenia

According to the last statistical data from 1996, scarcely 43% (780000 ha) of the national territory of Slovenia belongs to the agriculturally usable area. At present, only one third is cultivated. The largest part of the cultivated area is occupied by fields and gardens, 4% are fruit gardens and 3% vineyards. Meadows and pastures dominate strongly, they occupy almost two thirds of the area.

Traditional agriculture has not survived in most Slovenian regions. Today, modern varieties are cultivated there on a large scale. Most of the old cultivars and varieties have survived in some underdeveloped and marginal regions where they are still cultivated by old farmers. However, gene erosion becomes increasingly obvious in these regions, too.

3.9. Common Agricultural Policy (CAP) of the EU

To improve agricultural structures within the EU, the CAP – Common Agricultural Policy – was introduced in 1972. In 1992, the most radical reform package for European agriculture came into force. Main objective was to keep up with market and technology development, to limit overproduction and to prevent income decrease through expenditure reduction. This reform package is supposed to guarantee the position of the EU as great producer and exporter through improvement of the internal and external competitive capacity. Furthermore, these reforms include environmental protection, promotion of rural areas, prevention of migrations and reduction of support to close to the market level.

The reduction of price support to world level is compensated by direct income support. To distribute income support, the producers are divided up into two groups. Those producing more than 92 tons belong to the large producers. Their support follows the “general system”. It depends on the respective cultures, the producer is obliged to set-aside a part of the area. For those producing less than 92 tons, the simplified system is valid. Land set-aside is voluntary and not depending on cultures. More than 60% of cereal farmers belong to the “large” producers, 98% of the oil plant producers, however, belong to the small producers. As accompanying measures for the agricultural reform, different regulations were introduced. Regulation 2078/92, for example, supports a more environmentally friendly agriculture. The Agenda 2000 is a package of measures for the modernisation of certain EU politics. The objective is to prepare the Union for future tasks and the pending extension in the spirit of solidarity. For CAP – Common Agricultural Policy – the Agenda 2000 includes the continuation of the reform of agricultural policy according to the reorientation tackled since 1988 and 1992. The following aims are striven for in the area of agriculture:

- Strengthening of European Competitive Capacity
- Comprehensive inclusion of environmental matters into other areas of politics.
- Stabilisation of appropriate income in agriculture
- Simplification and decentralised application of the relevant laws

Member status of the Alpine countries:

- Germany: Founding member (1951)
- Italy: Founding member (1951)
- France: Founding member (1951)
- Austria: Joining 1995
- Slovenia: Between Slovenia and the EU, the association agreement was signed in 1996. The Slovenian joining application has been submitted but has not been passed yet. The basic differences (structural, social, economic) implicate that the agricultural policy of the EU and delimitation of regions which are supported by structural funds have to be revised fundamentally.

- Switzerland: bilateral agreements since 2001
- Liechtenstein: no member, EWR-agreements are available.

4. General report on cultivated plants in the French Alpine region

4. 1. General situation in France

Since 1976, many programs on agricultural research have been launched, especially by the “Service de conservation de la nature” and the “Laboratoire d’ethnobotanique du Muséum d’histoire naturelle”, furthermore by the “Fédération des parcs naturels de France”, the CNRS (Centre National de Recherche Scientifique), INRA (Institut National de Recherche Agronomique) and several universities.

The BRG (Bureau des Ressources Génétiques) was founded in 1983 to provide a scientific basis for conservation efforts and guide local activities, it also performs representative duties at the international level. The institution collaborates closely with the CIRP/IBPGR (Conseil International des Ressources Phytogénétiques / International Board for the Protection of Genetic Resources). Despite limited means its activities are very important for the conservation of cultivated plants.

Three botanical conservatories were approved of in 1990: Brest, Nancy and Porquerolles. These genebanks, capable of collecting and conserving plant genetic material, play an important role in the *ex situ* conservation of cultivated plants.

For some years the BRG has been supporting the foundation of cooperation network for the conservation of Plant Genetic Resources. The first task was to identify and create an inventory of available Plant Genetic Resources in France for some species of cultivated plants and to secure the existence of those worth conserving.

At the time of the first edition of this study, three networks for the conservation and administration of Plant Genetic Resources had already been established:

- Forest genetic resources (ONF, INRA, CEMAGREF, DERF)
- Straw cereals (INRA, GEVES, private initiatives)
- Tomatoes (INRA, the enterprises CLAUSE, VILMORIN and TEZIER)

Others were planned at this time and have been almost fully implemented:

- Forage plants (INRA, GEVES, ACVF)
- Fruit trees (BTG, INRA, IRFA, CTIFL, AFCEV)
- Sunflower (INRA, PROTOURNESOL)
- Maize (INRA, PROMAIS)

There are national collections for the following plant groups:

- Vines (ENSAM, INRA)
- Potatoes (INRA, St. Amélioration Pomme de Terre)
- Onions (ENSH-INRA, Versailles ENSH)
- Cruciferae (ENSAR-INRA, St. Amélioration des plantes de Rennes)

The administrative sector is very active in the area of biological diversity. It takes part in agricultural studies and in the conservation of Plant Genetic Resources and performs PR-duties.

Actors in the area of biodynamic agriculture are also engaged in the *in situ* conservation of cultivated plants.

4. 2. Protection of cultivated plants in the French Alpine region

4.2.1. Management of the distribution of local varieties

France is the leading producer of seeds in the EU and the second largest worldwide (after the USA).

In France only varieties recorded in the official variety list may be traded for agricultural use. Exceptional permission can be obtained for varieties stored in French genebanks. Old local varieties may be used for breeding.

In France, there is a so-called B-list with varieties which are not included in the official variety list and which may be marketed on a small-scale. The list is based on the 'Villmorin' of 1900. Only producers/breeders, who are members of an association, may market these old varieties. Furthermore, there must be a scientific description of the variety and pure-bred lines must be guaranteed. Therefore, there are enormous hindrances to marketing old local varieties.

Moreover, individual plant groups are treated very differently:

For fruit, there is a catalogue in France which is, however, not binding. A minimum requirement concerning disease susceptibility has to be fulfilled. Local breeds may only be traded in small amounts. There is no longer a fee for placing an entry in the fruit catalogue (previously 1500 FF) under the condition that the fruit variety has existed for at least 30 years and that some representative plants are available for comparative purposes.

Vegetable varieties, however, must be listed in the official catalogue. Many old varieties are described in the catalogue. For potatoes, a similar solution to the one for fruit is planned. No catalogue exists for medicinal plants and spices, they are therefore not subject to any control. To date, few efforts have been made to compare varieties not officially licensed. Evaluation work has only recently gained increasing attention.

4.2.2. National and regional legislation for the conservation of Plant Genetic Resources

In France, there is no law explicitly dealing with the protection of cultivated plants. However, the obligations of the different private and public partners are included in the national charter for the administration of the plants.

4.2.3. Implementation of the National Plan of Action

The BRG (Bureau des Ressources Génétiques) is responsible for the implementation of the National Plan of Action. Projects are not aimed directly at conservation work / inventories. In 1983 the Bureau de Ressources Génétiques was given the task of drawing up a national program for the protection of genetic resources. The following nine institutions belong to the scientific association of the BRG. They have signed the national charter and agreed to implement it in the next few years:

- Ministère en Charge de la Recherche, Ministry of Research
- Ministère en Charge de l'Agriculture, Ministry of Agriculture
- Ministère en Charge de l'Environnement, Ministry of Environmental Affairs
- Institut National de la Recherche Agronomique (INRA)
- Muséum National d'Histoire Naturelle (MNHN) National Museum for Natural History
- Centre National de la Recherche Scientifique (CNRS)
- Institut de Recherche pour le Développement (IRD)

- Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)
 - Groupe d'Étude et de Contrôle des Variétés et des Semences (GEVES)
- Plant Genetic Resources are defined as old and modern varieties, local populations and related wild forms.

4.2.4. Financial support for the conservation of cultivated plants in the French Alpine region

Financial support is not provided directly for the conservation of cultivated plants in the French Alpine region. However, public organisations supporting national and regional collections receive funds.

4.2.5. NGOs active at the national level

AFCEV – Association Française pour la conservation des espèces végétales (*French Association for the Conservation of Plant Species*)

Address: M. Pierre GUY, 4, rue de la Rangonnière, 86600 Lusignan, Tel./Fax: 0033—54/943 66 28

Office: Conservatoire et Jardins Botaniques de Nancy, 100, rue du Jardin Botanique, 54600 Villers-les-Nancy, Tel.: 0033-3/83 91 84 93, Fax: 0033-/83 27 86 59, E-mail:

AFCEV@jardin-bota.u-nancy.fr

Contact: Romaric Pierrell

Description: AFCEV is an association active throughout France, particularly for PR-work. It wishes to raise awareness and encourage activities on rare cultivated plants. The Alpine region is not its main field of activity. Strictly speaking, the association does not work in the field of genetic resources as it does not possess its own collection. It is, however, very active in the informal and administrative sector.

Type of organisation: association

Association Nationale des Croqueurs de Pommes

Address: BP 702, 90020 Belfort Cedex, Tel./Fax: 0033-3/84 21 41 70, E-mail:

croqueurs.de.pommes@wanadoo.fr

Director: Claude Scribe

Contact: Georges Gueutal

Description: The Association Nationale des Croqueurs de Pommes is active throughout France, with 40 local departments distributed all over the country. Its main focus is on fruit. More details of this organisation can be found in the portrait section.

Type of organisation: Non-governmental organisation (NGO)

Association Conservatoire Fruit Oubliés

Address: 4, Av. De la Résistance, 30270 St. Jean du Gard, Tel.: 0033-4/66 85 33 37, Fax: 0033-4/66 85 19 66, E-mail: fruit.oublies@wanadoo.fr

Director and contact: Christian Sent, Tel.: (direct) 0033-4/66 85 32 18

4.2.6. Governmental Institutions

BRG (Bureau des Ressources Génétiques) – Collections de ressources génétiques végétales

Address: 16, rue Claude Bernard, 75231 Paris Cedex 05, Tel.: 0033-1 44 08 72 61, Fax: 0033-44 08 72 63, Internet Address: <http://www.brg.prd.fr>

Director: Dr. Dominique Planchenault, E-mail: Dominique.Planchenault@inapg.inra.fr

Contact: Martine Mitteau, E-mail: Martine.Mitteau@inapg.inra.fr

France maintains national as well as international collections of Plant Genetic Resources which are also available to the international community. The BRG represents France on international committees. The national collections contain genetic resources the conservation of which is in the responsibility of the French state. These resources from moderate and tropical climatic zones, acquired by exchange or from original sites in France, consists of both old and modern varieties, local varieties and wild forms. They are managed by means of a common network. Within the framework of international cooperation France is responsible for the conservation of international collections (*Lathyrus*, *Medicago*, *Prunus*, *Vicia faba*, wheat). The BRG is connected to the different ministries of research, industrial agriculture, environment, development and cooperation, as well as with the "Institut National de la Recherche Agronomique" (INRA), the "Muséum National d'Histoire Naturelle" (MNHN), the "Centre National de la Recherche Scientifique" (CNRS), the "Institut de Recherche pour le Développement" (IRD), the "Centre de Coopération International en Recherche Agronomique pour le Développement" (CIRAD) and the "Groupement d'Étude et de Contrôle des Variétés et des Semences" (GEVES).

Type of organisation: governmental

Active since: 1983

Members of staff: 7

Data bank: yes

GEVES (Groupe d'Étude et de Contrôle des Variétés et des Semences)

Address: La Minière, 78285 Guyancourt Cedex, Tel.: 0033-1 30 83 30 00, Fax: 0033-1 30 83 36 29

Internet Address: <http://www.geves.fr>

Director: Yvette Dattée

Contact: Pierre-Louis Lefort (President)

Description: GEVES (Groupe d'Étude et de Contrôle des Variétés et des Semences) provides research and analysis for patenting new plant varieties and is responsible for the certification of plant breeds. It furthermore coordinates and directs the networks of Plant Genetic Resources, carries out research and training in seed analysis and conducts studies and tests for varieties and variety names. In France, there are seven autonomous units of GEVES and a further seven which are affiliated to INRA. Each of them specialises on certain species of cultivated plants. To date, none of these stations has carried out research on cultivated plants from the Alpine region. The GEVES collections are not actually genebank collections, but collections of varieties traded on the market. At a European level and in coordination with the BRG (Bureau des Ressources Génétiques), GEVES is responsible for genetic resources of straw cereals and species of forage plants and roses.

Type of organisation: governmental

INRA

Address: 147, rue de l'Université, 75338 Paris Cedex 07, Tel.: 0033-1/42 75 90 00, Fax: 0033-1/47 05 99 66

Internet Address: <http://www.inra.fr/>

The Institut National de la Recherche Agronomique was founded in 1946 and became a public national scientific and technical institution in 1984, directed by the Ministries for Research and Agriculture. Presently INRA has three core tasks:

- To assure and guarantee the quality of food for consumers.
- To protect the competitiveness of agricultural enterprises and those processing agricultural products to foodstuffs.

- To contribute to a homogeneous agricultural development and to maintain natural resources.

Type of organisation: governmental

4.2.7. Integration of France into the ECP/GR

This chapter lists contacts and institutions involved in working groups of the ECP/GR in France. More detailed information on ECP/GR is contained in the chapter 'Introduction'.

National coordination:

The Bureau des Ressources Génétiques, 16 rue Claude Bernard, 75231 Paris Cedex 05, Tel.: 0033-1/44 08 72 61, Fax: 0033-1/44 08 72 63, E-mail: brg@inapg.inra.fr, is responsible for the national coordination of the ECP/GR in France.

ECP/GR working groups:

Allium working group:

Partner in France: Martine Mitteau, Bureau des Ressources Génétiques (BRG), 16 rue Claude Bernard, 75231 Paris Cedex 05, Tel: 0033-1/44 08 72 69, Fax: 0033-1/44 08 72 63, E-mail: martine.mitteau@inapg.inra.fr

Oats working group:

Partner in France: Jean Koenig, Station d'Amélioration des Plantes, INRA, 244 Avenue du Brezet, 63039 Clermont-Ferrand Cedex 02, Tel: 0033-473 62 43 27, Fax: 0033-473 62 44 53, E-mail: koenig@clermont.inra.fr

Barley working group:

Partner in France: Louis Jestin, Station d'Amélioration des Plantes, INRA, Domaine de Crouelle, 234 av. Du Brezet, 63039 Clermont-Ferrand Cedex 01, Tel: 0033-473 62 43 11, Fax: 0033-473 62 44 53, E-mail: jestin@clermont.inra.fr

Beta working group:

Partner in France: Bruno Desprez, Florimond Desprez, Créations Variétales, BP 41, 59242 Cappelle-en-Pévèle, Tel: 0033-3/20 84 94 90, Fax: 0033-3/20 59 66 01, E-mail: bruno.desprez@florimond-desprez.fr

Brassica working group:

Partner in France: Grégoire Thomas, ENSA – INRA, Science du végétal, 65 rue de Saint-Brieuc, 35042 Rennes Cedex, Tel: 0033-223 48 54 76, Fax: 0033-223 48 54 80, E-mail: gthomas@agrorennes.educagri.fr

Forage plants working group:

Partner in France: Vincent Gensollen, GEVES La Valette, 711 rue J.F. Breton, 34090 Montpellier, Tel: 0033-467/04 35 80, Fax: 0033-467/63 37 58, E-mail: vincent.gensollen@geves.fr

Grain legumes working group:

Partner in France: Dr. Gérard Duc, Laboratoire des Légumineuses, URGAP - INRA, BP 1540, 21034 Dijon Cedex, Tel: 0033-3/80 69 31 48, Fax: 0033-3/80 69 32 63, E-mail: duc@epiosses.inra.fr

Malus / pyrus working group:

Partner in France: François Laurens, Station amélioration espèces fruitières et ornementales - INRA Angers, Bois l'Abbé - BP 57, 49071 Beaucouze Cedex,
Tel: 0033-241/22 57 63, Fax: 0033-241/22 57 55, E-mail: laurens@angers.inra.fr

Potatoes working group:

Partner in France: Daniel Ellissèche, INRA, Amélioration de la Pomme de terre, Domaine de Kéraiber, 29260 Ploudaniel, Tel: 0033-229/ 62 63 11 (direct); 62 63 10 (reception),
Fax: 0033-229/ 62 63 30, E-mail: Daniel.Ellisseche@rennes.inra.fr

Prunus working group:

Partner in France: Françoise Dosba, Unité de Formation et Recherches Arboricult. Fruitière, ENSAM/INRA, Place Viala, 34060 Montpellier Cedex 01, Tel: 0033-499/61 27 81, Fax: 0033-499/61 26 16, E-mail: dosba@ensam.inra.fr

Umbelliferae working group:

Partner in France: Mathilde Briard, ENSH – ENITP, 2 rue Le Notre, 49045 Angers Cedex,
Tel: 0033-241/22 54 63, Fax: 0033-241/22 54 59, E-mail: briard@angers.inra.fr

Wheat working group:

Partner in France: Annick Le Blanc, Coll. Nationale Céréales à Paille, GEVES - Domaine du Magneraud, Saint-Pierre d'Amilly - BP 52, 17700 Surgères, Tel: 0033-546/68 30 93,
Fax: 0033-546/68 30 24, E-mail: annick.leblanc@geves.fr or aleblanc@calva.net

4.3. EU-Measures on the conservation of cultivated plants in the French Alpine Region

4.3.1. Regulation 2078/92 (new: 1257/99)

In France, no measures within the framework of regulation 2087/92 for the conservation of Plant Genetic Resources have been implemented.

4.3.2. Regulation 1467/94

Contact in France for regulation 1467/94:

Mrs. Marianne Lefort, Bureau des Ressources Génétiques, 16 rue Claude Bernard, 75231 Paris cedex 05, Tel.: 0033-1/44 08 72 61, Fax: 0033-1/44 08 72 63,
E-mail: brg@inapg.inra.fr

France participates in the following projects of EU regulation 1467/94 (more detailed information on regulation 1467/ 94 may be taken from the chapter 'Introduction').

GENRES 052 - *Rosa* (coordinator)

Contact: Dr. M.H. Gandelin, Groupe d'Étude et de Contrôle des Variétés et des Semences, GEVES, Zac St Philippe Route des Colles Sophia Antipolis, 6410 BIOT

GENRES 061 - *Prunus* (coordinator)

Contact: Dr. F. Dosba, Institut National de la Recherche Agronomique, INRA, B.P. 81, 33883 Villenave D'Ornon

GENRES 088 - *Maize* (coordinator)

Contact: Dr. J. Dallard, Institut National de la recherche Agronomique, INRA, Centre de Montpellier, Unité de Formation et de Recherche en Génétique et Amélioration des plantes, Domaine de Melgueil, 34130 Mauguio

GENRES 078 – Elm (coordinator)

Contact: Dr. E. Collin, CEMAGREF, Division Ressources Génétiques et Pépinières, Forestières, Groupement de Nogent-sur-Vernisson, Domaine des Barres, 45290 Nogent-sur-Vernisson

GENRES 037 - Rice (*Oryza sativa*) (oordinator)

Contact: Dr. H. Feyt, Centre de Coopération internationale en recherche agronomique pour le développement, CIRAD-CA, BP 5035, 34032 Montpellier Cedex 01

GENRES 029 - Minor fruit tree species

Contact: Dr. J.P. Roger, Conservatoire Botanique National de Porquerolles, CBNP, Castel Sainte-Claire - Rue Sainte Claire, 83418 Hyers

GENRES 104 - Barley

Contact: Dr. A. Le Blanc, Groupe d'Étude et de Contrôle des Variétés et des Semences, GEVES, Domaine du Magneraud, BP 52, 17700 Surgères

GENRES 034/045 - Potatoes

Contact: Dr. Daniel Ellisseche, Institut National de la Recherche Agronomique, INRA, KERAIBER, 29260 Ploudaniel

GENRES 081 - Vine

Contact: Dr. J.M. Boursiquot, Institut National de la Recherche Agronomique, INRA, 2, Place Viala, 34060 Montpellier

GENRES 097 - Olives (*Olea europaea*)

Contact: Dr. P. Villemur, Ecole Nationale supérieure Agronomique, ENSA, 2, Place Viala, 34060 Montpellier

4.3.3. Regulation 2081/92

The following species and varieties of cultivated plants are protected by the EU quality seals PDO (Protected Designation of Origin) and PGI (Protected Geographical Indication). Further information on regulation 2081/92 is included in the chapter 'Introduction' :

- Olives cassées de la Vallée des Baux de Provence /olive variety
- Olives noires de la Vallée des Baux de Provence: no further information /black olive variety
- Olives noires de Nyons (AOP) / black olive variety

Contact: Syndicat Interprofessionnel de l'Olive de Nyons et des Baronnie

- Lentille verte du Puy(AOP) / green lentil variety

Contact: Immeuble Interconsulaire/Groupement des Producteurs de Lentilles Vertes du Puy, 16, Bd. Bertrand B.P. 63, 43002 Le Puy en Velay Cédex

- Noix de Grenoble (AOP) / nut variety

Contact: Comité Interprofessionnel de la Noix de Grenoble, Les Colombières, 38160 Chatte

- Pommes et poires de Savoie (IGP) /apple and pear varieties

Contact: Fédération des Producteurs de Fruit de Haute-Savoie, Maison de l'Agriculture, 52, avenue des Îles, 74994 Annecy Cédex 09

4.4. Need for action concerning the conservation of cultivated plants in the French Alpine region

In France, genetic erosion has continued over the last ten years. The French Alpine arc is affected in just the same way as other regions. France has been hit especially hard by genetic erosion as the country is the largest European seed producer. Vegetables are most affected as their conservation requires a fast replacement of seed. Vines, however, are cultivated less. At present, farmers are facing considerable economic pressure which forces them to grow high-performing varieties. Many old varieties cannot compete with the modern ones. This is also true for wheat. At an altitude of more than 1000 m a.s.l. modern wheat varieties produce better yields than old local varieties.

The most decisive factor for genetic erosion is the intensification and modernization of agriculture. Furthermore, French legislation has by no means supported the commercialisation of traditional varieties. A variety can only be marketed when listed in the official catalogue. In order to be included in the catalogue, a variety has to fulfil the criteria of differentiability, homogeneousness and stability. Inclusion in this catalogue is the privilege of a few.

Numerous listed local breeds are not reproduced any more because demand is lacking. It is, however, not considered necessary to include forage plants in the catalogue as long as they are not endangered. Official EU catalogues are coordinated with the national catalogues.

In France, the CPTS (Comité technique permanent de la sélection des plantes cultivées) administers the official variety catalogue, supported technically by GEVES (Groupe d'étude et de contrôle des variétés et des semences). Implementation is the task of INRA.

Old varieties of cultivated plants can only survive if they are economically viable; the Seed Regulation, however, sets boundaries to that. The Seed Regulation must be loosened in order to be able to market the long neglected local breeds. Furthermore, the political side should be sensitised for the topic of agricultural genetic resources. Raising awareness is an urgent task. Product promotion and marketing of old varieties of cultivated plants could help to bring them back to the kitchen.

Old local varieties of vegetables have survived almost exclusively in house and farm gardens. The last vegetable inventories were closed in 1985. Therefore, there is an urgent need to start vegetable collection tours in the Alps again, with special attention being given to house and farm gardens.

Fruit enjoy the strongest conservation initiative in the French Alpine region. Gaps exist in the inventories of the departments Var and in particular Drôme. Neither are there recent systematic collection tours nor are there any studies on the subject. There is an urgent need for action to fill these gaps.

There are a considerable number of NGOs in France working in this area. They emphasize different aspects in the field of conservation work. Unfortunately, these NGOs are hardly known in France. Neither the governmental side nor university institutions could provide information on them. There is an urgent need to increase the integration of the NGOs into conservation work and to coordinate their efforts with public conservation work. Furthermore, a network should be created which links all involved actors. In many cases, NGOs suffer from a lack of finances and personnel. Most of the active individuals are amateurs. Many of them have stopped their activities because administrative and staff expenditures are too high. They do not receive any financial support. There is an urgent need to study NGOs and their work and to support them financially.

5. Portraits of organisations, institutions and institutes active in the conservation of cultivated plants in the French Alpine region

This chapter contains portraits of actors committed to the protection of cultivated plants in the French Alpine region. The information is valid for 2001 if not specified otherwise.

Particularly private activists are represented by the networks in which they are integrated. The list does not claim to be complete. Information has been taken from questionnaire responses, Internet and literature searches and from personal contacts. Not all information could be verified but has been used as transmitted.

5.1. Fruit

5.1.1. Background

General situation in France:

The French orchard production is distributed over approx. 68,000 enterprises with a total area of 160000 ha. The following seven species are the most dominant apples, pears, peaches, plums, cherries, apricots and almonds. More than half of the farms and the area used for fruit cultivation is located in the south-eastern part of France.

Situation in the French Alpine region

The Rhône plain and the Provence are important regions for fruit production. In the region of PACA, fruit production is concentrated in the lower valleys of the rivers Rhône and Durance, (Bouches-du-Rhône and Var), in the Central Durance (Alpes-de-Haute-Provence), in the Haute-Durance (Haute-Alpes), in Gapeau, Argens and Reyan (Var) and in the Var valley (Alpes Maritimes).

Because of their economic importance before intensive fruit production started apple and pear trees are the most frequently cultivated fruit trees in the mountain regions. Their importance has led to a broad variability.

Traditionally grown fruit in the French Alpine region

The fruit species most frequently grown in the French Alpine region are apples and pears, followed by cherries, plums, quinces and nuts. Previously there were numerous nut varieties in the Grenoble area. Almonds and figs were rarely grown in the Alpine region as the upper altitude limit for their cultivation is 800 m a.s.l.. Figs tended to be grown for private use. Olives grow between 200 and 600m and are, accordingly, not cultivated in the Alpine region. In the Rhône Valley apricots have been planted in many places. A form of *prunus domestica* is also grown in the Alpine region. It is called “Prune à Pistolles” and occurs in a black and a yellow form.

5.1.2. Overview of actors

In France most of the conservation initiatives are centered around. Conservation work is carried out by specialised associations (e.g. Croquers de Pomme), regional and national nature parks, ecological museums, agricultural technical schools, pomaceous fruit farmers, research institutes, botanical gardens, botanical conservatories, isolated amateurs and by groups of

amateurs etc. Altogether, approx. 30 actors are involved in fruit conservation in the French Alpine region. Within the framework of this project, not all of them can be portrayed.

5.1.3. Collections

In 1986 an inventory of fruit varieties in the PACA region was carried out by the PAGE PACA in cooperation with the association “Fruit Oubliés” and the conservatory of Porquerolles. The PAGE PACA is no longer active. The study shows the diversity of apples, pears, peaches, cherries, apricots, almonds, figs and olives in the region PACA. The conservation of fruit trees in the French Alpine arc presents itself as follows:

in situ.

Activities of the different parks and organisations committed to conservation work and the “Conservatoire botanique national de Porquerolles” are coordinated in the region PACA.

Conservation measures are implemented at different sites:

- Porquerolles: National collection of peaches, almonds, figs and apricots.
- St. Maxim: Collection of cherries and plums.
- Gap-Charance: National collection of apples, pears and quinces.
- Manosque (Association Thomassine): Duplicates of the apple and pear collections.

In High Savoy and Savoy there has been an exchange of information between the national park of Vanoise, nature reserves and the DDA of High Savoy with the aim of installing a conservation network in the two departments. The objective is to set up a network with three different supplementary conservation orchards:

- Orchard St. Jean-d’Arvey (close to Chambéry-Savoie): founded in 1986 the orchard is open to the public.
- Viuz-en-Sallez (High Savoy): belongs to the farmers' museum, the orchard fulfils a didactical purpose.
- Agricultural Technical School of Poisy and IFOTERM (close to Annecy, High Savoy): scientific identification and agricultural evaluation of varieties from Savoy.

ex situ.

In the “Conservatoire botanique de Gap-Charance”, duplicates of typical varieties from various Alpine departments are conserved.

The National Park of de la Vanoise maintains a collection of local varieties of apples and pears.

The regional park of Luberon cultivates both an orchard for the conservation of old traditional varieties of almonds, apricots, figs, apples, pears, cherries and plums, as well as small rural fruit gardens for demonstration purposes and sensitisation of the public.

EGID citrus network databank

Internet address: <http://www.corse.inra.fr/sra/egide.htm>

Description: EGID (“Evaluer, Gérer, Informatiser, Diffuser”) was set up at the SRA INRA-CIRAD, San Giuliano to supply basic information on biology and pomological characteristics of the citrus collection which includes 1160 individual scions, rootstocks and citrus relatives. Stored field and laboratory data are available from a computer network.

5.1.4. Need for action

Within the last 60 years a development towards intensive fruit tree cultivation and the replacement of old traditional varieties with modern ones has taken place. However, as fruit trees are long-lived, numerous old varieties can still be found. Unfortunately, many of these trees and their farmers are already very old. Many trees are not looked after at all and conservation measures are urgently needed.

Economic considerations have led to many conservation initiatives being implemented for fruit trees in the region. However, not all local varieties have yet been collected. Therefore, inventories must be carried out in cultural gardens, especially in the departments of Drôme and Var. There are no studies published on systematical collection tours in the department Drôme.

No systematic nut collection tour has yet taken place in the French Alpine region. There is an urgent need to start collection tours for walnuts and hazelnuts. Furthermore, old and still existing nut trees should be protected so that they may not be used in the wood processing industry. There used to be a number of walnut varieties in the Grenoble area. Today, the nut is cultivated in monocultures with only one variety, resulting in a very high risk of diseases. The monocultures must be replaced by mixed cultures thus reducing the risk of epidemics.

Most information about the present state of fruit varieties is available for the southern French Alps, where PAGE PACA was very active in the 1980s. Action is required to collect the information for the northern French Alps as well.

On the whole there is no documentation and evaluation of collected material. The databank for fruit is not up-to-date and literature on fruit is practically not available. There is an urgent need to close the existing knowledge gaps. Cooperation is required between university institutions and private persons working on the conservation of fruit.

5.1.5. Actors

Arboretum National d'Aubonne

Address: 18, Rte de Bénex, 1197 Prangins, Tel: 0033-22/361 45 24,

Fax: 0033-22/361 45 24

Contact: Prof. R. Corbaz

President: P.-R. Martin

Description: The Arboretum National d'Aubonne (former name: AAVA - Association des Amis du Vallon de l'Aubonne) supervises a collection of old local varieties. They originate mainly from French-speaking Switzerland. French varieties, however, are also included. It is estimated that approx. 80% of varieties come from the Alpine region. Conservation is both *in situ* and partially *ex situ* in a genebank.

The collection includes the following fruit species:

- Apples: 101 varieties
- Pears: 91 varieties
- Cherries: 69 varieties
- Plums: 25 varieties
- Medlar (*Mespilus germanica*): 4 varieties
- Elder (*Sambucus nigra*): 3 varieties

Type of organisation: private

Active since: 1975

Members of staff: 4

Number of members: approx. 2000

Databank: yes

Additional protection of conserved varieties: partially (genebank)

Long-term conservation: yes

AFCEV – Association Française pour la conservation des espèces végétales

Address: M. Pierre GUY, 4, rue de la Rangonnière, 86600 Lusignan,

Tel./Fax: 0033-5/49 43 66 28

Office: Conservatoire et Jardins Botaniques de Nancy, 100, rue du Jardin Botanique, 54600 Villers-les-Nancy, Tel.: 0033-3/83 91 84 93, Fax: 0033-3/ 83 27 86 59,

E-mail: AFCEV@jardin-bota.u-nancy.fr

Contact: Romaric Pierrell

Description: AFCEV has participated since 1985 in inventories of cultivated plants. Its focus is on research and conservation of plant material. It is estimated that more than 60% of the old local varieties cited in old pomological literature dating from the last century could be located.

The work program of AFCEV since 1985 includes:

- drawing up a list of tasks for fruit conservation orchards which apply for ACFCEV approval.
- elaboration of pomological descriptions
- writing handbooks with variety descriptions which assist hobby gardeners in their work. A corresponding software is being prepared.
- consultation for and appraisal of conservation orchards.
- centralisation of applications for the CTPS list of amateur varieties.

A long stretch of road has already been covered concerning the conservation of fruit trees in France. It is important to continue inventories and conservation activities and to coordinate working methods and support the exchange of information and plant material.

Type of organisation: private

Jardin des Hesperides

Address: Ferme Fruitiere de la Hautiere, 44240 La Chapelle/Erdre, Tel.: 0033-2/40 72 03 83, Fax: 0033-2/40 72 88 14

Contact: Jean-Yves Maisonneuve

Description: 8 subgardens are linked to the Jardin des Hesperides, amongst them the "Jardin des Fraises", "Jardin des Fruit Sauvages", "Jardin Meditteraneen". Fruit from the Alpine region are also included in the collection.

Type of organisation: private

Pepinieres Jouve Racamond

Address: Quartier St-Jean, RN 7, 13670 Saint Andiol, Tel.: 0033-4/90 95 00 07, Fax: 0033-4/90 95 11 43

Contact: Pierre Racamont

Description: Specialises in old varieties. The following berry species are included: red currant, black currant, strawberry, raspberry, blackberry, mulberry, bilberry, medlar, elder, forgotten berries and wild fruit, tropical fruit.

Type of organisation: network of private persons

Association Nationale des Croqueurs de Pommes

Headquarters: BP 702, 90020 Belfort Cedex, Tel./Fax: 0033-3/84 21 41 70, E-mail: croqueurs.de.pommes@wanadoo.fr

Director: Claude Scribe

Contact: Georges Gueutal

Other contacts in the French Alpine region:

Haute-Savoie:

Address: Maison de la Mémoire, 74490 St. Jeoire, Tel.: 0033-4/50 35 99 61

Contact: Sébastien Maury

Confluent Ain-Isere-Savoie:

Address: 98, route du Quinquet, 38630 Les Avenièrès, Tel.: 0033-4/74 33 66 72

Contact: Gérard Aventin

Provence Alpes Cote d'Azur

Address: Association Li Vieii Pero, 319, Chemin de la Rapine, 13090 Aix en Provence, Tel.: 0033-4/42 20 20 29

Contact: Luis Monguilan

Description: Croqueurs de Pommes is an association active throughout France, conserving the national French fruit heritage. The Alpine region is also included. Conservation work is carried out *in situ*, *ex situ*, through PR-activities and through the promotion of fruit diversity. The association covers the following fruit species: apricot, almond, blackcurrant, cherry, European chestnut, quince, fig, strawberry, raspberry, gooseberry, blackberry, walnut, olive, peach, pear, apple, plum. Further information on the Croqueurs can be found on the website: <http://www.croqueurs-de-pommes.asso.fr/>

Type of organisation: non-governmental organisation

Active since: 1978

Number of members: 40 local departments of the association are distributed all over France:

Association Conservatoire Fruit Oubliés

Address: 10 bis, rue de l'Industrie, 30270 St-Jean-du-Gard, Tel.: 0033-4/6685 33 37

Director: Christian Sunt

Contact: : Christian Sunt

SALAGON - Musée Conservatoire Ethnologique de la Haute-Provence

Address: SALAGON, 04300 Mane, Tel.: 0033-4/92 75 70 50, Fax: 0033-4/92 75 70 58,

E-mail: musee.salagon@wandoo.fr

Director: D. Musset

Description: The “Musée Conservatoire Ethnologique de la Haute-Provence” is active in the collection of ethnobotanical important plants and local varieties. Priorities of its activities are the conservation of the collection and its utilisation for teaching purposes. The Haute-Provence is covered as a geographical area. Conservation work is carried out *in situ* in an orchard and by conservation and exchange of seed material.

The “Musée Conservatoire Ethnologique de la Haute-Provence” maintains a small collection of mulberries collected during an inventory, and a collection of cultivated ones. One medlar variety and some local varieties of *Prunus Domestica* are also conserved here. Within the framework of a recently started project collections of both sorb-trees (*Sorbus domestica*) and kakis (*Diospyros kaki*) are planned.

Type of organisation: public, subordinated to the Departement Alpes-de-Haute-Provence.

Active since: 1986

Members of staff: 15

Databank: no

Additional protection: living plants are conserved *in situ*, seeds in a cooling chamber

Long-term conservation: yes

Conservatoire botanique alpin de Gap-Charance

Address: Domaine de Charance, 05000 GAP, Tel.: 0033-/92 53 56 82, Fax: 0033-4/92 51 94 58, E-mail: cbn-gap@wanadoo.fr

Director: J. Pière Dalamas

Contact: Marie Tarbouriech

Description: The “Conservatoire botanique alpin de Gap-Charance” is exclusively active for fruit conservation, especially pomaceous fruit. Wild fruit, such as *Rosa* sp., *Prunus brigantina* and *Hippophae* are also included. The French Alpine region and, for pomaceous fruit, the entire country is covered. Conservation work is carried out on-farm for the local varieties of the southern Alps and *in situ* for wild fruit. The Domaine de Charance also maintains a national genebank for pomaceous fruit and an orchard. National collections of apples, pears, and quinces are grown in a 7 ha area round the Château de Charance. The garden includes garden plants such as roses, dogroses, sea buckthorn and plants for replanting (2000 varieties and species). The institution cooperates closely with the BRG (Bureau Ressource Génétique) in PR work. It works exclusively on the conservation of Plant Genetic Resources and carries

out research activities. Conserved fruit are not traded at present. The collection currently includes:

- Apples: 500 varieties, including 30 local varieties.
 - Pears: 900 varieties, including 30 local varieties. Approx. 200 of the pear varieties are cultivated in the Alpine region.
 - Quinces: 100 clones, including 3 local varieties.
- Rosa sp.*, *Hippophae rhamnoides* and *Prunus brigantia* are also included in the collection.

Type of organisation: para-governmental

Active since: 1988

Members of staff: 2/25

Number of members: 4 founding members

Databank: partially available

Additional protection: Participation in a national network for genetic resources for pomaceous fruit. The institution maintains the back-up collection of the INRA d'Angers for local varieties.

Long-term conservation: yes

INRA Angers Unité d'Amélioration des Espèces Fruitières et Ornamentales

Address: Centre INRA Angers BP 57, 49071 Beaucouze Cedex

Director: Y. Lespinasse

Contact: François Laurens, E-mail: flaurens@angers.inra.fr

Description: In Angers, INRA has a collection of old and modern varieties of apples, pears, bilberries and red- and blackcurrant shrubs. The collection of apples is the largest one. The collection originates from the entire country, including the Alps. The "Unité d'Amélioration des Espèces Fruitières et Ornamentales" has defined the following two priorities for its activities: to set up a national collection of fruit trees and to participate in national conservation networks. Conservation work focuses on the above mentioned fruit garden and on *in situ* conservation. The institution also participates in PR work. The following fruit species are conserved by the "Unité d'Amélioration des Espèces Fruitières et Ornamentales":

Apples:

- 1500 imported varieties and approx. 300 French local varieties
- 200 rootstocks

Pears:

- 700 varieties
- 60 rootstocks

Quinces:

- 16 varieties
- 51 rootstocks

Berries (Ribes):

- Currant varieties: 120
- Botanical species: 50
- Redcurrant: 50 varieties
- Raspberry: 120 varieties
- Bilberry: 30 varieties

The "Unité d'Amélioration des Espèces Fruitières et Ornamentales" is also involved in national networking activities in the area of fruit conservation. Partner in the Alps is the "Conservatoire Botanique National Alpin de Gap Charance".

Type of organisation: governmental

Members of staff: 4

Databank: yes

There is an attempt to protect fruit at the national level. There is a plan to set up an additional back-up collection of endangered apple varieties at INRA and other institutions.

Long-term conservation: yes

5.2. Vines

5.2.1. Background

With regard to amount and quality Europe is among the largest wine producers of the world. The market is dominated by France and Italy who also produce the best high-quality wines. The high quality of French wines is a model for many vintagers in the whole world. The most famous vine varieties originate from France. Amongst them are Cabernet Sauvignon, Merlot and Pinot Noir for red wines and Chardonnay, Sauvignon Blanc and Pinot Blanc for white wines. Many different names are used for Burgundy varieties.

The variety of French vines is a result of the varying soil and climatic conditions. The most famous cultivation areas are Bordeaux, Champagne, Burgundy, Alsace, Rhône and Loire.

5.2.2. Traditional viniculture in France

Viniculture in France dates back to the Greeks who cultivated vines already before 500 B. C. Later the Romans set the foundation for the viniculture areas. They already used the climatically favourable slopes in the large river valleys. After the Romans it was in particular the monks of the Middle Ages who supported and extended wine culture. Wine trade experienced its climax in the 17th and 18th century in the coastal regions. At the end of the 18th century the wine louse caused a dramatic production decrease. Production and quality only began to increase again after the Second World War. Since its introduction 1932, the AOC-regulation has determined quality control.

In the Alpine region viniculture is practised on a large scale in the Rhône Plain. But also on mild sites and southern slopes the vine can be cultivated up to altitudes of more than 800 m.

5.2.3. Overview of actors

Each wine region in France has its own collection of regional vine varieties. At the national level, the Station de Montpellier probably has the most extensive collection. It is located at the Unité Experimentale de Vassal – INRA. This is the largest collection of cultivated vines in the world. Many vine varieties in this collection originate from the Alpine region. Other collections are conserved by nurseries, wine farmers, botanical gardens, teaching institutes and by the Muséum d'histoire naturelle. It is very difficult to determine the origin of vines.

5.2.4. Need for action

For vines, the situation is similar to that of most other cultivated plants: genetic erosion still continues today because neither the yield nor the disease resistance of old vine varieties can compete with modern varieties. Thus, the old varieties are seldom cultivated. Additionally, fewer varieties are cultivated. The issue of genetic resources is also a political one. This applies particularly to vines as the plant is of high economic value in the agricultural sector. Current economic pressure in agriculture further aggravates the situation. There is little need for action in the conservation of old vine varieties as they are almost exclusively conserved in the above mentioned collections and rarely by private persons.

5.2.5. Actors

Association Nationale des Croqueurs de Pommes

Address: BP 702, 90020 Belfort Cedex, Tel./Fax: 0033-3/84 21 41 70,
E-mail: croqueurs.de.pommes@wanadoo.fr

Director: Claude Scribe
Contact: Georges Gueutal
Description:

Croqueurs de Pommes has already been described in the chapter on fruit. The association, active throughout France, attends exclusively to fruit. Some private members conserve old vine varieties from the Alpine region in their gardens. Further information on Croqueurs de Pommes may be found on their homepage <http://www.croqueurs-de-pommes.asso.fr>.

Type of organisation: non-governmental organisation

INRA – Unité Experimentale de Vassal

Address: Domaine de Vassal, 34340 Marseillan Plage, Tel.: 0033-4/67 21 91 81,

Fax: 0033-4/67 21 81 39

Director: T. Lacombe, E-mail: lacombe@ensam.inra.fr

Description: The Unité Experimentale de Vassal is active in the conservation of and research on vines. The vines originate from the whole world, some *Vitis vinifera* Ls come from the Alpine region. Conservation work is carried out by a genebank, *in situ* and through PR activities. The genebank, mainly contains varieties of *Vitis vinifera* L. However, it also includes other *Vitis* species and genera of *Vitaceae*. Altogether the Unité Experimentale de Vassal includes approx. 7000 clones and 3000 vine varieties. Considering the size of the genebank it is extremely time-consuming to trace the vine varieties originating from the Alpine region. The origin of most samples is known, but cannot always be verified as the origins have sometimes been obscured.

The Unité Experimentale de Vassal is participating in a European project on genetic resources of vines.

Type of organisation: governmental

Active since: 1949

Number of members: 11

Databank: yes

Additional protection: many vine varieties from the Alpine region are also included in collections in Italy, Austria, Germany and Switzerland. At present, *in vitro* conservation is not possible.

Long-term conservation: Long-term conservation of vines is a main objective of the Unité Experimentale de Vassal

5.3. Vegetables and legumes

5.3.1. Background

Information on traditional vegetable cultivation is only very sparsely available. At present, there are only two or three competent experts working at public institutes who are able to provide detailed information on the subject. Some individuals working for enterprises and organic breeding associations still know something about old vegetables.

Legumes

Beans have been grown for a long time in some Alpine valleys. The villages of Réallon and Le Parcher in Hautes-Alpes were known for their bean production. 77 bean varieties were recorded during an inventory in Parc des Ecrins, (Brun-Lagarde, 1989). These varieties have been subject to intensive agronomic and genetical analysis.

Forgotten vegetables and fruit

The “Institut de Recherche sur les Propriétés de la flore” has conducted a literature inventory of cultivated and wild plants (vegetables and especially fruit) traditionally consumed in the region PACA. The investigation was complemented by oral information.

The study demonstrates the amazing number of vegetables utilised in former times. The diversity is highest near the coastline and decreases with an increasing altitude.

The future of forgotten vegetables can be seen from two different points of view: the one of family economy and the one of commercial economy. The interest in forgotten fruit and vegetables has increased as these plants have the potential to support farmers in their present economic situation as a production alternative.

Vegetables in the French Alpine region

A certain number of local vegetable varieties in the French Alpine region originate from commercial varieties traded by old breeding companies such as Vilmorin, Tézier, Clause and especially Fabre de Metz which distributes vegetable seeds per mail order. The latter mentioned breeding company contributes a great deal to the replacement of old varieties with modern ones, particularly for kohlrabi (*Brassica oleracea*), turnips (*Brassica rapa*) and potatoes (*Solanum tuberosum*). The plants are then cultivated and reproduced in the different locations.

Potatoes in the French Alpine region

Potatoes – and also turnips – are undisputedly more tasty when cultivated at higher altitudes. Among mountain farmers there is a saying that the seeds of the potato must go deeper every day, in contrast to wheat which has to grow every day in order to regenerate. Farmers also say that potatoes are 'jealous' and that they therefore have to be cultivated in mixed cultures for cross-cultivation purposes.

The production of potato seed is an economically important activity in some valleys above 1000 m (e.g. the region round the national park of Ecrins and Savoy). Before certified plants entered the market farmers also preferred seed produced at higher altitudes to minimize degeneration symptoms. In the Ecrins Park 50-year-old cultures were found in an inventory (Brun-Lagarde 1989) whose seed had never been renewed.

This inventory included 33 taxa of potato which had been stored for some years in the seed bank of Molines in Champsaur, Hautes Alpes (1100m a.s.l.). Unfortunately, the collection could not be conserved. It would be necessary to collect these taxa again, or at least those still existing, to secure their conservation.

A certain number of varieties found in the Alps were introduced by Fabre de Metz who trades seed by mail order and who are thus well represented in the Alpine region. The mailed varieties are cultivated and bred. 'Local varieties' have developed.

Previously some regions specialised in the cultivation of potatoes: Col d'Ormon, Mont-de-Lans, le Beaumont, Bresse-en-Oisans (Isère), Col du Lautaret, Ancelle, Saint-Laurent-du-Cros (Haute Alpes).

5.3.2. Traditional cultivation

Traditionally cultivated vegetables in the French Alpine region

Brassica species are the vegetables which have been cultivated the longest in the French Alpine valleys. Several villages in Hautes-Alpes and Isère (e.g. Oulles en Oisan – 1400 a.s.l.) are again producing turnips which are much sought after.

Turnips were traditionally cultivated in the Alpine region and utilised for both human consumption and forage. The variety “Navet de Crevoux” is a widely spread local turnip

variety. Furthermore, rooted turnips (*Brassica napus* var. *napobrassica*) (type Rutabaga) and *Brassica oleracea*, var. *capitata*, *gongylodes*, *acephala* are cultivated in the Alpine region.

Traditional potato cultivation in the French Alpine region

The introduction of potatoes to the Alps dates back more than two centuries. Coming from Switzerland potatoes were firstly used as animal food. Human potato consumption was mentioned first in the year 1730 in the hospital of Gap.

Many potato breeds were traditionally cultivated in the French Alpine region. Within this context it is interesting that many producers in the plains use seeds from mountainous regions for cultivation.

5.3.3. Conservation at a national level

A vegetable garden, that often has a fixed place in the family garden, is less dependent on economic requirements than other plant categories, e.g. cereals. It is still possible to find old cultivated vegetable varieties in scattered private gardens. The location and harvest of local seed is not a slight venture. However, it is necessary because the majority of people looking after such varieties are old and the younger generation no longer cultivates these plants. The following national vegetable seedbanks have been set up over the last few years:

Cruciferae:

At present, the French collection is stored deep-frozen at the “Station d’Amélioration des Plantes de Rennes”. It contains 595 examples of vegetable cruciferae (including 357 local breeds) and 502 examples of cruciferae used as forage plants (including 456 local breeds).

Onions:

The collection of genetic resources of *Allium cepa* L. has been stationed at the “Ecole Nationale Supérieure d’Horticulture de Versailles” since 1987. The collection contains 140 varieties, including 87 originating from France or the Mediterranean countries.

Tomatoes:

In France a national collection for the conservation of tomatoes was founded in 1988 by the scientific committee of GIE CLAUSE LIMAGRAIN. The collection links INRA to the breeding enterprises Clause, Vilmorin and Tezier.

An INRA researcher from the “Station d’amélioration des plantes maraîchères d’Avignon” is currently responsible for the maintenance and the inventory of the seedbank.

4.3.4. Need for action

The situation of genetic erosion is especially dramatic for vegetables. Many local breeds have disappeared during the last decades. Both the Alpine region and the lower regions are affected. Fewer and fewer vegetable varieties are planted in commercial horticulture, a development caused by the increasing intensification and mechanisation of agriculture. Presently old local varieties have to date only survived in house and farm gardens. There is an urgent need for action to restart inventories and collection tours in the Alps. The last inventories were closed in 1985. Since then systematical collection tours have not been carried out.

The creations of INRA have also led to an impoverishment of local breeds. Public institutions rarely work together with the private sector. The existence of NGOs is seldom noticed by the public. There are, however, some associations which offer local seed of old varieties. They face considerable difficulties because of the enormous practical and administrative amount of work and because there is no demand for old varieties. Because of this, many of these

associations drop conservation work. The conservation efforts of the NGOs need to be integrated into official conservation programs and support for them must be increased.

5.3.5. Actors

Bruno Defay

Address: Rue de la Croze Pebellet, 43700 St. Germain Laparde, Tel./

Fax: 0033-4/71 03 53 62

Description: Bruno Defay is committed to the collection of rare vegetables, especially historical cucurbitacea (*Lagenaria*, *Cucurbita*, *Cucumis*). It is particularly necessary to bring these plants back to the market. The geographical area covered consists of the USA and Europe. It is not known whether some of these plants were cultivated in the Alpine region. Conservation work is carried out on-farm with an own variety garden containing 200 varieties.

Type of organisation: private person with a private collection

Active since: 1990

Databank: no

Additional protection: no

Long-term conservation: if possible yes

UMR – Science du Végétal

Address: ENSAR 65 rue de 5r Briens, 35042 Rennes cedex, Tel.: 0033-2/23 48 54 76, Fax: 0033-2/23 48 54 80

Director: Grégoire Thomas

Contact: Grégoire Thomas

Description: “Science du Végétal” administers genetic resources of cabbage species. The geographical area covered includes France. Conservation work is carried out by means of a genebank and PR activities. The institution participates in a BRG project “France dans le domaine des crucifère légumières”.

Type of organisation: governmental

Active since: 1980

Databank: yes, see <http://www.cpro.wageningen-ur.nl/cgn/brasedb/braslist.asp>

Additional protection: duplicates

Long-term conservation: yes

INRA-ENSAR UMR Amélioration des plantes et Biotechnologies Végétales

Address: ENSAR, 65, Rue de Saint-Brieuc, CS 84215, 35042 Rennes,

Tel.: 0033-2/23 48 54 76, Fax: 0033-2/23 48 54 80

Director: Joël LE GUEN, Grégoire Thomas

Contact: Grégoire Thoma, E-mail: gthomas@agrorennes.educagri.fr

Description: “UMR Amélioration des plantes et Biotechnologies Végétales” administers genetic resources. Their objective is the improvement of plants through breeding. Priorities lie in this case on cultivated and wild cruciferae. Their work covers the whole of France.

Conservation work includes a genebank, PR activities and research with regard to the continuous improvement of methods for the administration of genetic resources. The institute maintains a collection with the following *Brassica* representatives

- Cauliflower (*Brassica oleracea* var. *botrytis*)
- Broccoli (*Brassica oleracea* var. *italica*)
- Headed cabbage (*Brassica oleracea* var. *capitata*)
- Brussels sprouts (*Brassica oleracea* var. *gemmifera*)
- Rooted turnips (*Brassica napus* var. *napobrassica*)

Current projects are concerned with the regeneration of local populations of all cultivated groups of *Brassica oleracea*.

Further information is available under <http://www.cpro.wageningen-ur.nl/cgn/> and <http://www.cpro.wageningen-ur.nl/cgn/brasedb>.

Type of organisation: governmental

Scientific members of staff: 20

Number of members: 80

Databank: yes

Additional protection: no

Long-term conservation: yes

Unité de Recherche en Génétique et amélioration des plantes (URGAP) – INRA Dijon

Address: BP 86510, 21065 Dijon cedex, Tel.: 0033-3/80 69 31.48, Fax: 0033-3/80 69 32 63

Director: Dr. Gérard Duc, duc@epoisses.inra.fr

Contact: P. Marget

Description: The “Unité de Recherche en Génétique et amélioration des plantes” conserves and characterises of a collection of genetic resources of field beans (*Vicia faba*). Europe as a geographical area is covered. Conservation work refers mainly to the management of a genebank. Presently the collection includes 1140 varieties of field beans: 80 % of those are of European origin. Amongst them are ecotypes, local varieties and mutants. Furthermore, the institution coordinates the European *Vicia faba* collection in which approx. 15.000 items are registered. At the European level, a core collection of field beans is presently being drawn up. Unfortunately, statistics describing *Vicia faba* cultivation in the Alpine region are not available. Some varieties are cultivated in the region of Changins in Switzerland.

Type of organisation: governmental

Active since: 1955

Members of staff: 34

Databank: yes, for some varieties

Additional protection: no, but a solution is being striven for at the ECP/GR level.

Long-term conservation: yes

INRA – Station d’Amélioration de la pomme de terre

Address: Domaine de Kéraiber, 29260 Ploudaniel, Tel.: 0033-2/29 62 63 11, Fax: 0033-2/29 62 63 30

Contact: Dr. Daniel Ellissèche, E-mail: Daniel.Ellisseche@rennes.inra.fr

Description:

The “Station d’amélioration de la Pomme de terre de Ploudaniel” – INRA conserves and manages one of the most important potato collections which is the base for genetic improvement (by breeding) in France. Unfortunately, further information could not be obtained despite repeated inquiries.

Type of organisation: governmental

5.4. Cereals

5.4.1. Background

Situation in the Alpine region:

In the course of the BRUN-LAGARDE inventory carried out in 1989, 35 cereal varieties were counted in the national park of Erins (7 varieties of wheat, 10 rye varieties, 8 barley varieties

and 10 oats varieties). The change of cultivation methods has forced most farmers to cultivate modern varieties. However, it is difficult for mountain farmers to identify new varieties which are adapted to local Alpine conditions. Local varieties were already missed soon after they had been replaced by modern varieties. In some cases, the lack of suitable locally adapted varieties has forced farmers to give up cereal cultivation. Many local varieties disappeared within a relatively short time period. The situation in the French Alpine region may be compared to the one in the Massif Central.

A large number of traditionally cultivated forms have developed from commercial varieties which have been selectively bred by their cultivators for many years. In many Alpine valleys, old breeding enterprises such as Fabre, Vilmorin, Tézier or Klaus have circulated a lot of plant material which has probably replaced much older cultivated varieties.

Traditionally cultivated vegetables in the French Alpine region

Cereals were, from a historical point of view, very important for the nutrition of the population in the French Alpine region. In the 17th century, nutrition was mainly based on three basic foodstuffs: bread, wine and meat. Only in the 18th and 19th century, were these basics complemented by a larger diversity of foods. A rich diversity was, and today still is, important. The most important species of cereals are wheat (*Triticum ssp.*), rye (*Secale cereale*), one-grained wheat (*Triticum monococcum*), barley (*Hordeum vulgare*) and oats (*Avena sativa*). “The Petit épiautre de Provence” (*Triticum monococcum*) is a speciality in the French Alpine region.

5.4.2. Overview of actors

In France, there is a network for the conservation of cereals linking INRA, GEVES and approx. 30 private enterprises. The network was initiated by the Ministry for Research and Technology, and through a joint action of the Ministry of Agriculture and Forestry, ONIC, SPSS and BRG.

The research center INRA in Clermont-Ferrand is responsible for the coordination of the network and the estimation, conservation and administration of the central database.

Additionally, it introduces measures for long-term conservation.

The assortment of one-grained wheat of the “Conservatoire botanique alpin de Gap-Charance” was handed over to INRA 15 years ago. The “Parc Naturel Régional” at Lubéron also conserves some cereal varieties in its genebank.

5.4.3. Need for action

The last systematical collection tours in the Alps were conducted in the eighties. These tours were extremely well executed and new collection tours will very probably not bring a lot of news to light. If certain areas of the Alpine region have not been covered in the above mentioned inventory, then there would be a need to conduct tours in these areas. An increasing demand for traditional products from old cultivated plants can be observed today in France as well as in other European countries. This is particularly true for cereals. Increasing the marketing would help to support old cereal varieties.

5.4.4. Actors

SALAGON - Musée Conservatoire Ethnologique de la Haute-Provence

Address: SALAGON, 04300 Mane, Tel.: 0033-4/92 75 70 50, Fax: 0033-4/92 75 70 58,

E-mail: musee.salagon@wanadoo.fr

Director: D. Musset

Description: The “Musée Conservatoire Ethnologique de la Haute-Provence” conserves a small collection of “Petit épiautre de Provence” (*Triticum monococcum*) which was

traditionally cultivated in the French Alpine region. The collection mainly includes ecotypes. Today, the cereal species is cultivated up to 900 m.
Type of organisation: public, subordinated to the Departement Alpes-de-Haute-Provence.

INRA – UMR Amélioration et Santé des Plantes

Address: Domaine de Crouelle, 234, avenue du Brézet, 63039 Clermont-Ferrand Cedex 2,
Tel.: 0033-4/73 62 43 00, Fax: 0033-4/73 62 4 53, E-mail: jestin@clermont.inra.fr

General director: Mme Guillou (Paris)

Director: Dr. Michel Beckert (at Unité de Clermont-Ferrand)

Contact: Dr. François Balfourier (Programme ressources génétiques)

Description: “UMR Amélioration et Santé des Plantes” deals mainly with the conservation, description and evaluation of French barley and triticale. The cereals are deep-frozen in Clermont-Ferrand and conserved *ex situ* in a genebank. Amongst them are various local, old and modern varieties. The entire material is available for research programs and improvement by breeding. In addition, it yields reproduction material. *Hordeum vulgare* and *Xtriticosecale*, which are conserved here, are also cultivated in the Alpine region. Triticale has been bred more recently and has only been cultivated in the French Alpine region since the 1980s. Since 1989 projects have been implemented which link cereals and since 1999 France has been involved in the Genres-project.

Organisationstyp: para-governmental, public research station

Active since: 1946

Members of staff (genetic resources): 6

Number of members: 6

Databank: yes

Additional protection: safety duplicates of local barley varieties are kept at the Northern genebank in Sweden, safety duplicates of the national collections are kept at GEVES in Magneraud

Long-term conservation: yes

5.5. Medicinal plants and herbs

5.5.1. Background

The region PACA carried out two studies in 1985 and 1986 which were supposed to supply information on the cultivation and economic aspects of aromatic and medicinal plants. The studies contain professional information on both production and marketing for cultivators. In 1987/1988, PAGE-PACA founded a collection in Savoillans in the Ventoux. The different species are cultivated in greenhouses. Unfortunately, PAGE-PACA no longer exists. The plant genetic material was handed over to the “Parc régional du Luberon”. The collection consists of species such as verbenas (verveine), common tansy (tanaisie), absinth (grande absinthe), thyme (thym), jasmin (jasmin), balm (citronnelle) and especially peppermint (menthe). Seven lines of peppermint were chosen for testing on the British market. The “Association Alpes de Lumière” has gathered a lot of plant material in Haute Provence and maintains a collection of old medicinal plants in Salagon (Haute Provence). The collection is open to the public. A guide book describes approx. 300 species and varieties.

5.5.2. Traditionally grown medicinal plants in the French Alpine region

In the French Alpine region, a lot of medicinal plants and spices were traditionally cultivated and of considerable importance to the people. In virtually every house and farm garden,

medicinal plants and spices were and still are cultivated for personal needs. The following species dominate in descending order: peppermint, basil, hisop and sage. Finely chopped hisop leaves are used for salads, sauces, meat foods, and thick soups or processed for herb liqueurs and medicinal purposes. In addition, medicinal plants are collected in the Alpine climate, e.g. *Arnica montana*. In the rough mountain climate, particularly wild plants are collected for medicinal purposes. The following list reflects the species traditionally cultivated in the French Alpine region: *Achillea alpina*, *Achillea erba-rotta*, *Achillea millefolium*, *Acinos alpinus*, *Antennaria dioica*, *Anthyllis vulneraria*, *Arctostaphylos uva-ursi*, *Artemisia absinthum*, *Artemisia vulgaris*, *Betula pendula*, *Carlina acaulis*, *Digitalis grandiflora*, *Dryas octopetala*, *Echium vulgare*, *Epilobium angustifolium*, *Gallium boreale*, *Gallium verum*, *Gentiana punctata*, *Hepatica nobilis*, *Heracleum sphondylium*, *Hieracium pilosella*, *Hyssopus officinalis*, *Hyssopus officinalis* var. *decumbens*, *Knautia dipsacifolia*, *Larix decidua*, *Lotus corniculatus*, *Meum athamanticum* Jacq., *Narcissus pseudonarcissus*, *Plantago lanceolata*, *Plantago media*, *Pulmonaria angustifolia*, *Rosa pendulina*, *Saponaria officinalis*, *Sedum acre*, *Sedum telephium*, *Semprervivum tectorum*, *Stachys officinalis*, *Taraxacum apenninum*, *Thymus glabrescens* subsp. *glabrescens*, *Trifolium alpinum*, *Urtica dioica*, *Vaccinium myrtillus*, *Vaccinium vitis-idea*, *Viola tricolor*.

5.5.3. Overview of actors

There are collections of medicinal plants from the French Alpine region at the “Musée Conservatoire de patrimoine d’ethnologie du Haute-Provence” at the botanical garden of Geneva and at the “Jardin alpin du Colle de Lautaret” which maintains the most comprehensive collection of medicinal plants from the Alpine region.

5.5.4. Actors

Gie Le Biau Germe

Address: “Fauret”, 47360 Montpezat d’Angenais, Tel./Fax: 0033-5/53 95 95 05

Contact: René Schmid

Description: The private enterprise Biau Germe trades vegetables, spice plants and flower seeds. Priorities lie with old varieties. They are listed in a special official catalogue. The geographical area covered is the South-West of France with the départements Dordogne and Lot-et-Garonne. “Biau Germe” is not active in the Alpine region, the enterprises’ products, however, are also cultivated and marketed in the Alpine region.

Type of organisation: private enterprise

Active since: 1982

Members of staff: 13

Number of members: 7

Databank: no

Additional protection: partially

Long-term conservation: yes

Jardin Botanique Alpin du Lautaret

Address: Col du Lautaret, 05220 Monetier-Les-Bains, Tel./Fax: 0033-4/92 24 41 62

Director: José Lestani

Description: The Jardin Botanique Alpin du Lautaret is one of the highest French botanical gardens at an altitude of 2100 m a.s.l.. The garden is organised into various national and international subject areas. One of them is dedicated exclusively to the medicinal plants of the French Alpine region. 44 medicinal plants traditionally cultivated in the French Alps are grown there. They are listed in a chapter on traditionally used medicinal plants at the end of this study. The focus of the garden is the conservation of pedagogically used material which is

available to the public. Conservation work is done by collecting living plants, PR activities and by the trading of seed from the Alpine region.

Type of organisation: public, administrated by a team of Briançonnais communities.

Active since: 1899

Members of staff: 10

Databank: yes

Additional protection: no

Long-term conservation: yes

SALAGON - Musée Conservatoire Ethnologique de la Haute-Provence

Address: SALAGON, 04300 Mane, Tel.: 0033-4/92 75 70 50, Fax: 0033-4/92 75 70 58,

E-mail: musee.salagon@wandoo.fr

Directorin: D. Musset

Description: A comprehensive collection of medicinal plants and spices, including many varieties traditionally cultivated in the French Alpine region is kept on the 4 ha area of the “Musée Conservatoire Ethnologique de la Haute-Provence”. They are organised according to ethnobotanical topics.

Type of organisation: public, subordinated to the Departement Alpes-de-Haute-Provence.

5.6. Forage plants

5.6.1. Background

Situation at the national level

The private breeders and INRA who are grouped around the ACFV (Association des Créateurs de Variétés Fourragères) organise the harvest and evaluation of forage plants and secure a part of their reproduction. Storage and distribution are guaranteed by GIP-GEVES and by the “Stations d’Amélioration des Plantes de l’INRA”.

A project is presently being implemented which aims at opening up a genetic center for forage plants and lawn plants in Poitou-Charente where the headquarters of both GIP-GEVES of Magneraud and the “Station d’Amélioration des Plantes Fourragères” in Lusignan are located.

Situation in the Alpine regions

More than 90 % of pastures are located in the Alpine departments (Alpes-de-Haute-Provence, Hautes-Alpes, Alpes-Maritimes).

In the Provence and the Alps in general, climatic conditions are very heterogenous which results in a broad variability of forage plant cultivation. In the 20th century, farmers have turned to the fodder plants adapted to agricultural mechanisation, such as lucerne, cockscomb, clover grass and vetch.

PAGE PACA conducted an inventory of leguminous plants with regard to their suitability as forage plants. It also compiled a catalogue with representatives of the genera *Médicago*, *Onobrychis*, *Trifolium* and *Vicia*. A seed bank was founded in cooperation with the INRA station at Maugio-Montpellier and the conservatory of Porquerolles.

In 1985, PAGE PACA initiated a program which dealt with research on local forage plant cultures still available in animal rearing areas, particularly in the mountains. Diverse partners such as the “National Park of Mercantour” for Alpes-Maritimes, the “Royal valley” for Haut-Verdon, the “Nature Park of Lubéron” for the villages of Ventoux and Lubéron and the mountains round Vaucluse, the “Agricultural Technical School of Carmajane”, the “Centre

d'Appui Technique au Département des Alpes du Sud" and the "National Park of Ecrins" for Haute-Alpes participated in the study.

GEYSER carried out an inventory of local varieties, research activities and existing bibliographies. His study showed that lucerne, clover grass, vetch, yellow meadow vetchling and lentil vetch are threatened by genetic uniformity, caused by modern utilisation methods (exchange of variety-rich populations between farmers, mechanical harvest). Therefore, the seed of these species was taken to farmers who still thresh their harvest by hand.

5.6.2. Traditionally grown forage plants in the French Alpine region

In the French Alpine region, many forage plants are cultivated traditionally. Amongst them are numerous forage grasses, clover species, lucerne (*Medicago sativa*), sainfoin (*Onobrychis vicifolia*) and fodder beets (*Brassica rapa* var. *Rapifera*) which have also been used for human consumption in times of crisis.

5.6.3. Overview of actors

58 ecotypes of fodder plants were collected during an inventory by GEYSER and handed over to the following institutions for conservation: "Conservatoire de Porquerolles", "Station d'amélioration de plantes de l'INRA" in Mauguio and the "National Park of Ecrins" in Gap. The "conservatoire botanique alpin de Gap-Charance" conserves a collection of forage plant seeds in its genebank.

The regional nature park of Lubéron conserves cultivated and stored forage plants in a cooling chamber in the conservatory at Porquerolles.

5.6.4. Need for action

Similar to cereals and vegetables the last inventories for forage plants were closed in 1985. Therefore, there is an urgent need for action to conduct systematic collection tours in the French Alpine region. For fodder beets, (*Brassica rapa* var. *rapifera*) collections have been conducted in the French Alpine region. These plants become more and more real »Alpine plants« as they are cultivated at higher altitudes.

5.6.5. Actors

Conservatoire botanique alpin de Gap-Charance

Address: Domaine de Charance, 05000 GAP, Tel.: 0033-4/92 53 56 82,

Fax: 0033-4/92 51 94 58, E-mail: cbn-gap@wanadoo.fr

Director: J. Pière Dalamas

Contact: Marie Tarbouriech

Description: The main focus of the conservation work of the "Conservatoire botanique alpin de Gap-Charance" is on fruit. The institution has been described within this context. The geographical area covered is the French Alps. The collection also contains seeds of forage plants.

Type of organisation: para-governmental

Groupe d'Étude et de contrôle des Variétés et des Semences (GEVES)

Address: Geves La Valette, 711, rue JF Breton, 34090 Montpellier,

Tel.: 0033-4/ 67 04 35 80, Fax: 0033-4/ 67 63 37 58, Internet address: <http://www.geves.fr>

Director: Yvette Dattée

Contact: Vincent Gensollen, E-mail: vincent.gensollen@geves.fr

Description: GEVES conserves the national collection of forage plants and plants for greening. The collection contains plants from all over France. Conservation work is carried

out by means of a genebank, PR activities and the trading of reproduction material. GEVES deals with the following plant species:

Agrostis stolonifera, *Dactylis glomerata*, *Festuca arundinacea*, *Festuca cinerea* or *duriuscula*, *Festuca pratensis*, *Festuca rubra*, *Lolium multiflorum*, *Lolium perenne*, *Phleum bertoloni*, *Phleum pratense*, *Poa pratensis*, *Lathyrus heterophyllus*, *Lathyrus latifolius*, *Lathyrus sativus*, *Lathyrus silvestris*, *Lathyrus tuberosus*, *Medicago aculeate*, *Medicago arabica*, *Medicago disciformis*, *Medicago littoralis*, *Medicago murex*, *Medicago orbicularis*, *Medicago polymorpha*, *Medicago praecox*, *Medicago rigidula*, *Medicago sativa*, *Medicago truncatula*, *Onobrychis vicifolia*, *Trifolium repens*, *Trifolium pratense* and *Vicia sativa*.

Altogether 500 items are included in the genebank, including 80 varieties which are no longer marketed, 28 local breeds and 428 ecotypes.

Items which can be allocated to the French Alpine region are the ecotype group of the species *Lolium perenne* (17 items) and *Festuca arundinacea* (27 items).

GEVES' projects on forage plants and plants for regreening can be viewed under:

<http://www.brg.prd.fr/brg/ecrans/vegetalesBd.htm>

Type of organisation: governmental

Active since: 1985

Databank: yes

Additional protection: yes

Long-term conservation: yes

5.7. Wild plants

5.7.1. Actors

FRAPNA Savoie – Fédération Rhône-Alpes de Protection de la Nature

Address: 26 Passage Sébastien Charlety, 73000 Chambéry, Tel.: 0033-4/ 79 85 31 79,

Fax: 0033-4/ 79 85 25 03, E-mail: frapna-savoie@frapna.org

Director: Jean Andre

Contact: André Collas

Description: FRAPNA Savoie is a nature protection and environmental protection organisation which is active in the department Savoy. Work focuses on landscape fauna and flora. The organisation works towards sustainable agriculture and forestry in the region and participates in the "Alliance Paysans Ecologistes Consommateurs". Cultivated plants from the Alpine region are integrated into conservation work, e.g. the less and less frequent field accompanying flora with its representatives corn poppy and cornflower. FRAPNA supports local agricultural development by coordinating and supporting local actors such as farmers and foresters. The type of conservation work is accordingly mainly based on the protection of the natural living space in Savoy. The organisation uses the existing national lists or European lists for conservation work.

Type of organisation: non-governmental organisation

Active since: 1970

Members of staff: 15

Number of members: 500

Conservatoire et Jardins Botaniques de Nancy

Address: Le Montet, 100, rue du Jardin Botanique, 54600 Villers-Lès-Nancy, Tel.: 0033-3/83 41 47 47, Fax. 0033-3/83 27 86 59, E-mail: cjbn@jardin-bota.u-nancy.fr

Contact: Romaric Pierrel

Description: The “Conservatoire et Jardins Botaniques de Nancy” owns a living collection of 300-400 wild plants from the Alpine region which is mainly used as a show garden and which does not strictly speaking represent a collection. The botanical garden of Nancy is also a member of the AFCEV (“Association Française pour la Conservation des Espèces Végétales”).

Type of organisation: public, paragonovernmental

Long-term conservation: no

INRA-ENSA UMR Amélioration des plantes et Biotechnologies Végétales

Address: ENSAR, 65, Rue de Saint-Brieuc, CS 84215, 35042 Rennes, Tel.: 0033-2/23 48 54 76, Fax: 0033-2/23 48 54 80

Director: Joël LE GUEN, Grégoire THOMAS

Contact: Grégoire THOMAS, E-mail: gthomas@agrorennes.educagri.fr

Description: INRA-ENSA in Rennes has already been described in the vegetable section. Both cultivated cruciferae and wild cruciferae are included in the genebank. Further information may be taken from:

<http://www.cpro.wageningen-ur.nl/cgn/> and <http://www.cpro.wageningen-ur.nl/cgn/brasedb>

Type of organisation: governmental

6. General report on livestock breeds in the French Alpine region

6.1. Private conservation efforts

In France, the private sector is only marginally involved in the conservation of endangered livestock breeds. FERME is the only organisation acting at the national level.

6.1.1. FERME

FERME is a small private organisation that has been active in the conservation of the biodiversity of farm animals since 1990. At present, its activities are supported by 400 members. Its main objectives are the support of keeping rare breeds, coordination between people and initiatives and the exchange of animals between the members. Projects actually designed for the conservation of specific breeds do not exist.

Address: FERME – Fédération Européenne de Revatorisation des races domestiques menacées,
Contacts: Georges Jouve, Au Bourg, 42600 Grézieux le Fromental, Tel/Fax: 0033-4/77 76 10 39, URL: <http://www.chez.com/ferm>

6.2. Governmental conservation efforts

6.2.1. BRG and National Databank on Animal Genetic Resources

The BRG - Bureau de Ressources Génétiques – is a scientific association of 9 institutions working since 1983 for the protection of genetic resources. 6 ministries are amongst them, participating in the coordination of the conservation of genetic resources in France.

The BRG has the task of coordinating the genetic resources of plants, animals and microorganisms at the national level. Its budget amounts to a total of approx. 300,000 EUR per year. Individual breeds are directly supported via research projects.

The BRG is also in charge of the management of the National Databank on Animal Genetic Resources in France (Base de données Nationale France). Information is available from the web-side of the BRG or may be obtained from:

Address: BRG, 16, rue Claude Bernard, 75231 Paris, URL: <http://www.brg.prd.fr>

6.2.3. Institut de l'Élevage

The Institut de l'Élevage is, besides its function as national animal breeding association, active in supporting endangered autochthonous breeds. Conservation efforts for cattle are well developed. For the care of sheep and goat breeds, a 50% post was only created in 1999.

Therefore, the need for action in this area has not been fully taken care of yet.

In the French Alpine region, the following breeds are presently supported by the 'Institut de l'Élevage': the cattle breed 'Villard de Lans', the goat breed 'Provençal /Provençale', and the sheep breed 'Thones-Marthod/Thônes et Marthod'.

Address:

Institut de l'Élevage DGICP, Ressources génétiques, 149, Rue de Bercy, 75012 Paris, Tel: 0033-1/40 04 52 89

Contacts sheep and goats: Mme Coralie Danchin-Burge

Contacts cattle: Laurent Avon, E-Mail: laurent.avon@inst-elevage.asso.fr

6.2.4. La Bergerie Nationale

'La Bergerie Nationale' is linked to the 'Ministère de l'Agriculture et de la Pêche'. The Bergerie Nationale has set up the network 'Races locales – Biodiversité animale'.

Participating institutions and persons conserve endangered livestock breeds.

The Bergerie Nationale organises an annual fair FAIR – 'Festival Animalier International de Rambouillet' around the topic 'Local breeds and biodiversity of livestock'.

Address: La Bergerie Nationale Rambouillet, Centre d'enseignement zootechnique, Parc du Chateau, 78120 Rambouillet, Tel: 0033-1/34 83 68 00, Fax: 0033-1/34 83 07 54

6.2.5. ESPACE

The network ESPACE – Entretien des Sites à Préserver par des Animaux Conduit en Extensif – was founded by the association of nature parks - Parcs Naturels Régionaux. Nature parks participating in the network keep endangered breeds on their grounds.

6.2.6. Société d'Ethnozootechnie

The 'Société d'Ethnozootechnie' is responsible for publications to do with 'Homme-Animal-Milieu'. Amongst others, publications on the subject of endangered breeds are edited.

Conferences on the topic have taken place regularly.

The Société d'Ethnozootechnie has played a decisive role in the foundation of the network 'Races locales – Biodiversité animale'.

Address:

Société d'Ethnozootechnie, 16bis, boulevard Cote Blatin, 63000 Clermont-Ferrand, Tel: 0033-473 91 58 24

6.2.7. INRA – Institut Nationale de la Recherche Agronomique

The 'Institut National de la Recherche Agronomique' conducts mainly genetic investigations of animal breeds. At present, a genebank (Cryobanque Nationale) for farm animals is being set up. Various investigations on endangered breeds in France have been carried out.

Addresses:

- INRA, 147, rue de l'Université, 75338 Paris Cedex 07, Tel: 0033-1/42 90 00, Fax: 0033-1/47 05 99 66. Mail: webmaster@inra.fr, URL: <http://www.inra.fr>
- Ministère de l'Agriculture et de la Pêche, 78, rue de Varenne, 75349 Paris 07, Tel: 0033-1/49 55 49 55, E-Mail: webmaster@agriculture.gouv.fr

6.2.8. Groupement PAGE PACA and Association GEYSER

These two groups were active in the region PACA for the conservation of animal and plant genetic resources in the 1980s and the beginning of the 1990s, but do not work in this area any more.

6.3. Financial support for the conservation of endangered livestock

Cattle, sheep, goats, pigs:

Since the 1970s, 0.4% of the budget for animal breeding is spent on endangered breeds (1999: 330,000). These funds are directed to the governmental institutions 'Institut de l'Élevage' and 'Institut Technique du Porc'. The following activities are supported: breed inventories, animal and herd counts, mating recommendations.

Horses, donkeys, mules:

They are directly supported by the 'Service des Haras'.

Dogs:

Support for the conservation of dog breeds in France does not exist.

Support via regions:

The regions receive credits from the national government. These are also used for the conservation of endangered varieties of cultivated plants and farm animals.

Support of 'Parcs Naturels Régionaux':

The so-called 'Parcs Naturels Régionaux' are also supported by the government for keeping endangered livestock breeds.

6.4. French animal breeding federations at the national level

Cattle, sheep, goats:

- Institut de l'Elevage, Mr. Laurent Avon, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99, E-Mail: laurent.avon@inst-elevage.asso.fr

Horses, donkeys, mules:

- Les Haras Nationaux, Direction de la Filière, S.I.R.E., Mr. X. Guibert, B.P. 3, 19230 Arnac Pompadour Cedex, Fax: 0033-5/55 73 94 83

Dogs:

- Société Centrale Canine, 155, Avenue Jean Jaures, 93535 Aubervilliers Cedex

Pigs:

- Institut Technique du Porc, Florence Labroue, La Motte au Viconte, B.P. 3, 35651 Le Rheu Cedex, Tel: 0033-2/99 60 99 90, Fax: 0033-2/99 60 93 55

National Herdbook Association:

- U.N.L.G., Union Nationale des Livres Généalogiques

6.5. EU Conservation measures

6.5.1. Regulation 2078/92 (new: 1257/99) on the development of rural areas

Regulation 1257/99 is implemented in France via the 'Contrat Territorial d'Exploitation'. A list of breeds needing support in France was elaborated by the government. For each region (res. Département), a definition of autochthonous breeds is elaborated. The farmers involved are bound by contracts.

The following breeds from the Alpine region are supported:

Cattle breeds: Villard de Lans

Sheep breeds: *Brigasca*/Brigasque, Mourerous, *Thones-Marthod*/Thônes et Marthod

Goat breeds: Chèvre du Rove, *Provençal* /Provencale

6.5.2. Regulation 1467/94

Contacts in France for Regulation 1467/94:

Mme Marianne LEFORT, Bureau des Ressources Génétiques, 16 rue Claude Bernard, F-75231 Paris cedex 05, tel 0033-1/44 08 72 61, fax (+33) 1 44 08 72 63, E-Mail:

brg@inapg.inra.fr

France is involved in the following projects of EU regulation 1467/94 (more detailed information may be taken from the introduction):

- **GENRES 012 - pig (coordinator)**
Contacts: Dr. L. OLLIVIER, Centre de Recherches de Jouy-en-Josa, INRA Jouy, F - 78352 JOUY-EN-JOSAS
- **GENRES 060 - rabbit (coordinator)**
Contacts: Dr. G. BOLET, Institut National de la Recherche Agronomique, INRA, Centre de Toulouse BP 27, F - 31326 CASTANET TOLOSAN Cedex
- **GENRES 083 - farm animals**
Contacts: Dr. D. PLANCHENAULT, Bureau des Ressources Génétiques, B.R.G., 57, Rue Cuvier, F - 75321 PARIS Cedex 05
- **GENRES 118 - cattle**
Contacts: Dr. K MOZAMI GOUDRAZI, Institut National de la Recherche Scientifique, Centre de Recherche de Jouy-en-Josas, Domaine de Vilvert, F - 78352 Cedex JOUY-EN-JOSAS

6.5.3. Regulation 2081/92

In the French Alpine region, endangered breeds are not supported through regulation 2081/92.

6.5.4. LEADER-Projects

LEADER projects directly supporting endangered breeds do not exist.

6.6. Overall view of the need for action in the French Alpine region

Need for action concerning individual species and breeds is treated in the corresponding chapter.

Governmental conservation efforts

The need for action in France is well taken care of by the government with regard to cattle and horse breeds. For goat, sheep and dog breeds, however, support is unsatisfactory. During recent years, there are almost no projects for breeds from the French Alpine region.

Private conservation efforts

In France, private conservation efforts only exist for individual breeds. There is no national private organisation which specifically deals with the conservation of endangered French breeds. Conservation is therefore to a large extent linked to government bodies and thus dependent on political decisions. The set-up of private conservation efforts and their link-up needs therefore support unconditional. The break up of the groups 'PAGE PACA' and 'Association GEYSER' in the region PACA is very unfortunate. No similar body ever existed in the region Rhône-Alpes.

Promotion of the economic efficiency of rare livestock breeds

By promoting the products of endangered breeds, a lot can be contributed indirectly to their conservation. With regard to this, pioneering work has been done in France. This important branch of conservation work deserves further special attention.

Breeds with acute need for action

- Goat breeds: Alpine Polychrome and Chèvre de la Roya:
To date, no breeds are recognised nor are conservation measures existent. It is necessary to set up an emergency program for the remaining animals urgently.

- Sheep breeds Brigasca/Brigasque and Commune des Alpes: The support for purebred animals is unsatisfactory.
- Mouton Noir de Fumex: no conservation measures exist for this type of the breed Thones-Marthod. It is necessary to set up an emergency program for the remaining animals urgently.
- Dog breeds Berger de Savoie and Patous des Pyrénées: Both breeds are of certain importance in the French Alpine region. At present, neither are recognised officially nor supported. A well-directed conservation program is needed!
- Dog breed Berger de Crau: Conservation efforts for this breed are poor.

7. Livestock breeds in the French Alpine region

The portraits of the individual breeds are designed as completion of the 1995 study on Agricultural Genetic Resources of the Alps. More detailed descriptions of the breeds are available in the first study.

7.1. Overview of endangered livestock breeds

In the following table, endangered breeds of livestock from the French Alpine region are listed – extinct breeds are not included. Listing follows the risk status.

Cattle

Breed	Stock**	Risk Status	Trend	Initiatives*
French Herens / Hérens	591f/m OP(1999)	Endangered	↑	-
Villard de Lans	593f/m OP(1999)	Endangered	↑	++

Goats

Breed	Stock**	Risk Status	Trend	Initiatives*
Chèvre de la Roya	?	Critical?/Extinct?	?	-
Alpine Polychrome	approx. 100f/m OP (2000)	Critical	?	-
Provençal / Provençale	approx. 100f/m OP (1999)	Critical	↑	+
Chèvre du Rove	4000f OP (1999)	Vulnerable	↑	+

Sheep

Breed	Stock**	Risk Status	Trend	Initiatives*
Mouton Noir de Fumex	?	Critical	?	-
Brigasca / Brigasque	646f/m OP (1999)	Endangered	↓	+
French Alpine/ Commune des Alpes	3000f/m OP (2000)	Vulnerable	↑	-
Thones-Marthod /Thônes et Marthod	3575f/m OP (1999)	Vulnerable	↑	++
Mourerous	10'000f Op (1999)	Rare	↑	++

Donkeys

Breed	Stock**	Risk Status	Trend	Initiatives*
Âne gris de Provence	112f OP (1999)	Endangered	↑	++

Dogs

Breed	Stock**	Risk Status	Trend	Initiatives*
Berger de Crau	?	Critical	?	-
Berger de Savoie	?	Critical	?	+
Patous des Pyrénées	?	Critical?	?	+

* ++ (existing, with success), + (existing), - (non-existent)

** f = female animals, m = male animals , HB = herdbook, OP = Overall Population

7.2. Cattle

7.2.1. General information

In 2000, the total cattle population in France was approx. 20 million animals.

Additional to the portrayed breeds, the following nationally distributed and not endangered cattle breeds occur in the French Alpine region: Alpha 16, Aurochs-reconstituted, Aquitainian blond, Charolaise, Hereford, Inra 95, Limousin, Montbéliarde, Normande, Prim Holstein, Salers, Salers Milk, French Simmental.

7.2.2. Endangered breeds of cattle

French Herens / Hérens

Synonyms: Ering, Valais, Alpine Herens

Background: French Herens cattle are mainly distributed in Switzerland (1999: 7786 cows in the herdbook). The breed is also officially recognised in France. Today, 80% of the cows are purebred. A herdbook, however, does not exist and there is no special support. No cryopreservation of seeds and embryos is done.

Distribution: Rhône-Alpes

Initiatives:

- A collaborator of the 'Institut de l'Elevage' looks after the breed French Herens. He is responsible for marking and mating recommendations amongst other things.

Contacts:

- Institut de l'élevage, 149, Mr. Laurent Avon, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99, E-Mail: laurent.avon@inst-elevage.asso.fr
- Switzerland: Fédération d'Elevage de la Race d'Hérens, Elie Fellay, Case Postale 338, 1951 Chateauneuf/Sion

Stock in France:

1999: the overall population consists of 591 animals, including 100 herdbook cows.

Development trend: slightly increasing

Assessment: endangered

Need for action:

Little is done in France. There is no acute danger, however, as the breed is successfully conserved in Switzerland.

Villard de Lans

Background: The herdbook has been kept since 1978. 80 % of females are purebred.

Distribution: Rhône-Alpes

Initiatives:

- Support by the 'Institut de l'Elevage' (Appui Technique et Méthodologique)
- Support by the 'Etablissement Départemental d'Isère' (Maitre d'oeuvre du programme racial)
- Semen conservation of 24 sires and embryo-storage at the UCEAR
- Financial support through EU regulation 2078/92 (new: 1257/99)

Contacts:

- Institut de l'Elevage, Mr. Laurent Avon, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99, E-Mail: laurent.avon@inst-elevage.asso.fr
- EDE – Etablissement Départemental d'Isère, Maison des agriculteurs, 40, rue avenue Marcellin Berthelot, BP 2608. 38036 Grenoble Cedex 2, Tel: 0033-4/76 20 68 33 Fax: 0033-4/76 22 18 38

- UCEAR - Union des cooperatives Alpes-Rhône, Centre d'Insémination Bel Air, 14, Chemin des Aubépines, 69340 Francheville, Tel: 0033-4/72 38 31 72, Fax: 0033-4/72 38 31 70, E-Mail: union@ucear.com, URL: <http://www.ucear.com>

Stock:

1999: the overall population consists of 593 animals, including 150 herdbook cows.

Development trend: increasing

Assessment: endangered

Need for action:

There is still need for action for Villard de Lans cattle. Governmental organisations are very active in the conservation of the breed.

7.2.3. Breeds not endangered

Abondance

Synonyms: Chablaisienne, Pie Rouge, Francaise de Montagne

Background: The herdbook has existed since 1894. 75% of female animals are purebred.

Distribution: Rhône-Alpes

Initiatives:

- Semen cryopreservation of 127 sires and embryo-storage of 20 mothers and 6 fathers.

Contacts:

- UPRA Abondance, 52, ave des Iles, BP 9016, 74990 Annecy Cedex, Tel: 04 50 88 18 30, Fax: 04 50 88 18 50

Stock:

1999: the overall population consists of 143,000 animals, including 15,500 cows and 1000 sires in the herdbook.

Development trend: stable

Assessment: not endangered

Need for action: none

Tarentaise

Synonym: Tarine

Background: The herdbook has been kept since 1988. 85% of females are purebred.

Distribution: Rhône-Alpes, Auvergne

Initiatives:

- Semen cryopreservation of 108 sires and embryo storage.

Contacts:

- UPRA Tarentaise, 11, rue Métropole, 73000 Chambéry, Tel: 0033-4/79 33 44 18, Fax: 0033-4/79 33 30 06

Stock:

1999: the overall population consists of 34,650 animals, kept by 400 breeders, 11,300 cows and 400 sires in the herdbook.

Development trend: decreasing

Assessment: not endangered

Need for action: none

7.3. Goats

7.3.1. General information

The entire stock of goats in France amounts to approx. 1 million animals.

7.3.2. Endangered goat breeds in the French Alpine region

Alpine Polychrome

Background: Alpine Polychrome is not officially recognised as a breed in France. It is, according to the 'Bureau Ressources Génétiques', considered as a type of Chèvre Alpine but not listed separately in the herdbook.

Initiatives:

- At present, an inventory of remaining animals is being conducted (information from the Bureau Ressources Génétiques).

Contacts:

- BRG – Bureau Ressources Génétiques, 16, rue Claude Bernard, 75231 Paris, URL: <http://www.brg.prd.fr>
- Institut de l'Elevage, Mme C. Danchin-Burge, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 00033-1/40 04 52 06, Fax: 0033-1/40 04 52 99

Stock:

2000: the overall population consists of approx. 100 animals (probably heavily crossbred)

Assessment: Critical

Need for action: 'Alpine polychrome' should immediately be conserved separately from the breed 'Chèvre Alpine'. A well-directed conservation project and its own herdbook are urgently required.

Provençal / Provençale

Synonyme: Payse, Commune Provençale

Background: The breed Provençal is officially recognised today. A herdbook is not kept.

Cyropreservation of semen and embryos is not carried out. According to official information, only 30 % of female animals are purebred.

Distribution: Provence-Alpes-Côtes d'Azur

Initiatives:

- The 'Association de sauvegarde et de développement de la chèvre Commune Provençale' supports Provençal goats.

It particularly works for the conservation of genetic variability. Especially interesting individuals are marked. Animals are counted regularly.

- Breeding documentation (Fichier) by the Institut de l'Elevage.
- Financial support through EU regulation 2078/92 (new 1257/99) since 2000.

Contacts:

- Association de Sauvegarde et de Développement de la Chèvre Provençale, Contacts: Joel Corbon, Las Pourcine, 04300 Limans, Tel: 0033-4/92 73 01 54, Fax: 0033-4/92 73 13 61, E-Mail: joel.corbon@wanadoo.fr
- Institut de l'Elevage, Mme C. Danchin-Burge, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99
- Chambre d'Agriculture des Hautes-Alpes, 66, boulevard Gassendi, BP 117, 04004 Digne Cedex, Tel: 0033-4/92 30 57 57

Stock:

1999: The overall population consists of approx. 200-500 goats and 30 billy-goats, 100 goats are purebred.

Development trend: increasing

Assessment: critical (for purebred animals)

Need for action: Great, the 'Association de sauvegarde et de développement de la chèvre Commune Provençale' is active in the conservation of the breed. Conservation urgently needs support from the government.

Chèvre du Rove

Background: The Chèvre du Rove is today an officially recognised breed . A herdbook, however, is not kept. Cryopreservation of semen and embryos does not exist. 80% of female animals are purebred.

Distribution: Provence-Alpes-Côtes d'Azur

Initiatives:

- The 'Association de défense des caprins du Rove' is active for the conservation of breed.
- In the 'Parc Naturel Régional de Lubéron', a group of Rove goats has been kept since 1979.
- Conservation of a group of animals by the Association Parade.
- Financial support through EU regulation 2078/92 (new 1257/99).

Contacts:

- ADCR - Association de défense des caprins du Rove, La Borie Neuve, 30460 Lasalle, Contacts person: Mme Geneviève Lafoux
- Parc Naturel Régional du Lubéron, 1, place J.Jaurès, 84400 Apt
- Association Parade, Président Noel Ledey, Saint Denis, 71160 Saint Agnan, Tel: 0033-3/85 53 82 88, Fax: 0033-3/ 85 53 81 19, E-Mail: noel.ledey@wanadoo.fr

Stock:

1999: the overall population consists of 4000 goats and 140 billy-goats

Development trend: increasing

Assessment: vulnerable

Need for action:

The ADCR is active in the conservation of this breed. Support from the government is mostly missing.

Chèvre de la Roya ou de Haute Provence

Synonym: Roya Vésubie, Roya Nicoise

In the 1990s, this breed was only kept by 2 breeders in the department 'Alpes maritimes'.

Since then, no official or private efforts have been made to conserve these animals. The state of the herds is not known. The breed is not officially recognised. A herdbook does not exist.

Distribution: Vallée de la Roya in the Massif du Mercantour (department Alpes-Maritimes)

Contacts:

- Institut de l'Elevage, Mme C. Danchin-Burge, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99

Stock:

2000: unknown

Assessment: critical? extinct?

Need for action:

Acute. At present, nothing is done. On-site search activities for remaining animals have to be started quickly. Conservation activities should be initiated as well.

7.3.3. Goat breeds of the French Alpine region which are not endangered

Chèvre Alpine

Synonym: Alpine Francaise

Background: Chèvre Alpine is officially recognised today. A herdbook has been kept since 1930. 95% of females are purebred at present. The breed 'Alpine' consists to a large part of 'Alpine chamoisée'. Information on the type 'Alpine Polychrome' is available in chapter 7.3.2. *Endangered goat breeds in the French Alpine region*.

Distribution: the whole of France

Initiatives:

- Semen cryopreservation of 200 billy-goats and embryo storage.

Contacts :

- Caprigène france, contacts person: Jean-Michel Reguet, Agropole, Route de Chauvigny, 86550 Mignaloux Beauvoir, Tel: 0033-5/49 56 10 75, Fax: 0033-5/49 56 46 53

Stock:

1999: the overall population consists of 550,000 goats and 10,000 male animals, including 90,000 females in the herdbook

Development trend: stable

Assessment: not endangered

Need for action: None

7.4. Sheep

7.4.1. General information

The entire stock of sheep in France amounts to 9.46 million animals (status: 2000). 60 sheep breeds are officially recognised.

7.4.2. Endangered sheep breeds of the French Alpine region

Brigasca / Brigasque

Synonym: Brigasca, Tendasque, Nostrale, Tchapera, Tchabale

Background: Brigasca sheep are officially recognised. A herdbook is kept. According to official information, the animals are purebred today. It has, however, to be assumed that the breed is often crossbred with Italian Langhe sheep, despite controls. Cryopreservation of semen and embryos is not carried out.

Brigasca sheep are also kept in Italy (1996: <4000 animals the overall population)

Distribution: Provence-Alpes-Côtes d'Azur

Initiatives:

- Since 1996, FDGEDA accompanies a conservation project for Brigasca sheep.
- The breed receives financial support from the government.
- The breed is supported financially through EU regulation 2078/92 (new 1257/99)

Contacts:

- FDGEDA, Fédération départementale des groupes d'études et de développement agricoles, Min Fleurs 6, BP 58, 06042 Nice cedex
- Chambre d'agriculture, Département des Alpes Maritimes, 34, rue Rossini, 06000 Nice
- Italy: APA Savona, Via Don Minzoni, 4/2, 17100 Savona, Tel: 0039-19/80 25 92

Stock:

1999: The overall population consists of 646 animals, out of these 429 ewes and 10 rams.

Development trend: decreasing

Assessment: endangered

Need for action:

Little is being done. Efforts should focus especially on pure breeding.

Commune des Alpes/French Alpine

Synonym: Race ovine des Alpes, Embrunaise, Embrun, Gap, Treèves

Background: 'French Alpine' is an officially recognised breed. A herdbook has been kept since 1967. Cryopreservation is not carried out at present. The definition of the breed 'French Alpine' is not clear. It has to be assumed that many of the animals are crossbred.

Distribution: Provence-Alpes-Côtes d'Azur, Rhône-Alpes

Contacts:

- UPR Préalpes du Sud, EDE, 8 ter, rue Capitaine de Bresson, 05000 Gap, Tel: 0033-4/92 52 43 43
- Chambre d'Agriculture, Département des Alpes de Hautes Provence, 8 ter, rue Capitaine de Bresson, 05000 Gap, Tel: 0033-4/92 52 53 00

Stock (including crossbred animals):

1999: the overall population consists of 51,449 animals, out of these 32,000 ewes and 400 rams. 2437 animals are recorded in the herdbook.

Stock (purebred)

2000: The overall population consists of approx. 3000 animals.

Development trend: increasing

Assessment: vulnerable for purebred animals.

Need for action: There is no breeding organisation. A clear definition of the breed is missing as is care. Action is needed to support purebred animals.

Mourerous

Synonym: Péone, Rouge de Guillaume

Background: The herdbook has been kept since 1983. 70% of female animals are purebred.

Distribution: Provence-Alpes-Côtes d'Azur, Rhône-Alpes

Initiatives:

- Since 1996, FDGEDA has monitored a conservation project for Brigasca sheep.
- Semen cryopreservation of 11 si
- Financial support through EU regulation 2078/92 (new 1257/99)

Contacts:

- Syndicat de défense et de promotion de la race Mourerous, Chambre d'agriculture des Alpes-de-Haute-Provence, 66, Bd Gassendi, BP 117, 04004 Digne les Bains
- FDGEDA, Fédération départementale des groupes d'études et de développement agricoles, Min Fleurs 6, BP 58, 06042 Nice cedex

Stock:

1999: The overall population consists of 14,300 animals, including 10,000 ewes and 180 rams. 3617 ewes are listed in the herdbook.

Development trend: increasing

Assessment: rare

Need for action: yes, covered.

Thones-Marthod / Thônes et Marthod

Background: A herdbook is kept. Only 50% of female animals are purebred. Cryopreservation is done.

Formerly, the type 'Mouton Noir de Fumex' was distinguished within the breed. Today, it is not mentioned separately any more.

Distribution: Rhône-Alpes

Initiatives:

- The Association des Eleveurs de la race Thônes et Marthod is active in the conservation of the breed.
- In 1997/1998 the 'Bureau de Ressources Génétiques' supported the following project : 'Ressources génétiques et logiques sociales: le maintien d'une race ovine rustique en Savoie, la brebis de Thônes et Marthod'.

- Support by the Institut de l'Élevage.
- Financial support through EU-regulation 2078/92 (new: 1257/99).
- Conservation of a group of animals by Association Parade

Contacts:

- Bureau de Ressources Génétiques, BRG, 16, rue Claude Bernard, 75231 Paris, URL: <http://www.brg.prd.fr>
- Association des Eleveurs de la race Thônes et Marthod, 11, rue Métropole, 73000 Chambéry
- Institut de l'Élevage, Mme C. Danchin-Burge, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99
- Etablissement de l'Élevage de Savoie, Mme Anne Rouquette, 11, rue Métropole, 73000 Chambéry
- Association Parade, Président Noel Ledey, Saint Denis, 71160 Saint Agnan, Tel: 0033-3/85 53 82 88, Fax: 0033-3/85 53 81 19, E-Mail: noel.ledey@wanadoo.fr

Stock Thônes et Marthod:

1999: The overall population consists of 3575 animals, out of these 2500 ewes and 50 rams.

Development trend Thônes et Marthod: increasing

Assessment Thônes et Marthod: vulnerable

Assessment 'Mouton Noir de Fumex': critical

Need for action:

Need for action for 'Thônes et Marthod' is covered.

It is, however, urgently necessary to search on-site for the type 'Mouton Noir de Fumex'. In case animals should be discovered, they will have to be integrated into well-directed conservation measures.

7.4.3. Sheep breeds of the French Alpine region which are not endangered

Grivette

Background: The herdbook has been kept since 1960. There is no cryopreservation of semen and embryos. 60% of female animals are pure -bred.

Distribution: Auvergne, Langedoc-Roussillon

Initiatives:

- The 'UPRA des races ovines des Massifs' looks after Grivette sheep.

Contacts:

- UPRA des races ovines des Massifs, Race Grivette, 6, Avenue P. Séward, B.P. 0047, 69592 L'Arbresle Cedex, Tel: 0033-4/74 01 61 10
- Masion des Agriculteurs, BP 47, 69592 L'Arbresle Cedex, Tel: 0033-4/74 01 61 10, Fax: 0033-4/74 01 58 50

Stock:

1999: The overall population consists of 28,600 animals, out of these 20,000 ewes and 71 rams .

Development trend: increasing

Assessment: not endangered

Need for action: None

Mérinos d'Arles

Synonyms: Mérinos de la Crau, Métis

Background: The herdbook has been kept since 1946. Cryopreservation of semen and embryos does not exist. 75% of female animals are purebred.

Distribution: Provence-Alpes-Côtes d'Azur, Rhône-Alpes

Contacts:

- UPRA Mérinos d'Arles, 64, Bd Louis Pasquet, 13300 Salon de Provence, Tel: 0033-4/90 56 35 46

Stock:

1999: The overall population consists of 357,500 animals, including 250,000 ewes and 5000 rams. 23,000 ewes are recorded in the herdbook.

Development trend: increasing

Assessment: not endangered

Need for action: None

Préalpes du Sud

Synonyme: Savournon, Shune, Quint

Background: The herdbook has been kept since 1947. Cryopreservation of semen and embryos does not exist. 70% of female animals are purebred.

Distribution: Provence-Alpes-Côtes d'Azur, Rhône-Alpes

Contacts:

- UPRA Préalpes du Sud, EDE, 8 ter, rue Capitaine de Bresson, 05000 Gap, Tel: 0033-4/92 52 43 43

Stock:

1999: The overall population consists of 265,899 animals, including 263,000 ewes and 5000 rams, 12,258 ewes are recorded in the herdbook.

Development trend: decreasing

Assessment: not endangered

Need for action: None

7.5. Donkeys

7.5.1.General information

Contacts for horse and donkey breeding in France:

Les Haras Nationaux, Mr. X. Guibert, 19230 Arnac Pompadour, Fax: 0033-5/55 73 94 83

7.5.2. Donkey breeds of the French Alpine region

Âne gris de Provence

Synonyms. Ane d'Arles, Ane de Berger, Ane de la Crau, Ane de Savoie, Ane de transhumance, Savoy-Esel

Background: In 1997, this donkey breed was recognised at the national level.

Distribution: Provence-Alpes-Côtes d'Azur

Initiatives:

- The association 'Ane de Provence' looks after the breed. It also keeps the herdbook.
- At the national level, the National Stud is responsible for the conservation and cryopreservation of endangered donkey and horsebreeds. It coordinates financial support and is responsible for keeping the herdbook.

Contacts:

- Association Ane de Provence
1) Président: Mr. Eric Vieux, Le Village, 26400 Plan de baix, Tel: 0033-4/75 76 44

842) Secretary: Georges Ronchail, Le Charmillon, 73190 St. Jeoire Prieuré, Tel/Fax: 033-79 28 03 36

- Les Haras Nationaux, Direction de la Filière, S.I.R.E., Mr. X. Guibert, B.P. 3, 19230 Arnac Pompadour Cedex, Fax: 0033-5/55 73 94 83

Stock:

1999: 112 mares, 26 stallions and 46 newborn foals.

Development trend: increasing

Assessment: endangered

Need for action: Various initiatives exist for the conserving of the breed.

7.6. Dogs

7.6.1. General information

The following breeds occur in the French Alpine region:

- French dog breeds: Berger de Savoie, Patous des Pyrénées und Berger de Crau
- Basset des Alpes: it is assumed that the breed is indigenous in the French Alpine region. Within the limits of this study, further information could not be obtained. It should be clarified on-site whether the breed still exists.

Swiss dog breeds: Saint-Bernard, Appenzell Mountain Dog, Bernese Mountain Dog, Large Swiss Mountain dog, Entlebuch Mountain Dog .The 'Société Centrale Canine' represents the breeders' associations of France. They are also responsible for keeping the herdbooks.

Address: Société Centrale Canine, 155, Avenue Jean Jaures, 93535 Aubervilliers Cedex

7.6.2. French dog breeds

Berger de Crau

Distribution: Environs of Crau, Camarque

Assessment: critical

Need for action:

Within the limits of this study, no individuals could be located who conserve this dog breed. It is urgently necessary to clarify the situation on-site. Setting-up a conservation program should have first priority.

Berger de Savoie

Distribution: Savoie, Haute-Savoie

Initiatives:

- The 'Association Berger de Savoie' has recently begun to look after the conservation of the breed.

Contacts:

- 'Association Berger de Savoie', treasurer (tresorier): Mr. Pascal Auxière, 27, Avenue de Château, 77360 Vayres sur Marne 77, Tel: 0033-1/60 20 60 98

Stock:

2000: very few animals

1993: The overall population consists of approx. 20 animals.

Development trend: ?

Assessment: critical

Need for action: Yes, acute.

The 'Association Berger de Savoie' is active in the conservation of the breed. A well-directed conservation program for the remaining animals has to be set up urgently. Support and approval from the government are missing.

Patous des Pyrénées

Synonym: Montagne des Pyrénées, Pyrenäen Berghund

Background: After approx. 100 years, the large dog breed 'patous des pyrenées' can again be found in the French Alpine region (Massif du Mercantour - Département des Alpes-Maritimes). When wolves from the Ligurian Appenines settled again in the Italian and French Maritime Alps in 1992 and killed numerous sheep, the breeders were forced to revive already forgotten protection measures. More herds have since then been guarded by the 'Patous des Pyrénées'.

In Austria, the General Shepherd and Herd Protection Dog Club looks after the breed. 30-40 animals live there at present (AHHC, Mrs. G. Höllbacher, Untere Marktstrasse 14, 3481 Fels).
Initiatives:

- The reintroduction of 'Patous des Pyrénées' in the French Alpine region has been supported through the EU-Project LIFE since 1997.
- The 'Association Montagne des Pyrénées' has recently begun to look after the breed.

Contacts:

- 'Association Montagne des Pyrénées', Mr. Masencal, 25, rue Flemming Bellevue Urac, 65000 Tarbes, Tel: 0033-62 93 66 05

Stock: the number of animals in the Pyrenees and the French Alps is not known.

Assessment: critical?

Need for action: Great.

The 'Association Montagne des Pyrénées' is active in the conservation of the breed. Support and approval from the government are missing.

7.7. Bee populations of the French Alpine region

Abeille Landaise

Scientific name: *Apis mellifera mellifera* (Ökotyp Landais)

Distribution/Origin: This ecotype originates from around Landes and is characteristic for south-east France. It was imported to the region of PACA and cross-breeds with the ecotype Provençal.

Need for action:

Need for action for the 'Abeille Landaise' is not known. It is important to find out on-site about the degree of cross-breeding with the ecotype Provençal.

Abeille noire de Provence

Scientific name: *Apis mellifera mellifera* (ecotype Provençal)

Distribution: The bee population of the region of PACA is dominated by the Abeille noire de Provence.

Initiatives:

- Since 1986, the conservation of the 'Abeille noire de Provence' has been supported by the organisation 'l'Homme e l'Abeille'.

Contacts:

- Association l'Homme et l'Abeille, Richard Bonnet, Les Pourcelles, 04190 Les Mees

Need for action:

The association 'l'Homme et l'Abeille' is active in the conservation of the bee.

8. General report on cultivated plants in the Italian Alpine region

8.1. Protection of cultivated plants

8.1.1. Management of the distribution of local varieties

The databank of agricultural plants (registro delle varietà delle specie agrarie) includes 4682 varieties. Out of these, 3562 varieties are at present officially listed in one of the two national variety lists. The databank contains 2288 vegetables and garden plant varieties (registro delle varietà delle specie ortive), including 1521 found in the variety list. Endangered local breeds are not mentioned in the databank, but the MiPA - Ministero per le Politiche Agricole e Forestali – aims at present to implement the EU resolution 98/95/CE. Article 39 of the resolution plans to include endangered varieties as so-called conservation varieties in the EU-variety list (see for more precise information: 'Variety lists of the EU'). The private network 'Rete Semi Rurali' is also trying to reproduce and spread local varieties in order to protect them. Furthermore, it wants to guarantee the property rights for the 'comunità rurali'. The 'Rete Semi Rurali' (compare chapter 8.1.4. 'Private Conservation Efforts') does not regard the implementation of 98/95/CE as a solution for its conservation work. The costs for the admission as conservation variety to the EU-list are far too high to make it suitable for local varieties which are preserved without being marketed. Being on the EU list only pays for varieties which can be commercially used, at least to a certain extent. The current variety lists of the EU can be found under <http://www.politicheagricole.it/MiPA/banchedati/>. Short variety descriptions and a list of breeders may also be taken from there.

The regional legislation on plant genetic resources of the regions Tuscany and Lazio specifies that the set-up of a catalogue or a list of those endangered varieties which are to be protected by conservation efforts in the future. For the region of Tuscany, this list can be viewed on the ARSIA website (www.arsia.toscana.it) under Servizi/Germoplasma.

8.1.2. Implementation of the National Plan of Action

The MiPA - Ministero per le Politiche Agricole e Forestali - is responsible for plant genetic resources (4.6.1997, n.143, art. 2, comma 4). For this purpose, a 'Comitato Nazionale delle Risorse Fitogenetiche' was set up by MiPA (D.M. n°28633 del 10. dicembre 1997) with the task of coordinating activities concerning plant genetic resources conducted by IRSA (Istituti di ricerca e sperimentazione agraria). IRSA is an institution subordinated to the ministry MiPA. As focal point of coordination efforts, The 'ISF – Istituto Sperimentale per la Frutticoltura' was selected. For that purpose, the 'Centro di Coordinamento Risorse Genetiche Vegetali (Centro RGV)' was set up at the ISF. Since 1994, the ISF is the reference point of MiPA at the national and international level. The ISF has undertaken the following project to realise the national plan of action: 'Azione di Coordinamento per la Salvaguardia e la conservazione del germoplasma ortofrutticoltura'. The project concerns fruit and vegetables and has the following objectives:

- to coordinate and harmonise of activities (of institutions, organisations and individuals) in throughout Italy;
- the ISF is supposed to become the link between all bodies committing themselves in the area of fruit and vegetables during the last years;
- to initiate an exchange pool for information and genetic material between scientific institutions, producers, scientific regional offices, NGOs and national as well as international organisations;

- to catalogue cultivated plant collections at IRSA. These data are supposed to be made available in the internet via a databank, administered by the ISF;
- to collect and distribute relevant information from international and other bodies.
- to serve as a popular-scientific centre which distributes information on plant genetic resources via the information bulletin 'Notiziario Risorse Genetiche Vegetali'. The bulletin has been published every third month since March 1999.

Contacts:

Centro di Coordinamento Nazionale relativo alle Risorse Genetiche Vegetali (Centro RGV) Istituto Sperimentale per la Frutticoltura, Via di Fioranello 52, 00040 Ciampino Aeroporto – Roma, Tel: 0039-6/793 48 11, Fax: 0039-6/79 34 01 58 or 0039-6/79 34 16 30, E-Mail: rgv_centre@hotmail.com, isfrmfid@mclink.it, Web: <http://www.inea.it/isf/progRGV.html>, Web for Bulletin 'Notiziario Risorse Genetiche Vegetale': <http://www.inea.it/isf/notizario.html>

Responsible persons: Direttore: Prof. Carlo Fideghelli, Settore Vegetale: Dr. Fabrizio Grassi (fabrizio_grassi@hotmail.com, Tel: 0039-6/79 34 02 51), Dr.ssa Alisea Sartori, Dr.ssa Francesca Vitellozzi

8.1.3. Financial support

It is difficult for each NGO to acquire funds for their projects. Governmental support is not available. It is only occasionally possible to receive support from regions or provinces, depending on the political situation. This type of support is, therefore, not reliable and long-term project are insecure. Remuneration depends on the plant species, site and cultivated area. The region of Tuscany, for example, pays up to 210 EUR to farmers who are involved in the reproduction of endangered local breeds.

In 1999, 2.6 million EUR were made available for the realisation of the National Plan of Action in Italy. These funds are supposed to support ex situ, on farm and in situ conservation. On the 3.2.2000, the 'Comitato tecnico permanente di coordinamento' decided how to distribute the 2.6 million EUR. 780000 EUR are for so-called horizontal actions and 1.82 million EUR for regional actions of the autonomous provinces (Trento and Bolzano). Funds for territorial activities are distributed according to a distribution key and are used for 'operative' projects for the time being. This means that concrete conservation work is barely supported directly. The EU supports projects in Italy via regulations 2078/92 (new: 1257/99) and 1467/94 as well as through LEADER (for more detailed information compare EU-Part).

8.1.4. Private conservation efforts

There are numerous initiatives that mostly deal with individual plant species and particular areas. Individuals are accomplishing valuable work and are still searching today for old varieties. Depending on the region and species, efforts are either sufficient (for example for fruit in Piedmont) or entirely lacking (e.g. for vegetables in Friuli-Venezia Giulia). There has hardly been any coordination between actors up to now.

Not until July 2000 was a private Italian network (rete italiano) founded for coordinating efforts to conserve and protect local breeds of vegetables, fruit and cereals as well as to search for missing varieties. This private network is called 'Rete Semi Rurali' (Rete per la Conservazione Rurale delle Razze e Varietà Locali) and is open for all groups (private, governmental, scientific bodies.....) and individuals dealing with local breeds. It is officially recognized by the MiPA. Information is published in the e-mail newsletter 'Notizario'.

The organisation aims to:

- set-up a national network to link up people and institutions actively trying to save the genetic cultural-historical diversity of vegetables, cereals and fruit.

- compile a national catalogue (catalogo nazionale) of local breeds in Italy. In this catalogue, members describe their work and the varieties they look after, the species they know and the ones from former times. So-called local contact people ('Referenti Locali') search in 'their' areas for local breeds, supply a description of breeds for the national catalogue and cultivate contact with individual conservationists. If someone is interested in a specific variety, he or she should directly contact the local contact person. He or she then organises the contact between prospective customers and conservationists. Whether plants or seed are sent by mail or collected personally will differ from case to case. This procedure helps to avoid excessive centralisation of conservation work and the main conservation work is still the responsibility of the conservationists. The Rete Semi Rurali has consciously chosen this approach so as to be able to conserve as many varieties as possible with as little expenditure as possible and to conserve the cultural background of each variety as well. It is planned to publish the catalogue on a website.
- set-up a national register of historical varieties of cultivated plants (garden plants and field crops) mentioned before 1950 in the Italian variety catalogue.
- actively lobby to make it possible for farmers or nurseries to deliver small quantities of seed of endangered varieties in Italy. Because these varieties are not included in the national variety catalogue, the distribution of their reproductive material has not been officially allowed to date.
- ensure that property rights (titolarità di diritti sul patrimonio tradizionale) and benefits (benefici) are granted to those rural communities where the local variety in question has its origin and where it has been conserved and also ensure that these communities have the right to reproduce and distribute these varieties.
- ensure that legislation along the lines of that in Tuscany and Lazio is created for the conservation of agricultural genetic resources (per la tutela del patrimonio delle risorse genetiche locali di interesse agricolo).

Address: Rete Semi Rurali, c/o Cornale coop. Agricola, Corso Marconi 64, 12050 Magliano Alfieri, Fax: 0039-173/26 68 35, E-Mail: semi.rurali@libero.it, URL: http://biodiv.iao.florence.it/semi_rurali/

8.1.5. Governmental institutions concerned with the conservation of cultivated plants

IRSA – Istituti di ricerca e sperimentazione agraria

The ISRA belongs to the MiPA - Ministero per le Politiche Agricole e Forestali. In the 12 IRSA institutes which are involved in the conservation of plant genetic resources, 114 utilised plants are conserved. Altogether 26,638 collections exist, including 8922 collections of Italian origin (33.5 %). Collections show large gaps in the area of vegetables, industrial plants, medicinal plants, spices and ornamental plants. Only 386 collections of vegetables and industrial plants of Italian origin exist at present. This is, as the Vavilov study clearly shows, certainly not a representative number for Italy. The 26 collections of medicinal plants, spices and ornamental plants are also unsatisfactory. The main conservation measure is ex situ, normally in the form of seeds. In situ conservation is applied to fruit trees, forest trees, medicinal plants and spices. 33% of the plants are still cultivated. The largest part of the collections originates from the 1980s and 1990s. Exceptions are tobacco (beginning of 20th century), beetroot (end of the 1960s), vines (at the end of the 1960s), almond (beginning of the 1970s), hazelnut (beginning of the 1970s), vegetables (beginning of the 1970s), and some forest plants (beginning of the 1970s). A mere 2% of the collections are also at the disposal of individuals, but these include only plants from the groups fruit trees and forest trees. For another 12.5%, exchange with other scientific institutes occurs. The largest parts of the collections are used for research and breeding. 23% of the collections are not used any more.

The proportion of unused material is especially high for the following groups: vegetables and industrial plants, medicinal plants, spices, ornamental plants, cereals and forage plants. The state of health of the collections has practically not been tested at all. Exceptions are tobacco (80% controlled), vines (65% controlled), citrus fruit (64% controlled), and peaches as well as plums (for both fruit, all collections have been tested on Sharka).

The different IRSA institutes work very differently for the protection of plant genetic resources. There is little coordination, and the individual IRSA decide for themselves how to protect these resources. To improve the situation, the Centro di Coordinamento Risorse Genetiche Vegetali (RGV) was set up at the Istituto Sperimentale per la Frutticoltura. Its main function is to support and coordinate synergies of activities in the field of RGV. Large differences exist between the different plant groups, too. For example, relatively complete and precise data are only available for trees and forest plants. The first important task of the 'Centro di Coordinamento Risorse Genetiche Vegetali (RGV)' is therefore to compile all the information on the existing collections at the various ISRA and to set up a databank which will include all collections available at the ISRA. These will be made available to the broadest possible audience in order to facilitate the exchange and use of plant genetic resources.

The individual ISRA institutes are described in the chapter

'Portraits of actors concerned with cultivated plants in the Italian Alpine Region'.

CNR – Consiglio Nazionale delle Ricerche

This National Institute for Research was founded in 1923. Today, the CNR consists of 352 organisation active in scientific and technological research. 47 are concerned with agriculture. The CNR occupies a central position in research in Italy. In 1970, the Istituto del Germoplasma was founded in Bari. The objective of the Institute is the collection and the conservation of plant genetic resources from Italy as well as the entire Mediterranean region. The Istituto Germoplasma has been especially active in the collation of wheat. Today, the collection still consists mainly of *Triticum*. Since 1977, the main emphasis of collections was laid on the genera *Triticum*, *Pisum*, *Vicia* (amongst others *Vicia faba*). In the middle of the eighties, other cereal species added included, too. Meanwhile, the Istituto del Germoplasma has covered most of Italy with its collection tours. Today, it has more than 55,000 collections of more than 40 genera and 584 species exist. Approx. 12,000 of these collections were collected directly through the Istituto del Germoplasma and the rest were created through exchange with other institutions and genebanks. Conservation is done in a genebank. A databank of the collections is kept. Additionally, it has a databank on rare cultivated plants in Italy. Seed material is available on request. Duplicates of conserved varieties exist in other genebanks, as well. Research is mainly carried out on the following genera of cultivated plants: *Triticum*, *Vicia*, *Phaseolus*, *Vigna*, *Cicer*, *Pisum*, *Crambe* and *Cynara*.

The collections of Italian cultivated plants conserved in the Istituto Germoplasma in Bari are listed in the chapter 'Portraits of actors concerned with cultivated plants in the Italian Alpine Region'.

Addresses:

Consiglio Nazionale delle Ricerche – CNR, Piazzale Aldo Moro 7, 00185 Roma, Tel: 0039-6/499 31, Fax: 0039-6/446 19 54, Web: <http://www.cnr.it>

Istituto del Germoplasma, contact: P. Perrine, Via G. Amendable, 165/a, 70126 Bari, E-Mail: germplasm@area.ba.cnr.it, Web: <http://www.area.ba.cnr.it>

Conservation efforts of university institutions

Although lively research in the area of genetic resources started some years ago at Italian universities, concrete conservation measures are missing. Nevertheless, large quantities of animal and plant genes have been stored and continuously supplemented. Very little has been done, however, for the conservation of living stock.

8.2. National and regional legislation

In Italy, no legislation exists at present on the national level for the conservation of genetic resources of cultivated plants. None of the regions from the Alpine region has date elaborated a specific legislation for the protection of genetic resources. Only in 2 out of 20 regions – in Tuscany and Lazio – is there any special legislation exists.

8.3. EU measures for the conservation of cultivated plants in Italy

8.3.1. Regulation 2078/92 (new: 1257/99)

In the Italian Alpine Region, the following regions are supported in the conservation of endangered plant varieties by the EU-regulation 2078/92:

- Trentino Alto Adige: The conservation of endangered breeds of maize and rye in an 89 ha area is supported with 16,500 EUR.
- Friuli-Venezia Giulia. The conservation of 1 maize variety, 2 apple varieties, 2 chestnut varieties, 1 cherry variety and 1 olive variety on a 4ha area is supported with 1500 EUR.

8.3.2. Regulation 1467/94

Italy participates in the following plant projects of EU- regulation 1467/94 (more detailed information on regulation 1467/94 is given in the introduction).

Gen Res 29 – Minor Fruit Tree Species

The project deals with the following little used fruit trees: figs (*Ficus carica*), pomegranate (*Punica granatum*), kaki (*Diospyros kaki*), *Eriobotrya japonica*, Indian Fig (*Opuntia spp.*), *Cydonia oblonga*, chestnut (*Castanea sativa*), pistachio tree (*Pistacia vera*), strawberry tree (*Arbutus unedo*), cornelian cherry (*Cornus mas*), *Mespilus germanica*, guiggirole (*Zizyphus mas*), *Crataegus azarolus*, *Sorbus domestica*, mulberry (*Morus spp.*), *Ceratonia siliqua*

Individuals responsible for Italy:

- Università della Tuscia, Dr. C. Bignami, Via San Camillo de Lellis, 01100 Viterbo
- Università degli Studi di Sassari, Dr. I. Chessa, Via E. de Nicola 1, 07100 Sassari
- Università di Firenze, Dr. E. Bellini, Dipartimento di Ortoflorofrutticoltura, Via G. Donizetti 6, 50144 Firenze
- Università Federico II Napoli, Dr. T. Caruso, Via Università 100, Portici
- Ist. Sper. per la Frutticoltura, Dr. G. Grassi, Via Torrino 3, 81100 Caserta
- Università degli Studi della Basilicata, Dr. C. Xiloyannis, Via N. Sauro 85, 85100 Potenza

Gen Res 37 – Rice in Italy:

- Ist. Sper. per la Cerealicoltura, Dr. S. Russo, SS per Torino km 2,5, 13100 Vercelli

Gen Res 42 – Beta in Italy:

- Ist. Sper. per le Colture Industriali, Dr. E. Biancardi, Via le Amendola 82, 45100 Rovigo
- Società Produttori Sementi P.A., Dr. E. de Ambrogio, Galleria del Reno 3, 40122 Bologna

Gen Res 61 – Prunus in Italy:

- Ist. Sper. per la Frutticoltura, Dr. F. Grassi, Via di Fioranello 52, 00040 Roma

Gen Res 81 – Vines in Italy:

- Università di Torino, Centro di Studio per il Miglioramento Genetico e al Biologia della Vite, Dr. Schneider, Via P. Giuria 15, 10126 Torino
- Ist. Sper. per la Viticoltura Conegliano, Sezione di Amelografia e Miglioramento Genetico, Dr. A. Costacurta, Via Casoni 13/A, 31058 Susegana (TV)

- Istituto Agrario di San Michele all'Adige, Dr. L.R. De Micheli, Via E. Mach 1, 38010 San Michele all'Adige (TN)
- Università degli Studi di Udine, Dipartimento di Produzione Vegetale e Tecnologie Agraria, Dr. E. Peterlunger, 33100 Udine

Gen Res 88 – Maize in Italy:

- Ist. Sper. per la Cerealicoltura, Dr. M. Motto, Via Stezzano 24, 24126 Bergamo

Gen Res 97 – Olives in Italy:

- Università degli Studi di Firenze, Dipartimento Ortoflorofitticoltura, Dr. F. Scaramuzzi, Via Donizetti, 50144 Firenze

Gen Res 104 – Barley in Italy:

- Ist. Sper. per la Cerealicoltura, Dr. A.M. Stanca, Fiorenzuola d'Arda (PC)
- Ist. Sper. per la Cerealicoltura, Dr. N. Di Fonzo, Foggia

Gen Res 105 – Carrots and wild relatives in Italy:

- Università di Bologna, Dr. L.F. D'Antuono, Via Filippo Re, 6, 40126 Bologna

Gen Res 109 – *Brassica* in Italy:

- Ist. di Orticoltura e Floricoltura, Facoltà di Agraria, Università Catania, Dr. F. Branca, Via Valdisavioia 5, 95123 Catania, Tel: 0039-95/23 43 26

Gen Res 113 – Egg-plants in Italy:

- CNR Bari, Dr. G. Pollnaro, Via G. Amendola, 165/a, 70126 Bari

8.3.3. Regulation 2081/92

In the Italian Alpine regions, the following endangered varieties of cultivated plants are protected by the quality seal PGI 'Protected Geographical Indication':

- Pears: 'Pear Manitoban' (Lombardy Region)
- Beans: 'Fragile did Lemon Della Valletta Bellies' (Venetia Region)
- Rice: 'Rios Nan Vial one Veronica' (Venetia Region)
- Radicchio: 'Radicchio Variegato di Castelfranco' (Veneto Region)
- Radicchio: 'Radicchio Rosso di Treviso' (Veneto Region)

More detailed information, including addresses, is given in the chapter 'Portraits of Organisations'.

8.3.4. LEADER-Projects

Italy is not involved in any LEADER program concerning agricultural biodiversity of cultivated plants in the Alpine region.

8.4. International organisations and institutions

8.4.1. ECP/GR

Contacts and participants in the working groups of the ECP/GR in Italy. More detailed information on ECP/GR is found in the introduction.

ECP/GR National Coordinator:

- ISF – Istituto sperimentale per la Frutticoltura, Via di Fioranello 52, 00040 Ciampino Aeroporto – Roma, ECP/GR National Coordinator: Dr. Carlo Fideghelli, Tel: 0039-6/793 48 11, E-Mail: isfrmfid@mclink.it

ECP/GR On-Farm Conservation and Management Task Force Member

- Dr. Massimo Angelini, Co.Re.Pa. c/o Provincia di Genova, Ufficio Attività Territoriali, Genova, Tel: 0339-2/33 29 36, Fax: 0039-10/549 98 81, E-Mail: angelini@busalla.it

- Prof. Dr. Valeria Negri, Istituto di Miglioramento Genetico Vegetale, Facoltà di Agraria, Università degli Studi, Perugia, Tel: 0039-75/585 6218, Fax: 0039-75/585 62 24, E-Mail: vnegri@unipg.it
- Dr. Alisea Sartori, Istituto Sperimentale per la Frutticoltura, Roma, Tel: 0039-6/79 34 81 69, Fax: 0039-6/79 34 16 30, E-Mail: alisea_sartori@hotmail.com oder isfrmfid@mclink.it

ECP/GR Working Groups

- *Allium*
in Italy: Mr. Massimo Schiavi, Ist. Sper. per l'Orticoltura, Via Paulese 28, 20075 Montanaso Lombardo (MI), Tel: 0039-371/68171, E-Mail: isoml@apm.it
- *Avena*
in Italy: Dr. Luigi Cattivelli, Ist. Sper. per la Cerealicoltura, Sezione di Fiorenzuola d'Arda, Via S. Protaso 302, 29017 Fiorenzuola d'Arda, Tel: 0039-523/983758, E-Mail: l.cattivelli@iol.it
- Barley
in Italy: Mr. Michele Stanca, Ist. Sper per la Cerealicoltura, Sezione di Fiorenzuola d'Arda, Via S. Protaso 302, 29017 Fiorenzuola d'Arda, Tel: 0039-523/983758, E-Mail: m.stanca@iol.it
- *Beta*
in Italy: Mr. Paolo Ranalli, Ist. Sper. per le Colture Industriali, Via di Corticella 133, 40129 Bologna, Tel: 0039-51/6316847, E-Mail: ranalli@bo.nettuno.it
- *Brassica*
in Italy: Mr. Ferdinando Branca, Ist. di Orticoltura e Floricoltura, Facoltà di Agraria, Università Catania, Via Valdisavoia 5, 95123 Catania, Tel: 0039-95/234326, E-Mail: BrancaF@mbox.fagr.unict.it
- Forage Plants
in Italy: Prof. Valeria Negri, Genetica e Miglioramento genetico, Dipt. Bot. Vegetale e Biotech. Agroamb., Fac. Di Agraria, Università degli Studi, Borgo XX Giugno 74, 06100 Perugia, Tel: 0039-75/5856218, E-Mail: vnegri@unipg.it
- The European databank of Vicia forage plants is managed by the Istituto del Germoplasma di Bari. It contains all data on European collections. Italian data are secured in other databanks, too. The following institutes keep collections of Italian forage plants:
 - Istituto di agronomia generale e coltivazioni erbacee of the University of Sassari
 - Istituto di miglioramento genetico vegetale of the University of Perugia
 - Istituto Sperimentale per le Colture Foraggere in Lodi
- Legumes
in Italy: Mr. Paolo Ranalli, Ist. Sper. per le Colture Industriali, Via di Corticella 133, 40129 Bologna, Tel: 0039 51/6316847, E-Mail: ranalli@bo.nettuno.it
- Maize
in Italy: Mr. Pietro Perrino, Ist. del Germoplasma CNR, Via G. Amendola 165/A, 70126 Bari, Tel: 0039-80/5583608, E-Mail: germpp04@area.area.ba.cnr.it
- *Malus/Pyrus*
in Italy: Mr. Fabrizio Grassi, Ist. Sper. per la Frutticoltura, Via Fioranello 52, 00134 Roma, Tel: 0039-6/7934811, E-Mail: f.grassi@mclink.it
- Potatoes
in Italy: Mr. Luigi Frusciante, Cattedra di Coltivazioni Erbacee e Migl. Genetico, Università di Portici, Via Università 100, 80055 Portici, Tel: 0039-81/788 54 11, E-Mail: fruscian@unina.it
- *Prunus*
in Italy: Mr. Fabrizio Grassi, Ist. Sper. per la Frutticoltura, Via Fioranello 52, 00134 Roma, Tel: 0039-6/793 48 11, E-Mail: f.grassi@mclink.it

- Umbellifer Crops
in Italy: Mr. Nazzareno Acciarri, Ist. Sper. per l'Orticultura, Sez. di Monsampaolo del Troto, Via Salaria 1, 63100 Ascoli Piceno, E-Mail: acciarri@libero.it
- Wheat
in Italy: Mr. Pietro Perrino, Ist. del Germoplasma CNR, Via G. Amendola 165/A, 70126 Bari, Tel: 0039-80/558 36 08, E-Mail: germpp04@area.area.ba.cnr.it

8.4.2. Slow Food in Italy

Slow Food is most strongly present in Italy of all Alpine countries. The project l'Arca' or 'Ark of Taste' which deals with the conservation of threatened food/products is firmly established. Many of these products are processed from autochthonous cultivated plants. This helps to support a large number of old varieties of cultivated plants in Italy. Information on these may be taken from the 'Portraits of actors'.

Contacts for cultivated plants in Italy:

Ark of Taste: Serena Milano, Tel: 0039-172/41 96 69, Mail: s.milano@slowfood.it, Piero

Sardo: Mail: p.sardo@slowfood.it

Contacts for vegetables in Italy: Domenico Palumbo, Ist. Sper. di Orticultura, Tel: 0039-89/38 62 11, E-Mail: isor@sa.flashnet.it

Contacts for fruit in Italy: Cristina Peano, Tel: 0039-11/670 86 60, Cell: 0039-33/56 65 98 81, E-Mail: peano@agraria.unito.it

8.5. Summary: Need for Action in Italy

8.5.1. Background

According to Vavilov (1927), Italy belongs to the Mediterranean gene centre. It can therefore be assumed that a wide variety of cultivated plants and their wild relatives originated in Italy. Italy is an important centre of origin for the development of cultivated plants with impacts also in the Alpine region.

8.5.2. Need for Action

The need for action for individual species and varieties is dealt with in the corresponding chapter.

Support for private organisations

It is very difficult for NGOs to raise money for their projects. Governmental support is not available. Private actors are particularly suited for in situ conservation. Only this type of conservation -in situ- allows continuous adaptation to changing environmental conditions. The conservation work of private organisations or individuals, set up with a lot of commitment and idealism, significantly differs in approach from that of governmental bodies, universities and research stations which are usually centrally organised. Existing private organisations urgently need well-directed support.

Private organisations geared to particular species and regions with large need for action are indispensable for successful conservation work in Italy.

Coordination in the private sector

The efforts of the Association 'Rete Semi Rurali' to support and link up private conservation actors have to be supported. A competent national organisation is urgently needed. Too many such efforts have come to nothing in the past.

The cooperation and coordination between the private sector and governmental institutions should be developed further.

Implementing the National Plan of Action at the private level

The implementation of the National Plan of Action only concerns the inventories of existing national collections and PR activities unfortunately. Private collections are not included. It is urgent that governmental bodies take more notice of private efforts.

Legislation at the national level

In Italy, no national legislation yet exists up to for the conservation of plant genetic resources. Only in 2 out of 20 regions (Lazio and Tuscany) has special legislation recently been elaborated for the protection of plant genetic resources.

Lists of local varieties for conservation purposes

There are two national variety lists in Italy. In these lists, endangered local breeds are not mentioned. At present, the MiPA aims to meet the EU resolution 98/95/CE and list these. Registering them as conservation varieties on the EU variety list would cost too much. This would, therefore, not be suitable for local varieties without market demand. In Italy, a solution is urgently needed to allow marketing for conservation purposes.

Active searches for old varieties

The least actors still search actively for old varieties at present. For many species, the governmental side assumes that all existing varieties were recorded during the search tours of governmental institutions in the 20th century. As more recent NGO-activities show, however, varieties are discovered again and again. Projects with the objective to discover old varieties are not supported at present. Search should focus particularly on remote areas, especially the valleys of the Alps. Enquiries would also be worth the effort in gardens, old cloisters and farm estates.

Inventory of historically used varieties

Specific search for old varieties is urgently needed. A historical inventory of varieties originally cultivated in the different regions would make the elaboration of search lists basing on historical data possible and facilitate the concrete search for these varieties.

Support for the utilisation of old varieties

The utilisation of old varieties is a central component of conservation work. Delivery of reproduction material from governmental collections to private persons is marginal – improvement is urgently needed.

Additional protection of existing varieties

It is essential that duplicates of varieties in the existing collections are made. These duplicates must not be kept in the same collection under any circumstances. The risk that collections might be destroyed by illness or environmental impact is normally too high.

Conservation by special labels and other support measures for marketing products

Projects to support well-directed marketing and improve sales (e.g. regional marketing) are urgently needed. One possibility is the promotion of products by so-called labels such as example Slow Food. Where these products are directly linked to old varieties, the latter can be thus conserved. Related products could, as regional specialities, experience a certain

protection on the market. Unusual conservation varieties could even become important as niche products in direct marketing.

Species where action is urgently needed

There is need for action for all varieties, but the active search for old varieties of vegetables, legumes and chestnuts should have priority.

9. Conservation of cultivated plants in the Italian Alpine region - portraits of actors

In the following, actors committed to the conservation of cultivated plants in the Alpine region are portrayed. The state of information is valid for 2000 if not specified otherwise. Information on actors is taken from questionnaire responses, internet and literature research searches and from personal contacts and publications. Not all the information could be verified, but it was used as transmitted. Investigations were carried out in the year 2000. Within this time frame, it was attempted to organize investigations in a maximally broad way. Listing was subdivided into categories according to species and regions. Within regions, private individuals (including nurseries and seed traders) are listed first, followed by public institutions and governmental agencies. The list does not claim to be complete.

9.1. Fruit

9.1.1. Need for action: *Malus*, *Pyrus* and *Prunus*

Background:

There used to be great diversity of fruit trees in the Italian Alpine region. The genera *Malus* (apples), *Pyrus* (pears) and *Prunus* (sweet cherries, plums) were traditionally very important. Each region had its own diversity. Fruit cultivation in the Alpine region has its upper climatic limit today at approx. 1000 m, depending on the species. In more favourable regions of the Alps, fruit growers experimented a great deal with breeding new varieties.

Many of these varieties have disappeared. But thanks to an early intensive search, some of them could be conserved. The first collection tours for fruit trees were carried out in Italy in the middle of the 20th century. This is, compared to other cultivated plants, a very early date. Only wheat was subject to still earlier specific collection tours.

Around 1960, different governmental institutions began with the identification, collection and conservation of old fruit varieties. In 1981, the CNR- Consiglio Nazionale delle Ricerche founded a national working group for the protection of the genetic resources of fruit trees. The Agricultural Department of the University of Florence coordinated the group.

Table showing organisations and institutions active in the conservation of the genera *Malus*, *Pyrus* and *Prunus* (according to region).

These actors are described in detail below :

Region	NGOs	Nurseries	Public Institutions	Governmental Inst./EU	Total
Aosta Valley	1			1	2
Piedmont	4	4	1	1	10
Lombardy	1	1			2
Trentino-Alto.		1	2		4
Veneto					
Friuli-Ven.G.	1		2	2	5
Supraregional	2	2	1	4	9

Governmental collections and activities:

Large collections are kept at present by governmental institutions. Numerous university Institutes also keep collections. None of these collections, however, has explicitly dealt with the Alpine region. There is little interest in cooperating with private organisations and delivery of reproduction material to private organisations and individuals is marginal. The governmental ISF-Istituto Sperimentale per la Frutticoltura is responsible for implementing the National Plan of Action. Its activities are coordination, networking, information, PR-activities and inventories of collections.

Italy is represented in the IPGRI-working groups *Malus*, *Pyrus* and *Prunus* and the project group *Prunus* of the Gen Res projects of the EU (Regulation 1467).

Private collections and activities

As apparent from the table above, the private sector (NGOs and nurseries) is relatively strongly represented in the Piedmont Region. No private sector activities were found in Veneto.

On the national level, the recently founded private network 'Rete Semi Rurali' (Rete per la Conservazione Rurale delle Razze e Varietà Locali) is trying to coordinate actors and to compile a national catalogue (catalogo nazionale) showing the distribution of local varieties in Italy.

Need for action:

Although the fruit tree genera *Malus*, *Pyrus* and *Prunus* were and still are subject to relatively intensive conservation activities, the need for action remains great. Because fruit tree cultivation has a long tradition in the Italian Alpine region, it can be assumed that diversity there was considerable and that conservation strategies, if they do not already exist, are particularly important.

The following gaps need urgent action :

Very few actors still search actively today for old varieties. The governmental side assumes that all existing varieties were recorded during search tours in the 1960s. As the more recent activities of NGOs have shown, (e.g. 'Il Vecchio Melo', 'Il Frutto Ritrovato'), varieties are still frequently discovered. The National Plan of Action unfortunately focuses on the inventories of existing governmental collections and PR-activities. Private collections are not included. At present, there are no projects to support the search for old varieties. Search tours should focus on remote areas, especially on the valleys of the Alps. Investigations in old cloisters and farm estates would also be worth while.

- **State of health and security of existing collections**

The control of the state of health of the governmental collections is very unsatisfactory. In both the private and the governmental collections, secondary protection of varieties is often missing.

- **Private sector**

There are a few NGOs which are doing a very valuable job and still searching actively today for old varieties. A coordination of these organisations is urgently needed. The network 'Rete Semi Rurali' is trying at the moment to close this gap. The private sector urgently needs financial support. Coordination between governmental institutions and private sector needs to be developed quickly. This is also required by Article 10, alinea e of the Convention on Biological Diversity. Support for private organisations is completely lacking in the National Plan of Action, but these organisations need well-directed support.

- **Inventory of historically used fruit trees**

A focussed search for old varieties is urgently needed. An inventory of old varieties originally cultivated in the different regions would allow the set-up of search lists based on historical data to be drawn up and concrete searches for these varieties to be undertaken.

- **Support for the utilisation of old varieties**

The utilisation of old varieties is a central component of conservation work. In this study, nurseries which specifically propagate old varieties could be located only in Piedmont, Lombardy and Trentino-Altoadige. The delivery of reproductive material from governmental collections to private persons is only marginal which should be urgently improved.

- **Regions with acute need for action**

In all Alpine regions besides Piedmont, activities should be increased. Special need for action exists in Veneto, Lombardy and the Aosta Valley.

9.1.2. Need for action for other fruit species

The fruit species and groups listed in the table below were also cultivated in the Alpine region.

Fruit Species or groups	Private Organisations	Nurseries	Public institutions	Govern-mental inst./EU	Total
Berries*	2	1	1	1	5
Mulberries		1			1
Figs		3		1	4
Wild fruit**	2	1			3
<i>Nespole germanica</i>	1	1		1	3
Kaki		1		2	3
Quinces	1	2		1	4
Kiwi		1		1	2

*Berries: strawberry, red and black currant, blackberry, raspberry, bilberry

**Wild fruit: beech cherry, sorb tree, cornelian cherry, elder, blackthorn

EU - Project group 'Minor Fruit Tree Species'

Italy is represented in the Gen Res project of Regulation 1467 which supports the following fruit species and groups: mulberries, figs, wild fruit, (elder, blackthorn), cornelian cherry, lotus fruit, medlar, kaki and pomegranates.

Need for action:

- **There is great need for action!**

The need for action is enormous for all the above listed fruit species and groups! Most actors collect these varieties only sporadically. Only the Istituto sperimentale per la Frutticoltura – ISF keeps a larger national collection. An active search for old varieties should be urgently started!

Giuggiole / Lotus fruit:

The lotus fruit, also called Jujube or *Zizyphus lotus* in Latin is a speciality in Italy. The small, date-like fruit tastes when fresh similar to apples but changes its taste considerably when slightly dried. The rarer round form originates from Northern Italy. They are only seldom cultivated today and are sometimes offered as specialities at markets.

Contact: for the round Giuggiole/ lotus fruit form:

Azienda Agricola biologica, Gaetano Luciani, Str. Viazone 1, 42045 Luzzara, Tel/Fax: 0522/977940

Mulberries:

Until the turn of the century, mulberries had great importance in wide parts of Northern Italy, mainly for silkworm breeding. The fruit played a subordinate role. It has to be assumed that different varieties exist. Today, remaining stocks of mulberry trees are found especially in the area of Verona and the Po Valley. In the Province of Friuli, individual alleys of mulberries are found along country tracks. They are, however, not utilized any more. Continuing

investigations, especially on the question of varieties, should be conducted. In Northern Italy, only one (Vivai Piante Frutifere ‘Omezzolli’) actor appears to be involved in the conservation of mulberry trees.

9.1.3. Portraits of actors (fruit)

Supraregional organisations and institutions

Pomona

Address: Via Bramante, 29, 20154 Milano, Tel: 0039-2/345 07 51, fax: 0039-2/33 20 55 22, E-Mail: pomona@tin.it

Contact: Paolo Belloni, Marta Alessandri

Description: Pomona is a national association for the promotion of biodiversity in Italy. It is mainly active in the area of fruit especially in PR work. It sensitises the public to the topic biodiversity via media, environmental education, events and demonstrations. Several exhibitions on biodiversity have taken place. Many contacts exist to informal organisations and university Institutes.

Pomona is not directly active in variety conservation. It maintains, however, an orchard - ‘Il Giardino dei Buoni Frutti – Loc. Tolcinasco’ with various old Italian fruit varieties (apples, pears, plums, cherries). The orchard is taken care of by Emanuele Pieve.

Type of organisation: private

Active since: 1993

Size: 2 members of staff

Rete ‘Semi Rurali’

Address: c/o Cornale coop. Agricola, Corso Marconi 64, 12050 Magliano Alfieri, Fax: 0039-173/26 68 35, E-Mail: semi.rurali@libero.it, URL: http://biodiv.iao.florence.it/semi_rurali/

Contact: Massimo Angelini

Description: The Rete ‘Semi Rurali’ (Rete per la Conservazione Rurale delle Razze e Varietà Locali) was founded in July 2000. It is a network (rete) of organisations, farmers and individuals committed to the conservation and protection of local breeds of vegetables, fruit and cereals. At present, a national catalogue (catalogo nazionale) of local varieties in Italy is being drawn up. This catalogue will also include information on the individuals responsible for each variety. More detailed information may be found in the chapter ‘*General Report on cultivated plants in the Italian Alpine region*’

Type of organisation: private

Slow Food

Address: Ufficio Arca e Presidi Slow Food, Giovanni Bellingeri, Via delle Mendicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24

Type of organisation: private

Description:

More detailed information on Slow Food may be taken from the General Report.

Slow Food supports the conservation of the following fruit varieties through product promotion:

- Piedmont:
Apples: Buras, Carla, Grigia di Torriana, Runse, Domenici, Magnana, Calvilla, Bianca, Calvilla Rossa
Cooking pears: Martin sec, Martinone, Martin dubi, Modernassa
Fragola di Tortona
- Friuli-Venetia Giulia: Mela Carla di Finale, Mela Teresa, Mela Roncallina, Mela Zeuca

Dalmonte – l'antico Pomario

Address Guido e Vittorio Dalmonte, Vivai Dalmonte, Via Casse, 1, 48013 Brisighella (RA),
Tel: 0039-54/68 10 37, Fax: 0039-54/68 00 61, E-Mail: dalmonte@dalmontevivai.com, URL:
<http://www.dalmonte.com>

Description: Dalmonte reproduces and sells old fruit varieties from Italy. At present, there are 11 peach, 64 apple and 29 pear varieties in the assortment. Some of these varieties originate from the Italian Alpine region.

Type of organisation: private/Nursery

Size: 20 members of staff

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: only of their own assortment.

Vivai Piante Fruttifere 'Omezzolli'

Address: Via Brione, 9, 38066 Riva del Garda (TN), Tel: 0039-464/55 16 42, Fax: 0039-464/55 71 88

Description: The nursery Omezzolli searches actively for old fruit varieties in Northern Italy. They are cultivated in a show garden. The nursery propagates recently discovered varieties and offers them for sale. The following species are found in the assortment: apples (approx. 80 varieties) pears (approx. 40 varieties), cherries (approx. 20 varieties), peaches (approx. 20 varieties), apricots (4 varieties), plums (6 varieties), figs (13 varieties), quinces (3 varieties), kiwi (2 varieties), *Nespole germanici*, *Nespole giapponese*, kaki, red and black currants, blackberry, raspberry, strawberries, *Meerkirsche*, rowanberries, cornelian cherries, giuggiolo, mulberries, azerolier ('Azzeruoli'), pomegranates ('Melograni') and Nashi.

Type of organisation: private/nursery

Centro di Sperimentazione Agraria e Forestale

Address: 39040 Auer-Ora

Description: The 'Centro di Sperimentazione Agraria e Forestale' investigates, among other things, some old apple, pear and raspberry varieties. An in situ collection of these varieties exists. Some of the conserved varieties originate from the Alpine region.

Additional protection of conserved varieties: yes

Type of organisation: public institution

Dipartimento di Produzione Vegetale, Sezione Coltivazioni Arboree, Università Studi di Milano

Address: Via Celoria, 2, 20123 Milano, Tel: 0039-2/70 60 01 65, Fax: 0039-2/236 53 02

Contact: Attilio Scienza

Description:

At the 'Dipartimento di Produzione Vegetale' fruit varieties from Italy (also from the Alpine region), Albania and the Caucasus Mountains are conserved in a genebank. The collected varieties are characterised phenotypically and genotypically by means of a DNA-marker.

Type of organisation: governmental

Active since: 1934

Size: 10 members of staff

Databank: yes

Additional protection of conserved varieties: yes (genebank)

Long-term conservation: yes

Dipartimento di Coltivazioni Arboree, Università di Bologna

Address: Via Filippo Re, 6, 40126 Bologna

Description:

The 'Dipartimento di Coltivazioni', has a collection of old Italian apple, pear and cherry varieties. Some of these varieties originate from the Alpine region. Inventories have been carried out. The institution deals mainly with variety testing.

Type of organisation: governmental

Dipartimento di Ortoflorofrutticoltura - Università di Firenze

Address: Istituto di Coltivazioni Arboree, Via G. Donizetti, 6, 50144 Firenze, Tel: 039-55/334 62/3/4, Fax: 0039-55/33 14 97, E-Mail: dofisegr@risc.idg.fi.cnr.it

Contact: Prof. Dr. Pisani

Description: At the 'Dipartimento di Ortoflorofrutticoltura' the following fruit species are taken care of: kaki (85 records), pears, peaches (203 records) and plums (38 records). An inventory of old pear varieties was carried out. The collection includes varieties from different Italian regions.

Type of organisation: governmental

Istituto sperimentale per la Frutticoltura - ISF

Address: Direttore: Prof. Carlo Fideghelli, Via di Fioranelle, 52, 00134 Roma Tel: 0039-6/793 48 11, Fax: 0039-6/79 34 01 58 oder 06/79341630, E-Mail: isfrmfid@mclinkli, Web: <http://www.inea.it/isf/index.html>

Address of the 'Sezione di Caserta': ISF Caserta, Direttore di Sezione: Dott. Giorgio Grassi, Via Torrino, 3, 81100 Caserta, Tel: 0039-823/25 62 01, Fax: 0039-823/49 33 81, E-Mail: isf@ce.flashnet.it

Address of 'Sezione di Forlì': Piazzale Della Vittoria, 15, 47100 Forlì

Address of 'Sezione Operativa di Trento': Vigalzano Di Pergine, 38100 Trento

Description: The ISF has been active since 1981 in the area of agricultural biodiversity (research and genetic improvement). Conservation of the collected varieties is carried out ex situ and in vivo. Information on collected varieties is stored in a databank. On request, propagation material is delivered to interested cultivators. Conservation focuses on long time periods. Some of the varieties originate from the Alpine region. There is only additional protection of the collected material for some varieties.

At this Institute, collections of the following species exist:

Kiwi/Kiwi (*Actinidia deliciosa chinensis*): 0 Italian (Total: 64)

Quinces/Cotogno (*Cydonia oblonga*): ? Italian (Total: 25)

Kaki/Kaki (*Diospyros kaki*): 7 Italian (Total: 51)

Chinese medlar/Nespolo (*Eriobotria yesponica*): 13 Italian (Total: 37)

Pineapple guava/ Feijoa (*Feijoa sellowiana*, Myrtaceae): 8 Italian (Total: 45)

Figs/Fico (*Ficus carica*): 76 Italian (Total: 80)

Strawberries/Fragola (*Fragaria spp.*): 31 Italian (Total: 256)

Apples/Melo (*Malus communis*): 567 Italian (Total: 1416)

Indian Fig Tree/Fico d'India (*Opuntia ficus indica*): 3 Italian (Total: 5)

Avocado/Avocado (*Persea americana*): ? Italian (Total: 10)

Apricots/Albicocco (*Prunus armeniaca*) 107 Italian (Total: 278)

Cherries/Ciliegio (*Prunus avium/Prunus cerasus*): 403 Italian (Total: 790)

Plums/Susina (*Prunus domestica*, *P. cerasifero*, *P. salicina*, *P. trifolra*, *P. isititia*): 74 Italian (Total: 185)

Peaches/Pesco (*Prunus persica*): 584 Italian (Total: 1215)

Pears/Pero (*Pyrus communis*): 276 Italian (Total: 583)

Nashi (*Pyrus serotina*): 0 Italian (Total: 44)

Red and black currant and gooseberry /ribes e uva spina (*Ribes spp.*): 0 Italian (Total: 65)

Raspberry, blackberries, hybrids/Lampone, rovo, ibridi (*Rubus spp.*): 1 Italian (Total: 77)

Bilberries/Mirtillo (*Vaccinium spp.*): 0 Italian (Total: 29)

Table grapes/Uva da tavola (*Vitis vinifera*): 10 Italian (Total: 57)

Varieties from the mountain and low mountain area:

Apples: Renetta del Canada, Permain Dorata, Rosa di Caldaro

Pears: Curato, Spina Carpi, Martin Sec, Madernassa, Olivier de Serres

Cherries: Durone dell'Anella, Durone Nero I, Bella Italia, Galuciu, Marisa

Type of organisation: governmental

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Aosta Valley, Piedmont, Liguria

Dipartimento di Colture Arboree Università degli Studi Torino

Address: Contact: Dott. Valentini Nadia, Via Leonardo , 44, 10095 Grugliasco, Tel: 0039-11/670 88 27, Fax: 0039-11/670 88 23, E-Mail: valentin@agraria.unito.it

Director: Prof. Giancarlo Bonous

Description: The 'Dipartimento di Colture Arboree' conserves the following fruit species on farm: 16 sour cherry , 42 sweet cherry, 197 apple, 67 pear, 40 peach and 39 plum varieties. These varieties are collected in the Piedmont, Aosta Valley and Liguria Regions and then conserved in orchards. The apple and pear varieties probably all originate from the Alpine region. The director, Prof. Bonous, investigated several rare fruit species. (*Cornus mas*, *Sorbus domestica*, *Mespilus germanica*, *Sambucus ssp.*, *Rosa canina* and *Hipophaë rhamnoides*).

Type of organisation: governmental

Active since: 1980

Size: 27 members of staff

Databank: Only for some peach, plum and cherry varieties

Additional protection of conserved varieties: none

Long-term conservation: yes

Aosta Valley

Arboretum National d'Aubonne

Address: 18, Rte de Bénex, 1197 Prangins, Schweiz, Tel: 0041-22/361 45 24, Fax: 0041-22/361 45 24

Contact: Prof. R. Corbaz

President: P.-R. Martin

Description: The Arboretum National d'Aubonne in Switzerland takes care of, among other things, some fruit varieties from the Aosta Valley.

Type of organisation: private

Active since: 1975

Size: 4 members of staff and approx. 2000 members

Databank: yes

Piedmont

Orto Botanico Pervinca

Address: Via SS. Giacomo e Filippo 11, 28838 Levo di Stresa (VB), Tel: 0039-323/93 40 89, E-Mail: pervincagarden@libero.it

Description: The Orto Botanico Pervinca collects old Italian fruit varieties of the following species: apples, cherries, pears and plums. It has an especially large collection of apple and pear varieties from Piedmont. Besides fruit and wild fruit (*Sorbo domestico*, *Sambuco*, *Giuggiolo*, *Azzeruolo*, *Rosa rugosa*), berries are also conserved (Mirtillo di bosco, Ribes rosso, bianco e nero, lampone rosso, viola e giallo, fragolline di bosco).

Contact: Simone Ugolini

Active since: 1999

Type of organisation: private

Comunità Montana Valli Gesso Vermenagna Pesio

Address: Piazza Regina Margherita, 27, 12017 Robilante (Cuneo), Tel: 0039-171/782 40 oder 0039-171/784 57, Fax: 0039-171/786 04, E-Mail: cmgvp@reteunitaria.Piedmonte.it

Director: Francesco Risso

Contact: Dario Adamo,

Description: This group is active in agriculture. It deals, amongst other things, with the conservation of traditional apple varieties from the area of the Alpine communities of Boves, Chiusa di Pesio, Entracque, Limone P.te, Peveragno, Roaschia, Robilante, Roccavione, Valdieri and Vernante. 30 apple varieties are taken care of in orchards. The 'Comunità Montana Valli Gesso Vermenagna Pesio' also conducts PR-activities.

Type of organisation: private

Active since: 1990

Size: 2 members of staff

Databank: none

Additional protection of conserved varieties: none

Long-term conservation: yes (depending on whether financial support continues to be available)

WWF Sezione Regionale Piemonte e Valle d'Aosta

Address: Via Peyron, 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/473 39 44

Contact: Fabio Porcari

Description: In two WWF oases - Oasi di Valmanera (Province of Asti) and Oasi della Baraggia (Province of Bellinzago Novarese), orchards with old apple, pear and cherry varieties from the Piedmont Region have been established. These orchards mainly serve a didactic purpose.

Type of organisation: private

Comunità Montana Bassa Valle Elvo

Address: Via Martiri della Libertà, 29, 13898 Occhieppo Superiore (Biella), Tel: 0039-15/59 02 33, Fax: 0039-15/59 02 33, E-Mail: cmbvelvo@biella.alpcom.it

Description: The 'Comunità Montana Bassa Valle Elvo' is active for the conservation of old fruit varieties from the region

Type of organisation: private

Il Frutto Permessso

Address: Azienda Agri-turistica, Via del Vernè 16, 10060 Bibiana (TO)

Description: The organisation 'Il Frutto Permessso' actively works for the conservation of old fruit varieties. Young trees are also sold.

Type of organisation: private/nursery

Guido Bassi – Vivaisto

Address: Via M. Tonello, 17, 12100 Cuneo, Tel: 0039-1771/40 21 49, Fax: 0039-171/63 43 51

Description: In this nursery, different old varieties of apples and pears as well as other rare fruit species (frutti minori) are offered for sale.

Type of organisation: private/nursery

Il Vecchio Melo

Address: Azienda Agricola Davide Carlone, Via M. Sagliaschi 8, 28075 Grignasco fraz.

Torchio (NO), Tel: 0039-163/41 71 61, Cellulare: 0039-347/245 43 35, Fax: 0039-163/41 72 58, E-Mail: enrico.covolo@halservice.it

Contact: Davide Carlone, Enrico Covolo

Description: The organisation 'Il Vecchio Melo' searches intensively for old fruit varieties, especially apple varieties. The varieties are propagated and offered for sale. A show garden can be viewed by interested visitors. The assortment includes more than 100 apple varieties, 10 plum varieties, 10 cherry varieties, 2 peach varieties and 4 fig varieties.

Type of organisation: private/nursery

Il Frutto Ritrovato

Address: Azienda Agricola 'Cascina Bozzola', Via Frassati 11, 13897 Occhieppo Inferiore (BI), Tel: 0039-15/59 14 25, Cellulare: 0039-338/354 98 24

Contact: Marco Maffeo

Description: The organisation 'Il Frutto Ritrovato' searches for old varieties in the valleys around Biella and partially also in other Italian regions. They offer an enormous diversity of apple varieties. Many of those originate from the Alpine region. They also offer old varieties of pears, peaches, quinces, azeroles and pomegranates.

Type of organisation: private/nurseries

Scuola Teorico Pratica Malva-Arnaldi

Address: Conservatorio Regionale delle biodiversità arboree, Via S. Vincenzo, 48, 10060 Bibiana (TO), Tel: 0039-121/55 94 59, Fax: 0039-121/55 94 59, E-Mail:

malva.arnaldi@piw.it

President/Contact: Re Giulio

Description: 400 apple and 80 pear varieties are conserved in different arboreta. They all originate from the Piedmont Region. This school is, amongst other activities, involved in 2 INTERREG II projects, both concerning the conservation of agro biodiversity.

Type of organisation: public institution

Active since: 1997

Databank: during the setting up phase

Additional protection of conserved varieties: none

Long-term conservation: yes

Lombardy

Fruttantica

Address: Azienda Agricola Palazzetto, Vecchie Varietà di Alberi da Frutto e Pianta Ornamentali da Giardino, Via A. Volta, 26, 23883 Brivio (LC), Tel: 0039-39/532 03 12, 0039-2/282 58 60,

Director: Luigi Rossignoli

Description: The organisation 'Fruttantica' searches, propagates and identifies old fruit trees from Lombardy and Northern Italy. Many varieties originate from the Alpine region. In an arboretum, 100 apple, 60 pear, 14 plum, 6 apricot, 12 fig, 18 peach and 12 cherry varieties are conserved. These varieties are also offered for sale.

Type of organisation: private/nursery

Active since: 1969

Size: 1 collaborator

Databank: yes

Additional protection of conserved varieties: none

Long-term conservation: yes

Consorzio Pera Tipica Mantovana

Address: c/o CO.DI.MA. Via G. Mazzini 16, 46100 Mantova

Description: This association is responsible for the pear 'Pera Mantovana'. The variety from the Lombardy Region was awarded the EU quality seal PGI (Protected Geographical Indication).

Type of organisation: private

Trentino-Altoadige

Association 'Sortengarten Südtirol'

Address: Penegalstrasse 21/A, 39100 Bozen, Tel/Fax: 0039-471/26 27 97, Mobil: 0335/5229000, E-Mail: sortengarten.suedtirol@dnet.it or frowin@tin.it

Director: Ruth Oberrauch

Contact: Frowin Oberrauch

Description: The association 'Sortengarten Südtirol' supports and conserves the diversity of fruit varieties in South Tyrol. The varieties taken care of (6 pear and 22 apple varieties) are subject to on farm conservation in several orchards. Other information (e.g. climate and site requirements) concerning fruit varieties is collected and documented. Besides variety conservation, they also work for the conservation of fruit cultivation as a cultural asset. Each autumn, a fruit exhibition is organised.

Type of organisation: private

Active since: 1997

Size: 7 members of staff, 46 members

Databank: yes

Additional protection of conserved varieties: Each variety is planted at several sites.

Long-term conservation: yes

WWF Trentino – Alto Adige

Address: WWF Trentino-Alto Adige, Carlo Tamanini, Via Malpaga, 8, 38100 Trento, E-Mail: mc1901@mcclink.it

Description: The WWF Trentino-Alto Adige is currently setting up an orchard with old indigenous fruit varieties. In the collection, the following species will be represented: apples, pears, cherries, peaches, apricots, plums, medlar, quinces, azerolier, wild fruit (Meerkirsche, cornelian cherry, *Sorbus*), lotus fruit.

Type of organisation: private

Associazione Spadona

Address: P.zza Pertagnolli, 4, 38010 Ronzone, Tel/Fax: 0039-463/ 83 00 28, E-Mail: info@spadona.it, URL: <http://www.spadona.it>

Contact: Paolo Odorizzi

Description: The organisation "Spadona" searches for and actively promotes old fruit varieties from the valley 'Alta Valle di Non'. The varieties are conserved on farm in arboreta. At present, 6 pear and 14 apple varieties are cultivated, also offered for sale.

Type of organisation: private/nursery

Active since: 1997

Size: 6 members of staff, 48 members

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: yes

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: The Land- und Forstwirtschaftliche Versuchszentrum maintains a variety collection of old apple varieties, including many local varieties. Collection activities were started at the beginning of the 1980s. Besides these old varieties, the research centre also has more than 100 further apple varieties (recently bred varieties, clones) for variety testing.
Type of organisation: Public institution of the autonomous Province of Bolzona

Südtiroler Obstbaumuseum/

South Tyrol Museum for Fruit Cultivation

Address: Brandis-Waalweg, 4, 39011 Lana, Tel: 0039-473/56 43 87, Fax: 0039-473/56 51 60

Description: The South Tyrol Museum for Fruit Cultivation documents the historical development of fruit cultivation in South Tyrol and the current situation. In the exhibition, more than 40 indigenous fruit varieties are shown. There is a list with the names of approx. 200 pear and apple varieties which were delivered to the fruit depot in the Etsch valley around the turn of the century. By 1950, only 53 apple and pear varieties were left.

Type of organisation: public institution

Friuli-Venetia Giulia

Comunità Montana della Carnia

Address: Via Carnia Libera 1944, n.29, Tolmezzo (UD), Tel: 0039-433/48 77 11, Fax: 0433/406 87, E-Mail: cmcarnia@agemont.it

President: Enzo Marsilio

Contact: p.a. Franco Sulli

Description: The 'Comunità Montana della Carnia' has collected round 68 apple, 25 pear and some plum varieties in the mountain area of Carnia. These varieties are conserved in an arboretum in the community of Enemonzo. Part of the harvest of old apple varieties is processed to vinegar and cider. The organisation cooperates with ERSA. (Ente Regionale di Sviluppo Agricolo – Sez. Sperimentale di Frutticoltura). ERSA published a paper on the varieties conserved in Enemonzo in November 2000. Another project running since 1999 tests the collected apple varieties on resistances in order to select suitable varieties for intensive cultivation. The project is being conducted in cooperation with the Università degli Studi di Udine – Dipartimento di Biologia applicata alla difesa delle piante (scientific coordinator: Prof. Osler Ruggero).

Type of organisation: public institution

Active since: 1988

Databank: none

Additional protection of conserved varieties: none

Long-term conservation: yes

ERSA

Address: Ente Regionale Promozione e lo Sviluppo dell'Agricoltura del Friuli, Via Sabbatini, 5, 33050 Pozzuolo del Friuli (Udine), Tel: 0039-432/52 92 15, Fax: 0039-432/52 92 02,

Director: Dott. Paolo Marini

Contact: Dott. Francesco del Zan

Description: ERSA has collected, described, catalogued and conserved 120 apple, 35 pear and 15 *Prunus domestica* varieties from the region. Conservation of the trees is done ex situ.

Type of organisation: public institution

Active since: 1976

Size: 23 members of staff

Databank: no

Additional protection of conserved varieties: Each variety is present at least 2 sites.

Long-term conservation: yes

Support by EU regulation 2078/92

Contact: Istituto Nazionale di Economia Agraria, Via di Barberini 36, 00187 Roma, Tel: 00396/478 56 41, Fax: 0039-6/474 19 84, Web: <http://www.inea.it>

Description: In the Friuli-Venetia Giulia Region, EU regulation 2078/92 supports, among other things, the conservation of 2 apple and 1 cherry variety.

Type of organisation: Common (EU)

Dipartimento di Produzione Vegetale e Tecnologia Agrarie – Università di Udine

Address: Via delle Scienze, 208, 33100 Udine, Tel: 0039-432/55 85 03, Fax: 0039-432/55 85 01, E-Mail: angelo.olivieri@dpvta.univd.it

Director: Prof. G. Zerbi

Contact: Prof. Angelo M. Olivieri

Description: At the 'Dipartimento di Produzione Vegetale', genetic investigations of kiwi varieties are carried out. The varieties studied are conserved in an in situ collection. Varieties originate from north-east Italy, Alpi Carniche and Giulia. Cherry varieties from Friuli are also collected, too.

Type of organisation: governmental

Active since: 1988

Size: 15 members of staff

Databank: no

Additional protection of conserved varieties: at other Institutes

Long-term conservation: yes

9.2. Citrus fruit

9.2.1. Need for action

Background:

The cultivation of citrus fruit dates back to the Medici family in the Tuscany Region who started citrus growing in the 16th century. The earliest known mention of citrus fruit is found in the chronicles of 'Giardino di Castello' (Tuscany) in 1544.

The most northern Italian region where citrus fruit cultivation is possible is the area around Lake Garda in the Lombardy Region. The specific climate on the sun-exposed slopes makes citrus cultivation possible despite relatively high altitudes. Traditional cultivation, however, is increasingly being abandoned. The main reason for this is that it has become less profitable. In the Veneto Region, citrus growing used to be important.

For a long time citrus fruit have been a popular collection object. They were grown in so-called limonaia (citrus fruit gardens). In these collections, part of the former Italian diversity has been conserved.

Overview of the organisations and institutions actively conserving citrus fruit

The varieties which have been traditionally cultivated in Lombardy are relatively well protected in the four limonaia described below. The Limonaia di Gargnano is supported by Pomona. Pomona promotes the conservation of citrus fruit at the national level. A large national collection is located at the Istituto Sperimentale per l'Agrumicoltura.

Gaps in conservation work:

- **Conservation in the limonaia**

Most of the citrus fruit diversity is at present conserved in the citrus fruit gardens, the so-called limonaia. Many of these limonaia are in governmental hands today. It is a matter of urgency that all these collections should be taken care of and conserved. Pomona has started important conservation measures for the Limonaia di Gargnano. These should be

applied to other limonaias, too. Furthermore, an inventory of the existing citrus diversity in all limonaias should be drawn up.

- **Protecting the existing diversity**

It is urgent that duplicates of the varieties in the existing collections should be made to safeguard them. Under no circumstances should these be kept in the same collection. The danger of loss through diseases or environmental impact is too great.

- **Citrus fruit in Veneto**

In Veneto, citrus fruit cultivation was traditionally of some importance. During this investigation, no conservation activities or limonaia were found. Whether old varieties are still available should urgently be checked.

9.2.2. Portraits of actors (citrus fruit)

Supraregional organisations and institutions

Pomona

Address: Via Bramante, 29, 20154 Milano, Tel: 0039-2/345 07 51, fax: 0039-2/33 20 55 22, E-Mail: pomona@tin.it

Contact: Paolo Belloni, Marta Alessandri

Description: Currently, Pomona is conducting a citrus fruit project: 'Il Giardino degli Antichi Agrumi Italiani a Palazzo Bettoni-Cazzago a Bogliaco di Gargnano, Brescia'. In the first stage, an exhibition (I Pomi d'Oro') was organised in 1999 in Gargano where approx. 150 rare citrus fruit varieties from Italian and French collections were shown. The aim of the project is the restoration of an antique citrus garden (Limonaia) in Gargano, the foundation of a collection of old citrus fruit varieties in Gargano as well as a catalogue of citrus fruit which have been historically important in Italy.

More detailed information on Pomona is included in the chapter 'Fruit'.

Type of organisation: private

Active since: 1993

Size: 2 members of staff

Istituto sperimentale per l'Agrumicoltura

Address: Direttore: Dr. Giorgio Terranova, Corso Savoia 190, 95024 Acireale (CT), Tel: 0039-95/89 15 55, Fax: 0039-95/89 10 92

Description: At this Institute, 260 records of Italian citrus fruit exist. The varieties probably originate from different regions.

Type of organisation: governmental

More detailed information on the ISRA Institutes may be taken from the '*General Report on cultivated plants in the Italian Alpine region*'.

Northern Italy

Vivai Piante Fruttifere 'Omezzolli'

Address: Via Brione, 9, 38066 Riva del Garda (TN), Tel: 0039-464/55 16 42, Fax: 0039-464/55 71 88

Description: Amongst others, oranges and lemons are present in the assortment of The nursery Omezzolli contains an assortment of oranges and lemons amongst other fruit.

Type of organisation: private/nursery

Lombardy

In the Lombardy Region, there are some citrus fruit gardens (Limonaia) with Italian varieties which produce according tradition methods:

- Limonaia di Gandossi, 25084 Gargnano (BS)
- Limonaia Parsini del Prato della Fame di Tignale, 25080 Tignale (BS)

- Limonaia proprietà Bedinoni
- Limonaia di Segala

9.3. Chestnuts

9.3.1. Need for action

Background:

Chestnuts grow basically everywhere in Italy. In the southern Alps, they grow below an altitude of 1000 m a.s.l. where the parent soil is not limy. These conditions prevail in wide parts of the Italian Alpine region. The Dolomites, regions around Lake Garda as well as the Trieste Lime are rather large exceptions.

Overview of organisations working for the conservation of chestnuts. The actors are described in more detail below.

Region	NGOs	Nurseries	Public institutions	Governmental Inst./EU	Total
Aosta Valley				1	1
Piedmont	1	1	1	1	4
Lombardy					
Trentino-Alto.	1		1		2
Veneto					
Friuli-Ven.G.			1	1	2
Supraregional		1	1	2	4

Need for action:

Chestnut cultivation has a deeply anchored tradition in the Italian Alpine region. It can, therefore, be assumed that their diversity has been relatively great in these regions and that conservation strategies, if not already implemented, are especially important.

The following gaps in conservation work should be closed:

- **Active search for old varieties**

Although there are some collections with chestnut varieties, large gaps are still left. Very few actors still search actively today for old varieties. In the northern Italian regions, a comprehensive search is urgently needed. A search for old varieties should be very rewarding, especially in the remote side valleys of the Alpine region, where self-sufficiency played an important role and working methods were not already rationalised early.

- **Conservation on the private and governmental levels**

Little conservation is carried out by either private or the governmental organisations. The cultivation of old varieties could be supported more by product promotion.

- **Protection of varieties in the existing collections**

It is urgent that duplicates of the varieties in the existing collections should be made to safeguard them. Under no circumstances should these be kept in the same collection. The danger of loss through diseases or environmental impact is too great.

- **Regions with very great need for action**

As the table above shows, no activities for the conservation of chestnut varieties could be located in the Lombardy and Veneto Regions. In the Aosta Valley, conservation strategies are very under-developed. These regions should have priority in the development of conservation strategies. For the other Alpine regions, the need for action is very great, too.

9.3.2. Portraits of actors (chestnuts)

Supraregional organisations and institutions

More detailed information on the ISRA Institutes may be taken from the '*General report on cultivated plants in the Italian Alpine region*'.

Istituto per l'Agroselvicoltura

Address: CNR, 05010 Porranò

Description: Italian chestnut varieties are studied at this Institute.

Type of organisation: public institution

Istituto sperimentale per la Frutticoltura – ISF

Address: Direttore: Prof. Carlo Fideghelli, Via di Fioranelle, 52, 00134 Roma Tel: 0039-6/793 48 11, Fax: 0039-6/79 34 01 58 or 0039-6/79 34 16 30, E-Mail: isfrmfid@mclinkli,

Web: <http://www.inea.it/isf/index.html>

Description: The ISF has been active since 1981 in the area of agricultural biodiversity (research and genetic improvement). Conservation of the collected varieties is carried out ex situ and in vivo. Information on collected varieties is stored in a databank. On request, propagation material is delivered to those interested in cultivating it. Conservation focuses on long time periods. Some of the varieties originate from the Alpine region. Additional protection of the collected material is not provided for all varieties.

7 records of Italian chestnut varieties exist at this Institute.

Type of organisation: governmental institution

Istituto sperimentale per la Selvicoltura

Address: Direttore: Augusto Tocci, Viale Santa Margherita 80, 52100 Arezzo, Tel: 0039-575/35 30 21, Fax: 0039-575/35 34 90

Description: At this Institute, 128 records of Italian chestnut varieties exist.

Type of organisation: governmental institution

Northern Italy

Vivai Piante Fruttifere 'Omezzolli'

Address: Via Brione, 9, 38066 Riva del Garda (TN), Tel: 00039-464/55 16 42, Fax: 0039-464/55 71 88

Description:

The nursery Omezzolli searches actively for old fruit varieties in Northern Italy. The nursery propagates discovered varieties and offers them for sale. The assortment also includes chestnut varieties.

Type of organisation: private/nursery

Aosta Valley, Piedmont

Dipartimento di Colture Arboree Università degli Studi Torino

Address: Via Leonardo, 44, 10095 Grugliasco, Tel: 0039-11/670 88 27, Fax: 0039-11/670 88 23, E-Mail: valentin@agraria.unito.it

Direttore: Prof. Giancarlo Bounous

Contact: Dott. Valentini Nadia

Description: The 'Dipartimento di Colture Arboree' conserves 44 chestnut varieties, probably all originating from the Italian Alpine region. These varieties were collected in the Piedmont Region, Aosta Valley and Liguria and conserved in fruit gardens. Prof. Bounous et al. examined 10 Piedmontese chestnut varieties during the years 1984 to 1986 with regard to

their morphological and phenological as well as their agronomic characteristics. Descriptions of the varieties studied are available.

Type of organisation: governmental

Active since: 1980

Size: 27 members of staff

Databank: no databank for chestnut varieties

Additional protection of conserved varieties: none

Long-term conservation: yes

Piedmont

Comunità Montana Valli Gesso Vermentagna Pesio

Address: Piazza Regina Margherita, 27, 12017 Robilante (Cuneo), Tel: 0039-171/782 40, 0039-171/784 57, Fax: 0039-171/786 04, E-Mail: cmgvp@reteunitaria.Piedmonte.it

Direttore: Francesco Risso

Contact: Dario Adamo

Description: This agriculturally active organisation deals, among other things, with the conservation of traditional chestnut varieties from the area of the Alpine communities of Boves, Chiusa di Pesio, Entracque, Limone P.te, Peveragno, Roaschia, Robilante, Roccavione, Valdieri and Vernante. 15 chestnut varieties are grown in chestnut groves. The 'Comunità Montana Valli Gesso' also does PR-work in the areas of agriculture and biodiversity.

Type of organisation: private

Active since: 1990

Size: 2 members of staff

Databank: none

Additional protection of conserved varieties: none

Long-term conservation: planned (if enough money is available)

Guido Bassi – Vivaisto

Address: Via M. Tonello, 17, 12100 Cuneo, Tel: 0039-1771/40 21 49, Fax: 0039-171/63 43 51

Description: This nursery offers various old chestnut varieties for sale.

Type of organisation: private/nursery

Istituto per le Pianta da Legno e l'Ambiente (IPLA)

Address: Corso Casale 476, 10132 Torino

Description: Since 1988 the 'Istituto per le Pianta da Legno e l'Ambiente' has maintained a variety collection (ex situ) at the research area 'Arboreto e Vivai Millerose' in Turin. The Institute carries out cultivation trials and variety testing here. Procurement of grafts is possible. Of the 76 varieties collected to date, more than 50% are old local Piedmontese breeds. A list of varieties has been drawn up. It was not possible to determine whether the collection is still maintained today.

Type of organisation: public institution

Trentino-Altoadige

Association 'Sortengarten Südtirol'

Address: Penegalstrasse 21/A, 39100 Bozen, Tel/Fax: 0039-471/26 27 97, Mobil: 0039-335/5229000, E-Mail: sortengarten.suedtirol@dnnet.it or frowin@tin.it

Director: Ruth Oberrauch

Contact: Frowin Oberrauch

Description: The association 'Sortengarten Südtirol' is active in protecting of chestnuts in the South Tyrol-Trentino Region.

Type of organisation: private
 Active since: 1997
 Size: 7 members of staff, 46 members
 Databank: yes
 Additional protection of conserved varieties: each variety is cultivated at several sites.
 Long-term conservation: yes

Land- und Forstwirtschaftliches Versuchszentrum Laimburg
 Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it
 Description: The Land- und Forstwirtschaftliche Versuchszentrum Laimburg inspected 60 trees of 6 local varieties as part of a chestnut project in the eighties. Scions were taken from these trees and grafted onto young trees.
 Type of organisation: public institution

Friuli-Venetia Giulia

ERSA
 Address: Ente Regionale Promozione e lo Sviluppo dell'Agricoltura del Friuli, Via Sabbatini, 5, 33050 Pozzuolo del Friuli (Udine), Tel: 0039-432/52 92 15, Fax: 0039-432/52 92 02,
 Director: Dott. Paolo Marini
 Contact: Dott. Francesco del Zan
 Description: ERSA has collected, described and catalogued 20 indigenous chestnut varieties.
 Conservation of the trees is carried out ex situ.
 Type of organisation: public institution
 Active since: 1976
 Size: 23 collaborator
 Databank: no
 Additional protection of conserved varieties: Each variety is grown at least 2 sites.
 Long-term conservation: yes

Support by EU-regulation 2078/92
 Contact: Istituto Nazionale di Economia Agraria, Via di Barberini 36, 00187 Roma, Tel: 0039-6/478 56 41, Fax: 0039-6/474 19 84, Web: <http://www.inea.it>
 Description: Conservation of 2 chestnut varieties is supported by EU-regulation 2078/92 in the Friuli-Venetia Giulia Region
 Type of organisation: common (EU)

9.4. Olives

9.4.1. Need for action

Olives have been grown traditionally throughout Italy. The Mediterranean region is regarded as the olive's centre of origin by Vavilov. At favourable locations, olive cultivation was of certain importance. It is only in the Aosta Valley that olive cultivation appears not to take place.
 Overview of organisations actively conserving olives. The actors are described in more detail below.

Region	NGOs	Nurseries	Public institutions	Governmental Inst./EU	Total

Piedmont					
Lombardy					
Trentino-Alto.					
Veneto					
Friuli-Ven.G.				1	1
Supraregional	1	1		1	3

Need for action:

Olive cultivation has a deeply anchored tradition in Italy. It can, therefore, be assumed that olive diversity was very great and that conservation strategies are especially important.

In the regions listed in the table above, olive cultivation is of certain importance.

The following gaps in conservation work should be closed urgently:

- **In many regions, no conservation of olives is practised!**

As evident from the table above, concrete conservation efforts do not exist in most of the Alpine regions. Therefore, drawing up of a conservation plan is urgent. Little conservation efforts are made by both governmental and private organisations. The utilisation of old varieties should urgently be promoted. The cultivation of old varieties could be supported more by product promotion.

- **Active search for old varieties**

Some collections with olive varieties do exist. The search for old varieties, however, is by far from finished. Olive trees can become very old. A search in remote, not extensively used areas should certainly be rewarding. Old farmhouses and cloisters in those regions where self-sufficiency was very important deserve particular attention.

- **Protection of varieties in the existing collections**

It is essential that duplicates of the varieties in the existing collections should be made to safeguard them. Under no circumstances should these be kept in the same collection. The risk of loss through disease or environmental impact is too great.

- **Inventory of historically used olive varieties**

Specific search for old varieties should urgently be carried out. An inventory of old varieties originally cultivated in the various regions would allow search lists to be drawn up based on historical data and concrete search for these varieties.

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9.4.2. Portraits of actors (olives)

Supraregional organisations and institutions

Istituto sperimentale per l'Olivicoltura

Address: Dir. Nicola Lombardo, C/da 'Li Rocchi' Vermicelli, 87036 Rende (CS), Tel: 0039-984/40 18 58, Fax; 0039-984/40 20 99

Description: 140 collection units for olives (*Olea europea sativa*) of Italian origin are maintained at this Institute.

Type of organisation: governmental

ISRAs are described in detail in the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Northern Italy

Dott. Gian Domenico Borelli, Piazza Mornatti, 4, 22010 Germasino/Como

Description: Gian Borelli is a connoisseur of the Italian olive varieties. He supports the conservation of old olive varieties from northern Italy.

Type of organisation: private

Vivai Pianta Fruttifere ‘Omezzolli’

Address: Via Brione, 9, 38066 Riva del Garda (TN), Tel: 0039-464/55 16 42, Fax: 0039-464/55 71 88

Description:

The assortment of the nursery Omezzolli also includes olive varieties. They search actively for old varieties from northern Italy which are cultivated in a show garden. The nursery propagates discovered varieties and offers them for sale.

Type of organisation: private/nursery

Friuli-Venetia Giulia

Support by EU-regulation 2078/92

Contact: Istituto Nazionale di Economia Agraria, Via di Barberini 36, 00187 Roma, Tel: 0039-6/478 56 41, Fax: 0039-6/474 19 84, Web: <http://www.inea.it>

Description: In the Friuli-Venetia Giulia Region, the conservation of one olive variety is supported by the EU regulation 2078/92, amongst others.

Type of organisation: common (EU)

9.5. Nuts

9.5.1. Need for action

Distribution

Walnut and hazelnut occur throughout Italy – they are also traditionally important in the Italian Alpine region. Pistachios, however, are only grown in middle and southern Italy as are almonds and pine kernels were and still are grown in central and southern Italy.

Overview of organisations active for the conservation of walnuts and hazelnuts. The actors are described in more detail below.

Nut Species	NGOs	Nurseries	Public Institutions	Governmental Inst./EU	Total
Walnut		2		4	6
Hazelnut	2	2	1	2	7

Need for action

For walnuts and hazelnuts, some larger collections are maintained by governmental organisations. Two hazelnut varieties are directly protected through the EU quality seal PGI. The search for old varieties must be continue, specifically in remote areas and around old farm houses. Duplicates must of the existing collections must be made.

9.5.2. Portraits of actors

Supraregional organisations and institutions

Centro di Studio per il Miglioramento delle Pianta da Frutto e da Orto

Address: Istituto sulla Propagazione delle Specie Legnose, CNR, Scandicci (FI)

Description: The Institute conserves hazelnut varieties (8 records).

Type of organisation: public institution

Dipartimento di Colture Arboree Università degli Studi Torino

Address: Contact: Dott. Valentini Nadia, Via Leonardo , 44, 10095 Grugliasco, Tel: 0039-11/670 88 27, Fax: 0039-11/670 88 23, E-Mail: valentin@agraria.unito.it
Director: Prof. Giancarlo Bounous
Description: The 'Dipartimento di Colture Arboree'
has old Italian hazelnut and walnut varieties in its collection.
Type of organisation: governmental
Active since: 1980
Size: 27 members of staff
Additional protection of conserved varieties: none
Long-term conservation: yes

Istituto sperimentale per la Frutticoltura – ISF

Address: Direttore: Prof. Carlo Fideghelli, Via di Fioranelle, 52, 00134 Roma Tel: 0039-6/793 48 11, Fax: 0039-6/7934 01 58 or 0039-6/79 34 16 30, E-Mail: isfrmfid@mcinkli,
Web: <http://www.inea.it/isf/index.html>

Description: The ISF has been active since 1981 in the area of agricultural biodiversity (research and genetic improvement). Conservation of the collected varieties is carried out *ex situ* and *in vivo*. Information on collected varieties is stored in a databank. Propagation material is delivered on request to interested cultivators. Conservation focuses on long time periods. Additional protection of the collected material is not provided for all varieties.

The Institute maintains collections of the following species:

Hazelnut/Nocciolo (*Corylus avellana*): 30 Italian (Total: 68) – the varieties Tonda Gentile delle Langhe, Gentile delle Langhe originate from the Alpine region.

Walnut/Noce (*Juglans regia*): 29 Italian (Total: 69)

Type of organisation: governmental

ISRAs are described in detail in the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Istituto sperimentale per la Selvicoltura

Address: Direttore: Augusto Tocci, Viale Santa Margherita 80, 52100 Arezzo, Tel: 0039-575/35 30 21, Fax: 0039-575/35 34 90

Description:

The Institute maintains collections of the following species:

Walnut/Noce (*Juglans spp.*): 166 Italian (Total: 186)

Stone Pine/Pina domestico (*Pinus pinea*): 2 Italian (Total: 14)

Type of organisation: governmental

ISRAs are described in detail in the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Dipartimento di Ortoflorofrutticoltura

Address: Istituto di Coltivazioni Arboree, Università di Firenze

Description: 50 records of walnut varieties are included in the collection of the 'Dipartimento di Ortoflorofrutticoltura'.

Type of organisation: governmental

Northern Italy

Vivai Piante Fruttifere 'Omezzolli'

Address: Via Brione, 9, 38066 Riva del Garda (TN), Tel: 0039-464/55 16 42, Fax: 0039-464/55 71 88

Description: The nursery Omezzolli searches actively for old nut varieties in northern Italy. They are cultivated in a show garden. The nursery propagates discovered varieties and offers them for sale. The assortment includes the following species:

hazelnuts (3 varieties), almonds (1 variety), walnuts (1 variety).

Type of organisation: private/nursery

Piedmont

Cons. di Tutela Comunità Montana Alta Langa, Via Umberto I 1, 12060 Bossolasco (CN),

Tel: 0039-173/79 34 49

Description: The association conserves the hazelnut variety 'Nocciola Tonda Gentile' which is traditionally used for the production of desserts, e.g. Baci di Cherasco, in the Piedmont Region.

Type of organisation: private

Associazione Produttori Nocciole di Alba

Address: c/o ASPROFRUIT, Via Monte Zovetto 20, 12100 Cuneo

Description: The association conserves the hazelnut 'Nocciola del Piemonte'. This variety from the Piedmont Region was given the EU quality seal PGI.

Type of organisation: private

Guido Bassi – Vivaisto

Address: Via M. Tonello, 17, 12100 Cuneo, Tel: 0039-1771/40 21 49, Fax: 0039-171/63 43 51

Description: The nursery offers several old local hazelnut and walnut varieties for sale.

Type of organisation: private/nursery

9.6. Vines

9.6.1. Need for action

Vines were, and are today still cultivated in all Italian regions. In the Alpine region, vine cultivation in general is restricted by climatic boundaries which have varied a great deal over the centuries. Warmer climatic phases made, e.g., vine growing possible in the 13th century at altitudes higher than 1200 m a.s.l. on the northern slopes of the Alps. The climatic boundary today is at 800 m.

In many Italian regions, wine was the national drink. Vine cultivation for self-sufficiency was unproblematic and much more extensive than today. The mixed cultivation of different varieties produced new interesting combinations. The occurrence of the wine louse and the infestation with powdery and downy mildew were crucial and finally resulted in the exclusive cultivation of refined vines which had to be treated with fungicides. In fringe areas, where the necessary capital could not be raised, this meant the end for vine cultivation. Improved traffic ways and restrictive variety laws added to a further restriction of the gene spectrum.

For these reasons, we find today in the climatically most favourable areas only a few standard varieties, particularly as the stock is renewed every 25 years in commercial cultivation.

Espalier vines on houses, however, became, as a rule, not victims of these changes and often survived in niches. Because of the high life duration of vines, some old varieties should have survived there. The sparse literature on viniculture, however, makes their description difficult.

Overview of organisations and institutions actively conserving vines in northern Italy. The actors are described in more detail below.

Region	NGOs	Nurseries	Public Institutions	Governmental Inst./EU	Total
Aosta Valley			3		3
Piedmont	1		1		2

Lombardy				1	1
Trentino-Alto.			2		2
Veneto					
Friuli-Ven.G..			1	1	2
Supraregional		1	1	3	5

Need for action:

- **Search for espalier varieties**

Governmental organisations have set up various larger collections. Active searches for other varieties are no longer conducted anymore. Old varieties are probably not used any more for wine production. A search for old espalier varieties should focus particularly on remote regions of the Alps.

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9.6.2. Portraits of actors (vines)

Supraregional organisations and institutions

Vivai Cooperativi Rauscedo – VCR

Address: Via Udine, 39, 33090 Rauscedo (PN), Tel: 0039-427/94 88 11, Fax: 0039-427/943 45, E-Mail: vcr@vivairauscedo.com

Director: Dr. Eugenio Sartori

Contact: Dr. Dionisio Vizzon

Description: The cooperative Rauscedo deals with vines from Italy, Spain and Greece. They collect vine varieties from different Italian regions part of which originate from the Alpine region.

Type of organisation: private/nursery

Active since: 1970

Databank: yes

Additional protection of conserved varieties: yes

Long-term conservation: yes

Istituto Agrario di San Michele all'Adige

Address: Azienda Agraria, Via E. Mach., 2, 38010 S. Michele all'Adige, Tel: 0039-461/61 52 48, Fax: 0039-461/61 53 34, E-Mail: flavio.pinamonti@ismaa.it

Contact: Flavio Pinamonti, Marco Stefanini

Description: The Institute conserves old apple, pear and grape varieties. A collection of 2000 grape varieties and 200 apple varieties in orchards and vineyards is maintained. Efforts are being made to improve these varieties through breeding and research groups study fruit and vine cultivation. Numerous varieties originate from the Italian Alpine region. The collection probably also includes foreign varieties.

Type of organisation: public institution

Databank: yes

Additional protection of conserved varieties: none

Long-term conservation: yes

Istituto Sperimentale per la Viticoltura

Address: Via XXVIII Aprile 26, 31015 Conegliano (Treviso), Tel: 0039-438/732 64, 0039-438/73 80 58, Fax: 0039-438/73 84 89, 0039-438/647 79, E-Mail: ispervit@nline.it, URL: <http://www.inea.it/isv/isv.html>

Director: Prof. Antonio Calo

Contact: Dr. Angelo Costacurta

Description: The Institute conserves and describes vine varieties and other *Vitis* species from the whole of Italy (including islands). There are several projects for the genetic examination of vine varieties. 4200 records of the genus *Vitis* exist altogether. The 'Istituto Sperimentale per la Viticoltura' is participating in the GENRES 81 project.

Type of organisation: governmental

Active since: 1923

Size: 7 members of staff

Additional protection of conserved varieties: partially

Long-term conservation: yes

Centro di Studio per il Miglioramento Genetico e la Biologia della Vita

Address: Dipartimento di Colture Arboree dell'Università, Via L. da Vinci 44, 10095

Grugliasco (Torino), Tel: 0039-11/670 87 45, Fax: 0039-11/670 86 58, E-Mail:

a.schneider@cvt.to.cnr.it

Description: The Centre cultivates and conserves vine varieties. It is involved in the EU project GENRES 81 (of Regulation 1467/94).

Type of organisation: governmental

Istituto sperimentale per la Viticoltura

Address: Direttore: Prof. Antonio Calò, Viale XXVIII Aprile 26, 31015 Conegliano Veneto,

Tel: 0039-438/45 67 11, Fax: 0039-438/45 07 73

Description: The Istituto sperimentale per la Viticoltura, 4158 records for vines exist. A part of the collection originates from Italy.

Type of organisation: governmental

ISRAs are described in detail in the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Institute for Vine Breeding (Institut für Rebenzüchtung) Geilweilerhof

Address: Bundesanstalt für Züchtungsforschung im Wein- und Gartenbau, D –

Sieboldingen

Description: The Federal Research Station Geilweilerhof in Germany owns a world-wide vine databank. It also maintains contacts with Italian institutions which are active in breeding and conserving vine varieties.

Type of organisation: governmental

Aosta Valley

CERVIM

Address: Centre de recherche sur la viticulture de montagne, Via Piccolo St. Bernardo, 11100

Aoste

Description: The CERVIM was conserving vine varieties from the Aosta Valley and the Friuli Venetia-Giulia Region in the 1990s. Up-to-date information on their activities could not be obtained.

Type of organisation: public institution

Institut Agricole Régional

Address: La Rochère 1A, 11100 Aoste

Description: The 'Institut Agricole Régional' was conserving vine varieties from the Aosta valley in the 1990s. Up-to-date information could not be obtained.

Type of organisation: public institution

Aosta Valley, Piedmont

Centro di Studio per il Miglioramento Genetico della Vite del CNR

Address: Via Pietro Giuria 15, 10126 Torino

Description: The CNR-centre has started to set up a vine collection with varieties from the Piedmont, Aosta Valley and Liguria Regions. 150 varieties were described at the beginning of the 1990s.

Type of organisation: public institution

Piedmont

Scuola Teorico Pratica Malva-Arnaldi

Address: Conservatorio Regionale delle Biodiversità Arboricole, Via S. Vincenzo, 48, 10060 Bibiana (TO), Tel: 0039-121/55 94 59, Fax: 0039-121/55 94 59, E-Mail:

malva.arnaldi@piw.it

President/Contact: Re Giuglio

Description: The school is active in the *in situ* conservation of 60 vine varieties from the mountain area Carnia.

Type of organisation: private

Active since: 1997

Databank: is at present being set up.

Additional protection of conserved varieties: none

Long-term conservation: yes

Lombardy

Dipartimento di Produzione Vegetale, Sezione Coltivazioni Arboree, Università Studi di Milano

Address: Via Celoria, 2, 20123 Milano, Tel: 0039-2/7060 01 65, Fax: 0039-2/236 53 02

Contact: Attilio Scienza

Description: The 'Dipartimento di Produzione Vegetale' conserves vine varieties (wild and cultivated vines) from Italy (the Alpine region, too), Albania and the Caucasus mountains.

The collection includes 15 vine varieties from Valtellina, 2 from Bergamo and 1 variety from Mantova which are characterised phenotypically and genotypically by a DNA-marker.

Type of organisation: governmental

Active since: 1934

Size: 10 members of staff

Databank: yes

Additional protection of conserved varieties: yes (genebank)

Long-term conservation: yes

Trentino-Altoadige

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: The Land- und Forstwirtschaftliche Versuchszentrum Laimburg maintains a collection of more than 70 varieties in the vine variety plant, Stadlhof, including several old varieties.

Type of organisation: public body of the autonomous Province of Bolzano

Vine Museum/ Weinmuseum Kaltern

Address: Goldgasse 1, 39052 Kaltern, Tel/Fax: 0039-471/96 31 68

Director: Dr. Hans Griessmair (c/o Landesmuseum für Volkskunde, 39031 Dietenheim, Tel: 0039-474/55 20 87)

Description: The museum conserves, amongst others, old varieties from the Alpine region. The former collaborator Luis Oberrauch described a collection of old varieties for the wine museum.

Type of organisation: public institution

Marcel Aeberhard

Address: Reichenbachstrasse 108, CH - 3004 Bern, Schweiz, Tel: 041-31/23 93 64

Description: Marcel Aeberhard has collected vine varieties from Switzerland and other countries since the beginning of the 1960s, The private variety garden includes at present approx. 250 varieties (each with one to two plants). Varieties from the Altoadige Region are conserved, too. For reasons of age, Mr.Aeberhard has allowed the Swiss organisation, Pro Specie Rara, to access his collection at the beginning of the 1990s.

Type of organisation: private

Active since: beginning of the 1960s

Friuli- Venetia Giulia

ERSA

Address: Ente Regionale Promozione e Sviluppo Agricoltura, Via Sabbatini, 5, 33050

Pozzuolo del Friuli (Udine), Tel: 0039-432/52 92 15, Fax: 0039-432/52 92 02,

Director: Dott. Paolo Marini

Contact: Dott. Francesco del Zan

Description: Description: The ERSA has collected, described, catalogued and conserved 20 regional vine varieties. Special clones are selected. Conservation of vine stocks carried out *ex situ*.

Type of organisation: public institution

Active since: 1976

Size: 23 members of staff

Databank: no

Additional protection of conserved varieties: Each variety is conserved at at least 2 locations.

Long-term conservation: yes

Dipartimento di Produzione Vegetale e Tecnologia Agrarie – Università di Udine

Address: Via delle Scienze, 208, 33100 Udine, Tel: 0039-432/55 85 03, Fax: 0039-432/55 85 01, E-Mail: angelo.olivieri@dpvta.univd.it

Director: Prof. G. Zerbi

Contact: Prof. Angelo M. Olivieri

Description: The 'Dipartimento di Produzione Vegetale e Tecnologia Agrarie' carries out genetic examinations of vine varieties which are conserved in an *in situ* collection. Origin of the varieties is north-east Italy, Alpi Carniche and Giulia. Some varieties originate from the Alpine region.

Type of organisation: governmental

Active since: 1988

Size: 15 members of staff

Databank: no

Additional protection of conserved varieties: yes, by other Institutes

Long-term conservation: yes

9.7. Vegetables

9.7.1. Need for action

Overview

Vegetable cultivation has traditionally been very important in the Italian Alpine region. Loss of genetic variability was particularly high during the 1960s. At this time, many old varieties were replaced by modern ones. Collection of vegetables only started in the 1980s and 1990s. It was assumed, and unfortunately still is that vegetables are less acutely endangered than field crops. It was believed mistakenly that they are relatively well conserved by their cultivators. As a result, there are very few collections of old vegetable varieties today. It can, however, be assumed that vegetable varieties were not consistently eliminated in Italy. Diversity is still large, but few initiatives exist and there is a tremendous need for action. Overview of organisations and institutions working for the conservation of vegetable varieties in the Italian Alpine region (grouped according to regions). The actors are described below in more detail.

Region	NGOs	Seed Traders	Public institutions	Governmental Inst./EU	Total
Aosta Valley			1		1
Piedmont	2		1		3
Lombardy			1		1
Trentino-Alto.	2		1		3
Veneto	3				3
Friuli-Ven.G.					
Supraregional	2		1	2	5

Governmental collections and activities:

The ISRA Institutes maintain collections of vegetable varieties. There are, however, large gaps. Only 386 records of vegetables and commercial crops of Italian origin could be found. This is certainly not a representative number for Italy, as confirmed by the Vavilov studies. Besides, varieties are only conserved *ex situ*. No *in situ* conservation measures exist at all! A further important aspect of conservation work, that is the effort to utilise old varieties again, is also non-existent.

Private collections and activities

There are practically no efforts to conserve the diversity of vegetables. Activities in the private sector are mostly restricted to one or just a few vegetable varieties.

At the national level, the network 'Rete Semi Rurali' has only been in existence since June 2000. It tries to coordinate the different actors. As a first task, a national catalogue (catalogo nazionale) is being compiled at present. It is also supposed to provide information about the actors conserving the different varieties. The organisation gives priority to the conservation of varieties locally or at their place of origin.

Need for action:

There is a tremendous need for action in conserving vegetables in the Italian Alpine region. Conservation efforts are very unsatisfactory! And not all Alpine regions have vegetable conservation schemes.

- **Active search for old varieties**

It is essential that the search for old varieties should start urgently in all Italian Alpine regions. A comprehensive search for old varieties has never taken place. Vegetable cultivation has a long and strongly developed tradition in the Italian Alpine region.

Individual areas and valleys have to be specifically searched. Strong emphasis should be

placed on searching in house gardens. Even in more industrialised regions, it can also be assumed that some rarities will exist in house gardens.

- ***In situ/ex situ* conservation**

At universities and the 'Istituto del Germoplasma', there are some collections of Italian vegetable varieties. Most of them, however, are only conserved *ex situ*. These varieties should urgently be integrated into a suitable *in situ* conservation concept. Only *in situ* conservation allows a continuous adaptation to changing environmental conditions. A variety garden in the Alpine region would excellently be suited for *in situ* conservation. *Ex situ* measures are necessary as further protection.

- **Private sector**

Activities at the private level should be supported urgently. The network 'Rete Semi Rurali' is very promising and could achieve a great deal in the vegetable conservation area. The future will show if the new organisation manages to continue. This will depend partly on the amount of support it receives. Government support for NGOs and concrete support for projects aiming to search for and conserve varieties is urgently needed.

- **Inventory of historically used vegetable varieties**

A well directed search for old varieties is necessary. A historical inventory of varieties originally cultivated in the individual regions would facilitate the drawing up of search lists basing on historical data and the concrete search for these varieties.

- **Support for the utilisation of old varieties.**

The utilisation of old varieties is a central component of conservation work. Little seed of old vegetable varieties is available. Reproduction material is practically never transferred from governmental collections to private persons.

Specific search for old varieties:

The need for action is not covered in all Alpine regions. The following vegetable varieties were of special importance in the listed regions. It is assumed that their diversity was or still is relatively great and that conservation strategies, if not already in force, are very important.

- **Aosta Valley**

Potato, chilli peppers

- **Piedmont**

Asparagus, potatoes, chilli pepper, Swiss chard, Cardoon, onions, pumpkin

- **Lombardy**

Asparagus, onions, pumpkin, cabbage, radicchio, artichoke, broccoli

- **Trentino-Altoadige**

Radicchio, garlic, potatoes, beet, cabbage, pumpkin

- **Veneto**

Radicchio (especially in the Province of Veneto), asparagus, sugar beet, artichoke, broccoli

- **Friuli-Venetia Giulia**

Turnips, asparagus, radicchio, chicory, potatoes, garlic, cabbage, lettuce

9.7.2. Portraits of actors (vegetables)

Supraregional organisations and institutions

Rete 'Semi Rurali'

Address: c/o Cornale coop. Agricola, Corso Marconi 64, 12050 Magliano Alfieri, Fax:

0173/266835, E-Mail: semi.rurali@libero.it, URL: http://biodiv.jao.florence.it/semi_rurali/

Contact: Massimo Angelini

Description: The network 'Semi Rurali' is, amongst other things, active for the conservation of old vegetable varieties.

More detailed information may be taken from the chapters ‘Fruit’ and ‘General report on cultivated plants in the Italian Alpine region’.

Type of organisation: private

Slow Food

Address: Ufficio Arca e Presidi Slow Food, Giovanni Bellingeri, Via delle Mendicità, 14, 12042 Bra (CN), Tel: 0172/419624

Type of organisation: private

Description: More detailed information on Slow Food may be taken from the chapter ‘*General report on cultivated plants in the Italian Alpine region*’.

Slow Food supports the conservation of the following vegetable varieties by product promotion in the Italian Alpine region:

- Piedmont:
Chilli Peppers: Quadrato della Motta, Corno di Carmagnola
- Trentino-Altoadige
Asparago di Zambana (asparagus)
- Veneto:
Asparagus: Marittimus, di Mezzago
Radicchio variegato di Castelfranco

Istituto del Germoplasma

Address: CNR – Consiglio Nazionale delle Ricerche, Via G. Amendola, 165/a, 70126 Bari, E-Mail: germplasm@area.ba.cnr.it, Web: <http://www.area.ba.cnr.it>

Contact: P. Perrino

Description: The CNR genebank in Bari contains collections of the following Italian vegetable varieties:

- *Allium cepa*
- *Allium sativum*
- *Apium graveolens* (celery)
- *Beta spp.*
- *Brassica spp.* (i.a. a large collection of Italian broccoli, cauliflower, turnips)
- *Capsicum annuum var. Annuum*
- *Cichorium spp.*
- *Crambe abyssinica* (sea kale – root vegetables)
- *Cucurbita spp.* (pumpkin, courgette)
- *Cucumis spp.* (cucumber, melon)
- *Cynara cardunculus* (cardoon)
- *Cynara scolymus* (artichoke)
- *Daucus spp.*
- *Foeniculum vulgare* (fennel)
- *Lactuca spp.*
- *Lycopersicon esculentum* (tomato)
- *Raphanus spp.* (radish, little radish)
- *Scorzonera hispanica* (black salsify)
- *Solanum melongena*
- *Solanum tuberosum*
- *Spicacia oleracea* (spinach)

More detailed information on the ‘Consiglio Nazionale delle Ricerche’ may be taken from the chapter ‘*General report on cultivated plants in the Italian Alpine region*’.

Type of organisation: public institution

Istituto Sperimentale per l'Orticoltura

Address: Via Paulese 28, 20075 Montanaso Lombardo (MI), Tel: 0039-371/681 71, E-Mail: isoml@apm.it

Contact: Mr. Massimo Schiavi

Description: The Istituto Sperimentale per l'Orticoltura conserves more than 70 Italian local garlic varieties, Italian onion varieties, and Italian asparagus varieties.

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: governmental

Istituto sperimentale di Orticoltura

Address: Direttore: Prof. Vitangelo Magnifico, Via dei Cavalleggeri 25, Casella Postale 48, 84098 Pontecagnano (Salerno), Tel: 0039-89/38 62 20, Fax: 0039-89/38 81 70, E-Mail: isor@flashnet.it

Sez. di Monsampaolo del Troto, Via Salaria 1, 63100 Ascoli Piceno,

Description: At this Institute, collections of the following species exist:

chilli peppers, peppers or vegetable peppers /peperone (*Capsicum annum*): 75 Ital. (total: 134)

Lactuca sativa: 50 old varieties

Lycopersicon esculentum: 120 old varieties

eggplant/melanzana (*Solanum melongena*) : ? Italian (total: 140)

chicory

broccoli

onion

courgette

pumpkin

fennel

cauliflower

cardoon

chard

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: governmental

Northern Italy

Cisa Mario Neri

Address: Via Emilia Levante 13, 40026 Imola (BO), Tel: 0039-542/60 91 14, Fax: 0039-542/60 91 24, E-Mail: lovatti@crpv.it, URL: <http://www.crpv.it>

Contact: Luca Lovatti

Description: The organisation 'Cisa Mario Neri' conserves and reproduces 3 potato varieties on farm. They all originate from Northern Italy with 2 of them from the Alpine region. On request, reproduction material is available. The organisation participates in the project RESGEN CT 35/96.

Type of organisation: private

Active since: 1992

Size: 8 members of staff, 16 members

Databank: no

Additional protection of conserved varieties: yes (genebank)

Long-term conservation: yes

Aosta Valley, Piedmont

Di.V.A.P.R.A. - Dipartimento di Valorizzazione Protezione delle Risorse Agroforestali

Address: Banca germoplasma di Torino, Università degli Studi di Torino, Via P. Giuria, 15, 10126 Torino

Contact: Prof. Luciana Auxilia Quagliotti

Description: The DIVAPRA conserves old varieties in its genebank, containing old vegetable varieties from the Piedmont and the Aosta Valley. The following species are included: chili peppers (400 records, 71 from the Piedmont), garden beans, chard, cardoon, cauliflower, onions, tomatoes, eggplants, little radishes, celery, pumpkin and other vegetables.

Active since: 1976

Type of organisation: public institution

Piedmont

Giardino Botanico Montano di Oropa

Address: c/o WWF Biellese, Via Sabadell 1, 13900 Biella, Tel/Fax: 0039-15/252 30 58, E-

Mail: gb.oropa@tiscalinet.it, wwf@samantha.bielnet.it

Coordinator: Fabrizio Botelli

Description: In this botanical garden (1200 m a.s.l.), mainly wild Alpine plants are grown. Some cultivated plants from the Alpine region are also housed. The garden is administered by the WWF Piedmont. There are plans to search for traditionally used plants in the Valle di Oropa and other valleys of the Biellese Alps.

Type of organisation: private

Lombardy, Trentino, Veneto, Friuli-Venetia-Giulia

Dipartimento di Agronomia Ambientale e Produzioni Vegetali

Address: Agripolis, Via Romea, 16, 35020 Legnaro (Padova), Tel: 0039-49/827 28 17, Fax: 0039-49/827 28 39, E-Mail: pparrini@agripolis.unipol.it

Director: Prof. Giuliano Mosca

Contact: Prof. Paolo Parrini

Description: In the genebank of the 'Dipartimento di Agronomia Ambientale e Produzioni Vegetali', autochthonous varieties of radicchio (Radicchi Rossi and Pariesati) are conserved. These varieties originate from the Lombardy, Trentino, Veneto and Friuli Regions. The conserved varieties are examined with regard to their genetic variability and characterised agronomically and chemically.

Type of organisation: governmental

Active since: 1990

Size: 5 members of staff

Databank: none

Additional protection of conserved varieties:

Only for those varieties used for research purposes

Long-term conservation: yes

Lombardy

Regione Lombardia – Direzione Generale Agricoltura

Address: P.zza IV novembre, 5, 20124 Milano, Tel: 0039-2/67 65 25 00, Fax: 0039-2/67 65 27 57, E-Mail: luisa_bonomi@regione.lombardia.it

Director: Dr. Paolo Baccolo

Contact: Luisa Bonomi, Rossana Tonesi

Description: 3 onion varieties and 1 chicory variety are conserved by the Lombardy Region (Rossa di Breme, Bionda di Voghera and Bionda di Sermide).

Type of organisation: public institution

Active since: 1999

Databank: no

Additional protection of conserved varieties:

Only some varieties
Long-term conservation: yes

Trentino-Altoadige

Karl Primisser

Address: Kiefernham 166, 39026 Prad am St. Joch

Description: Karl Primisser is an organic farmer in South Tyrol (central Winschgau), he cultivates different vegetable varieties from the region.

Type of organisation: private

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: For some years, the Research Centre Laimburg has been collecting old varieties (ecotypes). Their cultivation site requirements, plant characteristics and specific differences between varieties concerning yield or quality are described. Seed is then transferred for further observation, description, typifying and conservation to the genebank at the Landesanstalt Rinn in Tyrol (Austria). Collection continues. Some selected ecotypes are compared to standard varieties in variety trials. In recent years, the following vegetable varieties have been collected: 6 turnip, 2 cabbage, and 1 local pumpkin variety.

Type of organisation: public institution of the autonomous Province of Bolzano.

Veneto

Cons. di Tutela del Radicchio Rosso di Treviso, c/o Camera di Commercio, Piazza Borsa 3, 31100 Treviso, Tel: 0039-422/59 52 24

Description: The following radicchio varieties are conserved by this Association: 2 radicchio rosso varieties from Treviso (Precoce und Tardivo) and one radicchio variegato from Castelfranco. Radicchio is mainly cultivated in the Province of Veneto. In Treviso, a harvest festival takes place every December. In Castelfranco, too, the festival of the radicchio variegato takes place each year in the week before Christmas.

Type of organisation: private

Associazione Ortofrutticoli Marca Trevigiana

Address: S. Bovo, Via Don E. Bordinon, 31033 Castelfranco Veneto (TV)

Description: This Association is responsible for the radicchio 'Radicchio Variegato di Castelfranco' and 'Radicchio Rosso di Treviso'. The EU quality seal PGI was given to this variety from the Veneto Region.

Type of organisation: private

9.8. Legumes

9.8.1. Need for action

Traditionally, legumes are very important in the Italian Alpine region. The species garden beans (*Phaseolus vulgaris*), field bean (*Vicia faba*) and peas mentioned in the table below were especially important. It is assumed that their diversity was or still is very great and that conservation strategies, if not already in force, are particularly important.

Overview of actors working for the conservation of legumes in the Italian Alpine region:

Legumes species	NGOs	Public	Governmental	Total
-----------------	------	--------	--------------	-------

		institutions	Inst./EU	
Garden Beans	5	4	1	10
Field Beans (<i>Vicia faba</i>)		1	1	2
Peas		2		2

Need for action:

- **Active search for old varieties**

As evident from the table, there are a few conservation efforts for *Phaseolus vulgaris* only. The Alpine region is, however, only marginally represented in larger collections and private actors mostly concentrate on individual varieties. There is an acute need to search actively for garden beans, field beans and peas in the Alpine region! In particular, individual areas and valleys should be specifically searched. Searching in house gardens should be given priority.

- **Inventory of historically used legumes**

A historical inventory of varieties which were originally cultivated in the different regions would make it possible to draw up search lists based on historical data and specific searches for these varieties.

- ***In situ/ex situ* conservation**

At the Istituto del Germoplasma and the Istituto sperimentale di Orticoltura, there are a few collections with Italian legumes. These are, however, only conserved *ex situ*. These varieties should be integrated into a suitable *in situ* conservation programme urgently. Setting up an Alpine variety garden would be a feasible project. Only *in situ* conservation allows a continuous adaptation to changing environmental conditions. *Ex situ* measures are necessary for additional protection.

- **Support for the utilisation of old varieties**

The utilisation of old varieties is a central component of conservation work. Too little seed from old varieties is available. Reproduction material is practically never transferred any more from governmental collections to private persons.

9.8.2. Portraits of actors (legumes)

Supraregional organisations and institutions

Istituto del Germoplasma

Address: CNR – Consiglio Nazionale delle Ricerche, Via G. Amendola, 165/a, 70126 Bari, E-

Mail: germplasm@area.ba.cnr.it, Web: <http://www.area.ba.cnr.it>

Contact: P. Perrino

Description: The CNR genebank in Bari contains collections of the following Italian legume species:

Cicer arietinum

Lens culinaris

Phaseolus spp.

Vicia faba

Lathyrus ssp.

Lupinus ssp.

Pisum sativum

Vigna unguiculata (cow pea)

More detailed information on the ‘Consiglio Nazionale delle Ricerche’ may be taken from the chapter ‘General report on cultivated plants in the Italian Alpine region’.

Type of organisation: public institution

Istituto sperimentale di Orticoltura

Address: Direttore: Prof. Vitangelo Magnifico, Via dei Cavalleggeri 25, Casella Postale 48, 84098 Pontecagnano (Salerno), Tel: 089/386220, Fax: 089/388170, E-Mail: isor@flashnet.it

Sez. di Monsampaolo del Troto, Via Salaria 1, 63100 Ascoli Piceno,

Description: This Institute has collections of the following species:

Vicia faba: 40 old varieties

Phaseolus vulgaris: 30 old varieties

Chick peas/Cece (*Cicer arietinum*) : 35 Italian (Total: 99)

Type of organisation: governmental

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Aosta Valley, Piedmont

Di.V.A.P.R.A. - Dipartimento di Valorizzazione Protezione delle Risorse Agroforestali

Address: Banca germoplasma di Torino, Università degli Studi di Torino, Via P. Giuria, 15, 10126 Torino

Contact: Prof. Luciana Auxilia Quagliotti

Description: In the genebank DIVAPRA, old vegetable varieties from Piedmont and Aosta Valley are conserved. Amongst others, varieties of the legumes species *Phaseolus vulgaris*, *Phaseolus coccineus* and the field bean (250 records, nearly all of them from the Piedmont) are included in the collection.

Active since: 1976

Type of organisation: public institution

Piedmont

Slow Food

Address: Ufficio Arca e Presidi Slow Food, Giovanni Bellingeri, Via delle MendicITÀ, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24

Description: Slow Food supports the conservation of the bean 'Fagiolane della Val Barbera' from Piedmont. More detailed information on Slow Food may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: private

Trentino-Altoadige

Sergio Abram

Address: Via Ciclamini, 7, 38011 Don (TN), Tel: 0039-463-87 56 39, Fax: 0039-/87 56 39

Description: Sergio Abram grows old bean varieties from the South Tyrol-Trentino Region in his garden.

Type of organisation: private

Active since: 1988

Databank: none

Additional protection of conserved varieties: only partially

Dr. Stefan Niederfriniger

Address: Thumenweg, 75, 39040 Wiesen/Pfitsch

Description: Stefan Niederfriniger grows an old bean variety which has been pure-bred for decades in two types: a purely white bean and a violet-black bean.

Type of organisation: private

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: During recent years, the following local legume varieties were collected: 13 bean varieties, 1 lupine and 3 pea varieties.

Further information on the Research Centre Laimburg may be taken from the chapter on vegetables.

Type of organisation: public institution of the autonomous Province of Bolzano.

Veneto

Cons. di Tutela del Fagiolo di Lamon

Address: c/o Pro Loco, 32033 Lamon (BL), Tel: 0039-439/963 93

Description: The bean from Lamon exists in 4 varieties: Spagnolit, Spagnolon, Calonega and Canalin. It has a faint likeness to the Borlotti bean, its husk is very thin and the bean is very tasty. The San Giorgio festival takes place every year at the end of April to honour the bean of Lamon. On this occasion, a soup is traditionally cooked - the Menestra de San Dordi. The Cons. di Tutela del Fagiolo di Lamon is active for the conservation of the Lamon-Bean.

Type of organisation: private

Consorzio per la tutela del Fagiolo di Lamon

Address: V.le Carlo Rizarda 21, 32032 Feltre

Description:

This Association is responsible for the bean 'Fagiolo di Lamon della Vallata Belluese'. The variety from the Veneto Region was given the EU quality seal PGI.

Type of organisation: private

Friuli-Venetia Giulia

Comunità Montana della Carnia

Address: Via Carnia Libera 1944, n.29, Tolmezzo (DU), Tel: 0039-433/48 77 11, Fax: 0039-433/406 87, E-Mail: cmcarnia@agemont.it

President: Enzo Marsilio

Contact: p.a. Franco Sulli

Description: In cooperation with E.R.S.A. (Ente Regionale di Sviluppo Agricolo – Sez. Sperimentale di Frutticoltura), local bean varieties from the mountain region Carnia were collected. The Comunità Montana della Carnia is responsible for their cultivation.

Type of organisation: public institution

Active since: 1988

Databank: none

Additional protection of conserved varieties: none

Long-term conservation: yes

9.9. Cereals

9.9.1. Need for action cereals

Background:

Cereal cultivation has a long tradition in the Italian Alpine region. The first collections (by Vavilov at the beginning of the 20th century) were restricted to wheat varieties. Later collection activities in Italy always concentrated on wheat. R. Maly, formerly at the Gatersleben Institute, undertook the first comprehensive collection tour of Italy in 1950. In

1969, collection activities were restarted by the newly founded Laboratorio del Germoplasma (later: Istituto del Germoplasma) at Bari. The Istituto Germoplasma has also limited its activities to the collection of wheat.

This great interest in wheat has to do with early attempts to breed wheat. In the middle of the eighties, other cereal varieties were also included. Meanwhile, the Istituto del Germoplasma has covered large parts of the country with its collection tours.

The loss of genetic variability was especially evident in the 1960s. At this time, many old varieties were replaced by modern ones. For central- and northern Italy, erosion is estimated to have reached more than 90%. The Alpine region has been especially strongly affected. The main reasons are an increase in animal husbandry at the expense of cereal cultivation, and a decrease in agriculture in general because of increasing tourism.

Loss of genetic variability, for example of wheat: In the time shortly before and after the Second World War, more than 400 wheat varieties existed in Italy. Of these 400 varieties, only 1 – 2% could be located during collection tours. Today, there are approx. 200 wheat varieties in Italy, which are genetically much closer than were varieties present after the First World War. Although collecting of wheat started very early, the loss has been enormous. It is estimated to have been approx. 90 % in Italy. At the beginning of the 20th century, 289 wheat varieties were mentioned for Sicily, in 1942, only 45 varieties were located and only 32 were left in the 1970s/80s.

The following cereal varieties were cultivated traditionally in the Italian Alpine region:

emmer

one-grained wheat

hard wheat (*Triticum durum*)

common wheat (*Triticum aestivum*)

German wheat

maize

rye

millet (*Panicum miliaceum*)

foxtail millet (*Panicum italicum*)

white durra (*Sorghum cernuum*)

Overview of organisations and institutions working for the conservation of cereals in the Italian Alpine region. The actors are described below in more detail.

Region	NGOs	Seed Traders	Public Institutions	Government al Inst./EU	Total
Aosta Valley					
Piedmont	1				1
Lombardy	1			1	1
Trentino-Alto.	5			2	7
Veneto				2	2
Friuli-Ven.G.			1	2	3
Supraregional	2		2	1	5

Governmental collections and activities:

Collecting of wheat varieties (*Triticum*) is done relatively well by the government. These varieties are conserved *ex situ* at the CNR Bari. Collection tours for the other cereal varieties have only been conducted since the eighties. Today, collection tours do no longer take place.

Private collections and activities

There are only a few private actors who conserve cereals. Most take care of a few or single cereals, and searches for old varieties seldom take place.

At the national level, the network 'Semi Rurali' was formed in June 2000. It tries to coordinate the different actors. As a first task, a national catalogue (catalogo nazionale) is being compiled at present. It is supposed to include the actors conserving the different cereal varieties. The organisation has prioritised the conservation of varieties locally or at their place of origin.

Need for action:

- **Active search for old varieties**

The search for old varieties is done sufficiently only for wheat. Active searching for all other cereal species is urgently needed. For most varieties, it will, however, be too late.

- ***In situ/ex situ* conservation**

At universities and the 'Istituto del Germoplasma', some *ex situ* collections exist. These varieties should be integrated into an *in situ* conservation concept. Only *in situ* conservation allows a continuous adaptation to changing environmental conditions. *Ex situ* measures are necessary for further protection.

- **Private sector**

In the private sector, there are only few dealing with cereals. These are, however, especially important with regard to *in situ* conservation.

- **Regions with high need for action**

Cereals have been traditionally cultivated in the Alpine region. The need for action is especially high for all cereal species apart from wheat in all regions,.

- **Maize**

Efforts to collect old maize varieties were only started very late. As maize is cross-fertilized, the conservation of pure lines is very difficult. The definition of maize varieties is therefore also difficult. Most probably, it is too late for any collection activity.

9.9.2. Portraits of actors (cereals)

Supraregional organisations and institutions

Rete 'Semi Rurali'

Address: c/o Cornale coop. Agricola, Corso Marconi 64, 12050 Magliano Alfieri, Fax: 0039-173/26 68 35, E-Mail: semi.rurali@libero.it, URL: http://biodiv.iao.florence.it/semi_rurali/

Contact: Massimo Angelini

Description: The network 'Semi Rurali' is working for the conservation of old cereal varieties amongst other activities.

More detailed information on this organisation may be taken from chapter 'Fruit' and from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: private

EUREKA

Address: Istituto Internazionale di Ricerca per una Alta Qualità della Vita, Via Gianelli, 30, 34149 Trieste, Tel/Fax: 0039-40/82 39 83, E-Mail: omeodin@spin.it

President: Enzo Nastati

Description: EUREKA deals mainly with agriculture practised according to Rudolf Steiner and homeopathy, it also searches for different old Italian varieties of cultivated plants which show resistance to parasites and stress. They search for old varieties takes place throughout Italy. The maize variety 'Marano', for example, originates from the Italian Alpine region. In cooperation with the 'Università degli Studi di Padova', a project for the conservation of

biodiversity in the Veneto Region is planned. It will focus on the specific search for old varieties which will also be catalogued and reproduced.

Type of organisation: private

Active since: 1987

Size: 10 members of staff

Databank: none

Additional protection of conserved varieties: only partially, particularly for cereal varieties.

Long-term conservation: yes

Slow Food

Address: Ufficio Arca e Presidi Slow Food, Giovanni Bellingeri, Via delle MendicITÀ, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24

Type of organisation: Private

Description: Description: More detailed information on Slow Food may be taken from the chapter 'General Report on cultivated Plants in the Italian Alpine region'.

Slow Food promoted the conservation of the following cereal varieties by product promotion:

- Piedmont: Maize ottofile
- Lombardy: Grano saraceno del Valtellina

Ente per il Nuove Tecnologie l'Energia e l'Ambiente (ENEA)

Address: Settore Biotecnologia e Agricoltura, Dipartimento Innovazione, P.O. Box 2400, CE Casaccia, 00060 Santa Maria di Galeria, Roma

Description: ENEA conserves in its collection (genebank) Italian barley, rye, common wheat and hard wheat varieties.

Type of organisation: public institution

Istituto del Germoplasma

Address: CNR – Consiglio Nazionale delle Ricerche, Via G. Amendola, 165/a, 70126 Bari, E-Mail: germplasm@area.ba.cnr.it, Web: <http://www.area.ba.cnr.it>

Contact: P. Perrino

Description: The CNR genebank in Bari contains collections of the following cereal species:

Avena spp.

Panicum (millet)

Aegilops ssp.

Oryza spp. (rice)

Sorghum (sorghum)

Secale (rye)

Hordeum spp.

Triticum spp. (e.g. *Triticum dicoccum*, *Triticum monococcum*)

Zea mays

Further information on the 'Consiglio Nazionale delle Ricerche' may be taken from the chapter 'General report on cultivated plants in the Italian Alpine region'.

Type of organisation: public institution

Istituto sperimentale per la Cerealicoltura

Address: Direttore: Norberto Pogna, Via Cassia 176, 00191 Roma, Tel: 0039-6/329 57 05-6-7, Fax: 0039-6/36 30 60 22 (Maize Section, Sezione di Bergamo, Istituto per la Cerealicoltura, Via Stezzano 24, 24126 Bergamo)

Description: At this Institute has collections of the following species:

oats/avena (*Avena sativa*): 45 Italian (total: 641)

barley/orzo (*Hordeum vulgare*): 119 Italian (total: 369)

rice/riso (*Oryza sativa*): 144 Italian (total: 259)

common wheat/grano tenero (*Triticum aestivum*): 868 Ital. (total: 3095)
one-grained wheat/grano monococco (*T. beaticum*/*T. monococum*/*T. urartu*): ? Ital. (total: 1203)

German wheat/farro (*T. dicoccum*): 38 Italian (total: 38)

Triticale = crossbreeding of wheat/rye/triticale (*Triticum secale*): 8 Italian (total: 48)

maize (*Zea mays*): 1574 Italian (total: 3811)

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: governmental

Veneto, Lombardia, Trentino and Friuli-Venetia Giulia

Dipartimento di Agronomia Ambientale e Produzioni Vegetali

Address: Agripolis, Via Romea, 16, 35020 Legnaro (Padova), Tel: 0039-49/827 28 17, Fax: 0039-49/827 28 39, E-Mail: pparrini@agripolis.unipol.it

Director: Prof. Giuliano Mosca

Contact: Prof. Paolo Parrini, Prof. Margherita Lucchin

Description: The 'Dipartimento di Agronomia Ambientale e Produzioni Vegetali' conserves on farm and /or in a genebank autochthonous maize varieties originating from the Veneto, Lombardy, Trentino and Friuli Regions. Conserved varieties are examined with regard to their genetic variability and their agronomic and chemical characteristics. Maize varieties are further examined with regard to their possible economic potential.

Type of organisation: governmental

Active since: 1990

Size: 5 members of staff

Databank: none

Additional protection of conserved varieties: only for varieties used for research purposes.

Long-term conservation: yes

Trentino-Altoadige

Sergio Abram

Address: Via Ciclamini, 7, 38011 Don (TN), Tel: 0039-463/87 56 39, Fax: 0039-463/87 56 39

Description:

Sergio Abram cultivates several old maize varieties from the South Tyrol-Trentino Region.

Type of organisation: private

Active since: 1988

Databank: None

Additional protection of conserved varieties: only in part.

Karl Marzari

Address: Lehrershof, 39040 Proveis

Description: Karl Marzari is a cereal farmer. He cultivates Vintschger rye and Proveiser barley at an altitude of more than 1400 m a.s.l.. The barley is *six-rowed* and mainly used for barley soup because of its hearty taste.

Type of organisation: private

Dr. Stefan Niederfriniger

Address: Thumenweg, 75, 39040 Wiesen/Pfitsch

Description: Stefan Niederfriniger cultivates an old barley variety from the Ladinian speaking South Tyrolean village Komphill.

Type of organisation: private

Karl Primisser

Address: Kiefernhein 166, 39026 Prad am St. Joch

Description: This organic farmer from South Tyrol (central Winschgau) cultivates several regional cereal varieties.

Type of organisation: private

Alois Gruber

Address: St. Nikolaus (Ultental)

Description: Alois Gruber is one of the last cereal farmers in the Ultental. He cultivates cereals at 1460 m a.s.l.. He grows the Ulten rye, which has been handed from generation to generation in his family, and also conserves the Ulten oats. This variety was introduced in the middle of the eighties and has adapted to mountain conditions.

Type of organisation: private

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: During recent years, the following cereal varieties have been collected: 13 winter rye, 12 summer rye, 8 summer barley, 2 winter wheat, 4 summer wheat, dinkel, 3 oats, 4 maize, 7 poppy and 12 local buckwheat varieties. In 2000, some old local breeds were cultivated in the Nature Park Trudner Horn, taken from the above mentioned genebank. Further information on the research centre Laimburg may be taken from the chapter 'Vegetables'.

Type of organisation: public institution of the autonomous Province of Bolzano.

Support by EU-regulation 2078/92

Contact: Istituto Nazionale di Economia Agraria, Via di Barberini 36, 00187 Roma, Tel: 0039-6/478 56 41, Fax: 0039-6/474 19 84, Web: <http://www.inea.it>

Description: In the South Tyrol-Trentino region, the conservation of endangered rye and maize varieties on a 89 ha area is funded through EU-regulation 2078/92 with 16'500 EUR.

Type of organisation: common (EU)

Friuli-Venetia Giulia

Comunità Montana della Carnia

Address: Via Carnia Libera 1944, n. 29, Tolmezzo (UD), Tel: 0039-433/48 77 11, Fax: 0039-433/406 87, E-Mail: cmcarnia@agemont.it

President: Enzo Marsilio

Contact: Franco Sulli

Description: In cooperation with E.R.S.A. (Ente Regionale di Sviluppo Agricolo – Sez. Sperimentale di Frutticoltura), the 'Comunità Montana della Carnia' has collected local maize varieties (granoturco – for Polenta production) from the mountain region Carnia. They ensure the conservation of these varieties.

Type of organisation: public institution

Active since: 1988

Databank: none

Additional protection of conserved varieties: none

Long-term conservation: yes

Support through EU-regulation 2078/92

Contact: Istituto Nazionale di Economia Agraria, Via di Barberini 36, 00187 Roma, Tel: 0039-6/478 56 41, Fax: 0039-6/474 19 84, Web: <http://www.inea.it>

Description: In the Friuli-Venetia Giulia Region, the conservation of one maize variety is supported through EU regulation 2078/92, amongst other things.

Type of organisation: common (EU)

Veneto

Istituto di Genetica e Sperimentazione Agraria 'A. Strampelli'

Address: Via Marconi, 1, 36045 Lonigo (VI), Tel: 0039-444/83 00 88, Fax: 0039-444/83 55 40, E-Mail: igsa@provincia.vicenza.it, URL: <http://www.provincia.vicenza.it/iplo/iglo.html>

Contact: Silvio Pino, Silvano Padovan

Description: This Institute collects and conserves local cereal populations and old cereal varieties from the Veneto Region, some of them originate from the Alpine region. At present, the collection includes 80 maize, 230 common wheat and 30 other cereal varieties including single-corn wheat, dinkel, Welsch wheat). Conservation is in genebanks and on farm.

Type of organisation: paragonovernmental

Active since: 1950

Databank: yes

Additional protection of conserved varieties: yes

Long-term conservation: yes

9.10. Forage plants

9.10.1. Need for action forage plants

At present, only public or governmental institutions deal with the conservation of forage plants. Conservation is carried out nearly exclusively *ex situ*. An *in situ* conservation scheme has urgently to be set up. Duplicates of all collected varieties should be made.

9.10.2. Portraits of actors (forage plants)

Supraregional organisations and institutions

Istituto del Germoplasma

Address: CNR – Consiglio Nazionale delle Ricerche, Via G. Amendola, 165/a, 70126 Bari, E-Mail: germplasm@area.ba.cnr.it, Web: <http://www.area.ba.cnr.it>

Contact: P. Perrino

Description: The CNR genebank at Bari contains collections of the following Italian forage plant species:

Lolium ssp.

Dactylis ssp.

Festuca spp.

Medicago spp.

Trifolium spp.

Vicia sativa

Phalaris ssp. (toowoomba canary grass)

Pennisetum ssp.

Agropyron ssp. (wheat grass)

Brachypodium ssp.

Melilotus ssp.

Trigonella ssp.

Hedysarum ssp.

More detailed information on the 'Consiglio Nazionale delle Ricerche' may be taken from the chapter , *General report on cultivated plants in the Italian Alpine region*'.

Type of organisation: public institution

Istituto sperimentale per le Colture Foraggere

Address: Direttore: Prof. Pietro Rotili, Viale Piacenza 29, 20075 Lodi, Tel: 0039-371/404 71, Fax: 0039-371/318 53, E-Mail: iscfbreed@telware.it

Description: This IRSA Institute is mainly active in the conservation of ecotypes of 'Trifoglio bianco di tipo ladino' and alfalfa/ erba medica both originating from the northern part of Italy.

The Institute maintains collections of the following Italian forage plants:

cock's foot/dattile (*Dactylis glomerata*): 37 Italian (total: 58)

tall feccue/ festuca arudinacea (*Festuca arudinaca*): 102 Italian (total: 117)

orzo bulboso (*Hordeum bulbosum*): 16 Italian (total: 111)

Italian ryegrass /Loiessa (*Lolium multiflorum*): 15 Italian (total: 30)

alfalfa/ erba medica (*Medicago sativa* sensu lato): 94 Italian (total: 94)

white clover/ trifoglio bianco (*Trifolium repens*): 64 Italian (total: 64)

subterranean clover/ trifoglio sotterraneo (*Tifolium subterraneum* sensu lato): 1494 Italian (total: 1517)

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Lombardy, Trentino, Veneto, Friuli-Venetia Giulia

Dipartimento di Agronomia Ambientale e Produzioni Vegetali

Address: Agripolis, Via Romea, 16, 35020 Legnaro (Padova), Tel: 0039-49/827 28 17, Fax: 0039-49/827 28 39, E-Mail: pparrini@agripolis.unipol.it

Director: Prof. Giuliano Mosca

Contact: Prof. Paolo Parrini

Description: Description: The 'Dipartimento di Agronomia Ambientale e Produzioni Vegetali' conserves on farm and /or in a genebank autochthonous forage plant varieties originating from the Veneto, Lombardy, Trentino and Friuli Regions. Conserved varieties are examined with regard to their genetic variability and their agronomic and chemical characteristics.

Type of organisation: governmental

Active since: 1990

Size: 5 members of staff

Databank: none

Additional protection of conserved varieties: only for the varieties needed for research purposes.

Long-term conservation: yes

9.11. Kitchen herbs and spices

9.11.1.Need for action

The need for action to conserve spice plants is acute in the Italian Alpine region. There are large gaps in the collections of the ISRA Institutes For medicinal plants, spices and ornamental plants, there are only 26 collections at ISRA Institutes. Conservation in Italy is not sufficiently dealt with by the governmental side. The private sector maintains only marginal collections.

9.11.2. Portraits of actors (kitchen herbs and spices)

Supraregional organisations and institutions

Orto Botanico Pervinca

Address: Via SS. Giacomo e Filippo 11, 28838 Levo di Stresa (VB), Tel: 0039-323/93 40 89,

E-Mail: pervincagarden@libero.it

Description: The 'Orto Botanico Pervinca' has a collection of Italian herbs.

Type of organisation: public institution

Active since: 1999

Istituto del Germoplasma

Address: CNR – Consiglio Nazionale delle Ricerche, Via G. Amendola, 165/a, 70126 Bari, E-

Mail: germplasm@area.ba.cnr.it, Web: [http:// www.area.ba.cnr.it](http://www.area.ba.cnr.it)

Contact: P. Perrino

Description: The CNR genebank in Bari contains collections of the following Italian herb species:

Basilicum spp.

Origanum spp.

Sinapis spp. (mustard)

Petroselinum crispum (parsley)

More detailed information on the 'Consiglio Nazionale delle Ricerche' may be taken from the chapter 'General report on cultivated plants in the Italian Alpine region'.

Type of organisation: public institution

Trentino-Altoadige

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax:

0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: Amongst other varieties, spice herbs – e.g. fenugreek are collected. Fenugreek belongs to the genus *Trigonella*.

Further information on the Research Centre Laimburg may be taken from the chapter 'Vegetables'.

Type of organisation: public body of the autonomous Province of Bozen

Dr. Stefan Niederfriniger

Address: Thumenweg 75, 39040 Wiesen/Pfitsch

Description: Stefan Niederfriniger cultivates fenugreek, (called Brotklee in South Tyrol). The herb is added to the bread as a spice. The typical aroma only develops after grinding.

Type of organisation: private

9.12. Medicinal plants

9.12.1. Need for action

There is a great need for action in conserving of medicinal plants. The conservation of medicinal plants is insufficient in Italy. The collections of the ISRA Institutes contain large gaps (for medicinal plants, spices and ornamental plants, there are only 26 collections at the ISRA Institutes.) Medicinal plants have always been of special importance in the Alpine region.

9.12.2. Portraits of actors (medicinal plants)

Supraregional organisations and institutions

Istituto sperimentale per l'Assestamento Forestale ed Alpicoltura

Address: Direttore: Dr. Massimo Bianchi, Contact: Carla Vender, Piazza Nicollini 6, 39050 Villazzano di Trento, Tel: 0039-461/38 11 11 or 0039-461/38 11 20, Fax: 0039-461/38 11 31, E-Mail: isafa@tqs.it or officinali@isafa.it

Description: This Institute has dealt with the conservation of medicinal plants since 1999. Amongst them are ecotypes from the Italian Alpine region. Especially valuable ecotypes are conserved on farm (on a so-called research area – campo sperimentale). A databank does not exist. Conserved varieties are not additionally protected.

This Institute has collections of the following species:

Sage/Salvia (*Salvia officinalis*): 10 Italian (total: 14)

Yellow gentian/Genziana maggiore (*Gentiana lutea*): 2 Italian: Giura, Bariena (total: 4)

Iris/Iris pallida (*Iris germanica*): 5 Italian (total: 5)

29 further species: 9 Italian (total: 31)

More detailed information on the ISRA Institutes may be taken from the chapter '*General report on cultivated plants in the Italian Alpine region*'.

Northern Italy

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Description: Abraham Heinrichs from Laimburg deals with medicinal plants and their agricultural utilisation in the Alps.

Type of organisation: public institution of the autonomous Province of Bolzano

Lombardy, Trentino, Veneto, Friuli- Venetia Giulia

Dipartimento di Agronomia Ambientale e Produzioni Vegetali

Address: Agripolis, Via Romea, 16, 35020 Legnaro (Padova), Tel: 0039-49/827 28 17, Fax: 0039-49/827 28 39, E-Mail: pparrini@agripolis.unipol.it

Director: Prof. Giuliano Mosca

Contact: Prof. Paolo Parrini

Description: At the 'Dipartimento di Agronomia, Ambientale e Produzioni Vegetali', autochthonous medicinal plants are conserved in a genebank or on farm. These varieties originate from the Lombardy, Trentino, Veneto and Friuli Regions. The conserved varieties are examined with regard to their genetic variability, their chemical composition and their agronomic potential. For medicinal plants, a project is currently undertaken in cooperation with MiPAF.

Type of organisation: governmental

Active since: 1990

Size: 5 members of staff

Databank: none

Additional protection of conserved varieties:

Only for those varieties used for research purposes.

Long-term conservation: yes

9.13. Special cultures

9.13.1. Flax

Land- und Forstwirtschaftliches Versuchszentrum Laimburg

Address: Pfatten-Vadena, 39040 Post/Posta Auer-Ora (BZ), Tel: 0039-471/96 92 10, Fax: 0039-471/96 92 99, E-Mail: werner.hintner@provinz.bz.it

Contact: Dr. Werner Hintner

Description: The Research Centre Laimburg collects, among other plants, 4 flax varieties. Further information on the Research Centre Laimburg may be taken from the chapter 'Vegetables'.

Type of organisation: public institution of the autonomous Province of Bolzano.

9.13.2. Cultivated wild plants

Parco Naturale Alpi Marittime

Address: Corso Dante Livio Bianco, 5, 12010 Valdieri (CN), Tel: 0039-171/973 97, Fax: 0039-171/975 42, E-Mail: Parcalma@tin.it, Web: <http://www.parks.it/parco.alpi.maritime>

Director: Dott.ssa Patrizia Rossi

Contact: Dott. Nanni Villani

Description: Within the framework of a INTERREG II project, various wild plants from the Alpine region were cultivated as ornamental plants. The plants originate from the following valleys: Vermenagno, Gesso, Stura. They are conserved in the 'Parco Naturale Alpi Marittime'. The following plant species are collected: *Euonymus europaea* L., *Salix elaeagnos* Scop., *Salix viminalis* L., *Arctostaphylos uva-ursi* (L.) Sprengel, *Vaccinium vitis-idea* L., *Polygala chamaebuxus* L., *Cytisus scoparius* Link, *Stipa pennata* L., *Calluna vulgaris* (L.) Hull, *Trollius europaeus* L., *Festuca cimerea*, *Eryngium alpinum* L., *Viburnum lantana* L., *Lavandula officinalis*

Type of organisation: public institution

Active since: 2000

Size: 26 members of staff

Databank: being set up (includes scientific data on the conserved plants).

Long-term conservation: yes

9.13.3. Truffles

Truffles are not actually cultivated plants. They can only be collected in the wild. Truffles are a wild Ectomycorrhiza, growing on the roots of different forest trees. They only thrive in selected habitats. Thus, their conservation is only possible through the conservation of the ecosystem. There is urgent need for action to conserve these ecosystems!

In the following Alpine regions, Truffle searching was and has been traditionally very important:

- Piedmont: The Tartufo bianco d'Alba (white truffle) are mainly found in the region around Alba. In Alba, a truffle fair takes place each October. The association Mora Tartuffi provides information about the Alba Region (Address: Piazza Elvio Pertinace 3, 12051 Alba, Tel: 0173/290072).
- Friuli-Venetia Giulia: The region is famous for white truffles.
- Lombardy: In Lombardy, truffles are mainly sought in the south-western Vatenesi Region.

10. General report on livestock in the Italian Alpine region

10.1. Private conservation efforts

10.1.1. General information

To date, there is no private organisation in Italy which is active in conserving rare breeds in Italy at the national level. Private or governmental breeding organisations exist only for individual breeds and their conservation.

10.1.2. WWF

The following WWF delegations are active in the conservation of autochthonous livestock breeds in the Italian Alpine region:

WWF Italia

Riccardo Fortina from the WWF Italy has submitted the project 'Salvaguardia delle Razze Domestiche Autoctone Italiane dall'Estinzione' to the Ministry for Agriculture and Forests (Ministero delle Politiche Agricole e Forestali).

The WWF is setting up a NGO-network for rare breeds in Italy (Associazione R.A.R.E. – Razze Autoctone a Rischio di Estinzione, see 10.1.3.). *In situ* conservation has high priority in this project. It is planned to cooperate with national parks. Under the title 'Un parco – una razza', the idea of each park adopting and conserving one breed is being promoted. The development of this network depends on obtaining financial support from the Ministry responsible for agriculture.

Address: Riccardo Fortina, c/o WWF Sezione Regionale Piemonte e Valle d'Aosta, Via Peyron 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/4373944, E-Mail: mc1750@mcmlink.it, fortina.wwf@libero.it

WWF Piemont e Valle d'Aosta

The WWF Piemont e Valle d'Aosta is involved in several projects for the conservation of autochthonous livestock breeds in Italy. Together with Riccardo Fortina of the University of Torino, a large photo collection of endangered breeds has been set up. The collection includes, besides Italian breeds, also many pictures of breeds from the whole of Europe. The WWF Piemont e Valle d'Aosta has also put on several exhibitions on the topic of endangered Italian breeds and especially on Piedmontese breeds. It is active in the area of environmental education. A project for this purpose is currently cooperating with Coldiretti (farmers' association). The plan is to exhibit old Italian livestock breeds and cultivated plants on some school farms.

Address: WWF Sezione Regionale Piemonte e Valle d'Aosta, Via Peyron 10, 10143 Torino, Tel: 011/4731873, Fax: 011/4373944, E-Mail: mc1750@mcmlink.it, fortina.wwf@libero.it
Riccardo Fortina: Corso G. Angelli, 32, 10137 Torino, Tel: 0039-11/32 11 51, Cell: 0039-339/233 93 40

WWF Trentino – Alto Adige

The WWF Trentino – Alto Adige supports the conservation of livestock breeds from Trentino and Alto Adige. It cooperates with local animal breeding organisations.

Address: WWF Trentino-Alto Adige, Carlo Tamanini, Via Malpaga, 8, 38100 Trento, E-Mail: mc1901@mcmlink.it

10.1.3. R.A.R.E.

The mission of the Associazione R.A.R.E. (Razze Autoctone a Rischio di Estrinzione) is the conservation of local and endangered Italian domestic breeds for their scientific, cultural, economic and environmental role. It also promotes educational activities and divulge information on the numerical status of endangered breeds. The members of R.A.R.E are currently working on conservation projects for the following breeds:

cattle: Agerolese, Tortonese-Ottone

goats: Vallesana, Alpina, Lariana, Valdostana, Bionda dell'Adamello, Napoletana

sheep: Savoiarda, Varesina, Padovana, Brogne, Lamon, Alpagota, Carsolina

pigs: Mora Romagnola, Casertana

horses: Norico, Napoletano and pony dell'Esperia

In the next years R.A.R.E. will keep on working on specific conservation projects for creating a national network of "caretakers" among owners of endangered Italian breeds, the so called "allevatori custodi" network.

Address: Associazione R.A.R.E., C.so G. Agnelli, 32, 10137 Torino; Dr. Riccardo Fortina, chairman. Tel. 0039-11/670 85 80, Fax 0039-11/437 39 44, E-Mail:

associazionerare@yahoo.it, URL: www.save-foundation.net/RARE

10.1.4. Slow Food

The organisation Slow Food is, compared to other Alpine countries, by far the most strongly represented in Italy. The project l'Arca or Ark of Taste which deals with the conservation of endangered products/foods is firmly established. Many of these products are processed from endangered breeds. In Italy, a number of old livestock breeds are supported in this way. A note is included in the portraits of the corresponding breeds.

Contact Livestock Breeds Italy:

Ark of taste: Serena Milano, Tel: 0039-172/41 96 69, E-Mail: s.milano@slowfood.it, Piero

Sardo: E-Mail: p.sardo@slowfood.it

10.2. Governmental conservation efforts

10.2.1. Animal Breeding Law, 3.2.1963

The implementation the Animal Breeding Law No. 126, 3.2.1963 had significant effects on conserving the remaining endangered populations of local breeds. After this date, only those breeds that had been registered by then were allowed for pedigree breeding. For those populations not officially recognised, often designated crossbreeds, this meant in effect a breeding ban. In accordance with the transitional regulation in article 8, the utilisation of male animals for breeding purposes was no longer tolerated after the year 1968.

10.2.2. Research project, 1977

In 1977, the research project 'Difesa delle risorse genetiche delle popolazioni animali' was started. It was intended to improve particularly meat production in agriculturally less favoured regions of southern Italy and the islands by enhanced extensive husbandry of local breeds. Besides cattle breeds, goat, sheep, horse and pig breeds were included in the program in which 19 institutions were involved. Special attention was given to small, less considered populations of which some were threatened by extinction. The program was directed by the National Research Council (Consiglio Nazionale delle Ricerche). A comprehensive inventory of the still available pure-bred and cross-bred animals was conducted in cooperation with the breeding organisations not presented for each breed. Then, various laboratory tests were performed to provide more precise genetic descriptions of the breeds.

10.2.3. IDVGA

The IDVGA - Istituto per la Difesa e la valorizzazione del germoplasma animale – belongs to the CNR (Consiglio Nazionale delle Ricerche).

In the early 1980s, it was created especially for the protection of endangered animal breeds in Italy. The Institute has implemented various projects for the conservation and examination of autochthonous animal breeds. Together with AIA – Associazione Italiane Allevatori, programs for the conservation of genetic variety have to be set up. The IDVGA was formerly known as 'Centro della difesa delle risorse genetiche delle popolazioni animali'. Prof. Gustavo Gandini of the IDVGA is an expert on endangered small and large animal breeds. In 1983, the CNR published an 'Atlante Etnografico' for cattle, sheep and goat breeds respectively. This publication includes the distribution, description and stock recording for these breeds. In 1993, an Atlante Etnografico on Italian horse and donkey breeds followed.

Address: IDVGA-CNR – Istituto per la Difesa e la valorizzazione del germoplasma animale, Facoltà di Medicina Veterinaria, Director: Prof. Giulio Pagnacco, contact person: Prof. Gustavo Gandini, Università Milano, Via Celoria, 10, 20133 Milano, Tel: 02/266803, E-Mail: gustavo.gandini@unimi.it, URL: <http://idvga.vete.unimi.it/attivita.html>

10.2.4. Alphabetical Register for Endangered Livestock

The Italian ministry responsible for agriculture has set up alphabetical registers of animal breeds and populations of limited population size. The register for autochthonous cattle breeds and locally distributed types was started in 1985. The law no. 30 (15.1.1991) led to the AIA being assigned to draw up a national register for endangered autochthonous breeds of sheep and goat populations ('registro anagrafico delle popolazioni ovine e caprine autoctone a limitata diffusione'). More detailed information on these registers are included in the chapters on the individual animal species. The breeds included in these registers benefit from governmental support. The registers are managed by AIA:

Address: AIA, Libri genealogici – Registri anagrafici, Dr. Emanuele Villa
Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Telefax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

10.2.5. Implementation of the National Plan of Action

The MiPA - Ministero per le Politiche Agricole e Forestali has the task of implementing the Global Plan of Action in Italy, i.e. to draw up a National Plan of Action for Italy. The 'Ufficio Biodiversità e Risorse Genetiche' was assigned to this task.

In the area of livestock, the following project is planned: 'Programma di Conservazione di razze e popolazioni animali'. The project aims to protect internationally recognised rare breeds in Italy. The project is monitored by the 'Istituto sperimentale per la Zootecnia' and implemented by ConSDABI in Circello (see below). At present, no other institutions are included in the implementation of the National Plan of Action.

Bianca Moioli from the Istituto Sperimentale per la Zootecnia is currently working on the coordination of national activities.

Addresses:

- Istituto Sperimentale per la Zootecnia, Direttore: Prof. Antonio Borghese, Settore Produzioni animali: Dr. Bianca Moioli, Via Salaria 31, 00016 Monterotondo Scalo (Roma), Tel: 0039-6/90 09 01, Fax: 0039-6/900 15 41, E-Mail: isz@flashnet.it
- Responsible for the 'Ufficio per la Biodiversità' is Dr. Ferdinando di Maio: Tel: 0039-6/46 65 40 54, Telefax: 0039-6/481 43 26, E-Mail: biodiversita@politicheagricole.it

Web-Information on the Convention on Biodiversity in Italy: http://www.ctm-italia.com/forum/3_biodiversita

10.2.6. ConSDABI and CeSGAVE

The ConSDABI is responsible for the coordination of endangered autochthonous livestock breeds in Italy. Various studies of rare breeds and their distribution areas have been made. The Association is financed by the MiPAAF and was founded in cooperation with the AIA. Today, the ConSDABI- Consorzio per la Sperimentazione, Divulgazione e Applicazione di Biotecnologie Innovative is responsible for the implementation of the National Plan of Action. It is also important as the 'National Focal Point' for the FAO.

In 1988, the CeSGAVE - Centro di Salvaguardia di Germoplasma animale in via di estinzione was started in order to create a structure for breed protection. In 1990, the CeSGAVE was established at the Azienda Casaldianni with the support of AIA. The Centre today has the task of conserving rare breeds and supporting their registration. Small groups of these breeds are pure-bred by CeSGAVE. The Centre cooperates with AIA.

Address: Azienda Casaldianni, 82020 Circello, Tel: 0039-824/93 82 11, Fax: 0039-824/93 82 13, E-Mail: consdabi@ft-leaderII.it, Director: Prof. Donato Matassino, Contact: Dr. Caiola Giancarlo, Tel: 0039-82/493 82 11

10.3. Important University Institutions

The following university departments are involved in the conservation and scientific research of endangered livestock breeds in the Italian Alpine region:

- Facoltà Agraria, Istituto Zootecnica Generale, Prof. Mario Cicogna, Prof. Michele Corti, Dott. Paola Crepaldi, Università degli Studi di Milano, Via Celoria 2, 20133 Milano, E-Mail: paola.crepaldi@unimi.it, corti@mailserver.unimi.it

At the Facoltà Agraria, analysis of the genetic distance between Livio sheep and other breeds are made. It is planned to perform similar analysis for other endangered sheep and goat breeds, too. The aim of the tests is to clarify the genetoc variation in sheep and goat breeds in Italy. The institute is participating in the EU-Project Econogene, which is investigating the differentiation of sheep and goat breeds from several points of view. It has also done literature surveys with respect to endangered livestock breeds in Italy.

- Facoltà di Medicina Veterinaria, Istituto Zootecniche, Via Celoria 10, 20133 Milano, Tel: 0039-2/236 94 40, Fax: 0039-2/7060 22 27, Contact: Prof. Gustavo Gandini, E-Mail: gustavo.gandini@unimi.it

The Facoltà di Medicina Veterinaria is represented in the EAAP working group 'Animal Genetic Resources'. Several genetic studies of autochthonous animals breeds have been carried out. A study of the Girgentana goat is planned.

- Facoltà di Agraria – Dipartimento di Scienze Zootecniche, Università di Torino Josephine Errante, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/67085 75, Fax: 0039-11/670 85 63

10.4. Financial support for conservation work

Governmental financial support is, to date, only available for the governmental institutions ConSDABI and CeSGAVE in Circello as well as for official breeding organisations. No private organisations have yet been supported, but the project of the WWF Piemonte e Valle d'Aosta 'Salvaguardia delle Razze Domestiche Autoctone Italiane dall'Estinzione' stands a good chance of receiving governmental support.

Through EU regulation 2078/92 (1257/99) certain breeds are supported in the individual Regions (compare chapter 7.1. Regulation 2078/92).

10.5. National and regional legislation in Italy for the conservation of livestock breeds

To date, no legislation for the protection of the genetic resources of livestock breeds exists in Italy at the national level. None of the Alpine region has yet drawn up a specific legislation for the protection of genetic resources. Only in 2 of the 20 Regions – Lazio and Tuscany – does such a legislation exist.

10.6. Italian animal breeding associations

The Italian animal breeding associations are organised on the regional, provincial and national levels:

AIA - Associazione Italiana Allevatori

AIA is the national umbrella organisation of all Italian animal breeding associations. AIA is financed by the state and has its headquarters in Rome. AIA collaborates closely with CNR, the national research centre which runs programs for the conservation of genetic diversity administered by AIA.

Address: AIA, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Telefax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

ANDR – Associazione Nazionale di Razze e Specie

Officially acknowledged breeds have their own national breeding organisations which also keep herdbooks.

APA – Associazione Provinciale Allevatori – and ARA – Associazione Regionale Allevatori
In each Province and some Regions, there are local representatives of breeding associations. They are financed by the local breeders, ministries, communities, regional and provincial administration. They are given the following tasks:

- To provide technical-economical support, i.e. consulting as well as control of the improvement of breeding performances (milk, meat, growth, fertility etc.)
- To do stocktaking for the herdbooks
- To judge livestock
- To organise livestock fairs, exhibitions, markets, and other PR-activities.
- To organise and control artificial insemination (AI)

10.7. EU – measures for the conservation of livestock breeds in Italy

10.7.1. Regulation 2078/92 (new: 1257/99) on the development of rural areas

In Italy, the following breeds are supported through regulation 2078/92 (Status 1998):

Cattle: Modenese, Burlina, Cabannina, Calvana, Garfiagnina, Pisana, Montana/Red Mountain (Ottonese), Pezzata Rosso d'Oropa, Pinzgau, Pontremolese, Pusteria, Reggiana, Rendena, Romagnola, Valdostana Pezzata Nera/Aosta Black Pied

Goats: Orobica, Frisa, Bionda dell'Adamello/Adamello Blond, Roccaverano, Sempione, Vallesana/Valais Blackneck, Verzaschese

Sheep: Alpagota, Brigasca, Brogna, Cornelia Bianca, Cornigliese, Frabosana, Garessina, Garfagnina Bianca, Lamon/Lamonese, Marrane, Corteno, Pomerancia, Saltasassi, Sambucana, Val d'Ultimo/Schwarzbraunes Bergschaf, Tacola, Vilmösser, Vissana, Zerana

Horses: Agricolo Italiano TPR, Bardigiano, Cavallino della Giara, Cavallo delle Murge, Samolaca, Maremmano, Noric, Persano, Pony d'Esperia, Ragusana, Tolfetano, Ventasso

Donkey: Asino dell'Amiata, Asino di Martinafranca, Asino Sardo, Ragusana

10.7.2. Regulation 1467/94

Italy participates in the following livestock breed projects connected with EU regulation 1467/94:

More detailed information on regulation 1467/94 may be taken from the introduction:

Res Gen 12 – Pigs

European gene banking project for pig genetic resources

Responsible for Italy:

- Università di Milano, Istituto per la Difesa e la Valorizzazione del Germoplasma Animale, Prof. G. Gandini, Via Celloria 10, 20123 Milano

Gen Res 60 – Rabbits

Inventory, characterization, evaluation, conservation and utilization of European rabbit genetic resources'

Responsible for Italy:

- Ist. Sper. per la Zootecnia, Dr. G. Masoero, Via Pianezza 115, 10151 Torino

Gen Res 83 – European

,A permanent inventory of European farm animal genetic resources and of activities concerning the characterization, conservation and utilization of those resources'

Responsible for Italy:

- ConSDABI (Consorzio per la Sperimentazione, Divulgazione, Applicazione ed Biotecniche Innovative, C. Da Casaldianni, Azienda Casaldianni, Prof. D. Matassino, 82020 Circello (BN)
- European Association for Animal Production, Dr. Ollivier, Via Alessandro Trolonia 15/A, 00161 Roma

Gen Res 107 - Horses

,Establishment of a permanent DNA archive and database for the horse population in the EU'

Responsible for Italy:

- ConSDABI (Consorzio per la Sperimentazione, Divulgazione, Applicazione ed Biotecniche Innovative, C. Da Casaldianni, Azienda Casaldianni, Prof. D. Matassino, 82020 Circello (BN)

Gen Res 118 – Cattle

,Towards a strategy for the conservation of the genetic diversity of European cattle'

Responsible for Italy:

- Università del Sacro Cuore, Dr. P. Ajmone-Marsan, Inst. of Zoot., Via Emilia Parmense, 84, 29100 Piacenza

10.7.3. Regulation 2081/92

To date, no products from endangered breeds are protected by the quality seals 'Protected Designation of Origin' and 'Protected Geographical Indication'.

10.7.4. LEADER-Projects

Italy is involved in the LEADER program 'Support for the wool of autochthonous sheep breeds' (Valorizzazione lane autoctone). This program of the EU countries Italy and Spain mainly concerns the area of Valle Elvo in the Piedmont and the area Anglona Monte Acuto in Sardegna.

- Contact in Valle Elvo:
Valle Elvo srl c/o Comunità Montana Bassa Valle Elvo, Via Martiri della Libertà, 29, 13056 Occhieppo Superiore (BI), Tel: 0039-15/59 15 35, Fax: 0039-15/59 15 35, E-Mail: galelvo@arpnet.it
- Contact in Anglona Monte Acuto:
GAL 'Anglona Monte Acuto' Società Consortil a.s.l., Pietro Brundu, Via Barone Manno, 1, 07014 Ozieri (SS), Tel/Fax: 0039-79/78 30 23, E-Mail: anglmont@tin.it

10.8. Overview on the Need for Action for Livestock Breeds in Italy

Need for action with regard to individual species and breeds is dealt with in the respective chapter.

Coordination of private initiatives

Coordination between existing private initiatives has been missing. Riccardo Fortina of the WWF Italia (and R.A.R.E.) has submitted a project 'Salvaguardia delle Razze Domestiche Autoctone Italiane dall'Estinzione' to the Ministero delle Politiche Agricole e Forestali. This project should receive the necessary support as a matter of urgency.

Support for private breeding organisations

At present, private breeding organisations are not supported by the government side, but further organisations are needed and should be supported. NGOs are particularly suited for *in situ* conservation. Their commitment does not depend on the economic situation or on politics.

Implementation of the National Plan of Action at the private level

Subsidising endangered breeds and the implementing the National Plan of Action only take place at the governmental level. Governmental means are currently only directed to the governmental organisation in Circello (ConSDABI and CeSGAVE) and to official breeding organisations. Governmental institutions should encourage private efforts. A coordination between the private and the governmental sector is urgently needed. This is also required by article 10, alinea e of the Convention on Biological Diversity.

Legislation at the national level

In Italy, no national legislation for the conservation of genetic resources of livestock breeds does not exist. Only the Lazio and Tuscany regions have recently drawn up a specific legislation for the protection of genetic resources.

Concrete conservation measures at the national level.

The breeds included in the alphabetical registers of populations with limited population size still show decreasing stock numbers. Concrete conservation projects have to be set up urgently.

Not officially registered breeds

For breeds which are neither officially acknowledged nor included in an anagraphical register, the situation has urgently to be clarified and concrete support of conservation has to start! Especially in the area of sheep and goat breeds, fast action is needed! In the most actual version of the register for endangered breeds, a large part still present in 1977 is not included anymore.

Sheep and goat breeds

The situation in the area of sheep and goat breeds is very confusing. There are a huge number of local types. Differentiating of the different populations is very difficult. Organised breeding rarely took place and in the fringe areas, breeds overlap. This is a problem when trying to draw up clearly defined lists of Italian populations. Different information is given by different people. Many of the populations are not considered to be worth conserving.

The confusing situation must be clarified. Many of these populations are not being conserved at present because it is assumed that they do not represent anything special. The efforts to conserve these local populations have to be intensified. Tests are presently planned by the Agricultural Department of the University of Milano and the Zoological Institute of the Università del Sacro Cuore and have partially been carried out to determine the genetic distance between populations.

Breed and populations where the need for action is acute

- Cattle Breeds: Montana/Red Mountain, Tarina
- Sheep Breeds: Bellunese, Garessina, Plezzana/Bovec, Steinschaf
- Goat Breeds: Bormina, Livio, Sempione
- Horses: Samolaco/Samolaca
- Chicken: Bianca di Saluzzo, Bionda Piemonese, Millefiori
- Dogs: Pastore Bergamasca

11. Portraits of livestock breeds in the Italian Alpine region

The portraits of the individual breeds are designed as a complement to the first study on agricultural genetic resources of the Alps (1995). Detailed descriptions of the breeds may be taken from the 1995 study.

11.1. Cattle

11.1.1. General information

The animal breeding law No. 126 of 3.2.1963 had significant effects on the endangered remaining populations of local breeds. After that, only those breeds recognised before this date were allowed to be used for pedigree breeding. For those officially recognised populations, that were not designated crossbreeds, this meant in effect a breeding ban. In accordance with the transitional regulation in article 8, the utilisation of male animals for breeding purposes was not tolerated after the year 1968.

Since 1985, the following five autochthonous cattle breeds from the Italian Alpine region have been listed in the registers for endangered autochthonous cattle breeds, managed by AIA (Registro anagrafico delle popolazioni Bovine autoctone e gruppi etnici a limitata diffusione): Burlina/Pied Highland, Montana/Red Mountain (Varzese, Ottonese), Pinzgauer/Pinzgau, Pustertaler/Pusteria and Tarina. The breeds included in these registers have the benefit of governmental financial support. The aim is to save these breeds and to improve them through breeding.

Addresses:

- AIA, Dr. Emanuele Villa, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Telefax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- The register is available for inspection in the internet under the following address: <http://www.aia.it/tecnico/librgen.htm#popolazioni>
- IDVGA-CNR – Istituto per la Difesa e la valorizzazione del germoplasma animale, Facoltà di Medicina Veterinaria, Università Milano, Via Celoria, 10, 20133 Milano, Tel: 0039-2/26 68 03

Contacts for cattle breeds from the Alpine region:

- FERBA Federation Européenne des races bovines du système alpin, c/o A.N.A.Bo.Ra.Va., Fraz. Favret, 3, 11020 Gressan (AO), Tel: 0039-165/25 10 09

11.1.2. Overview of endangered cattle breeds

In the following table, endangered cattle breeds from the Alpine region are listed. Listing follows the risk status and is alphabetical within a risk category.

Breed	Stock (most recent)**	Risk status	Trend	Initiatives*
Montana/Red Mountain	31w HB (1999)	Critical	↓	+
Burlina/Pied Highland	209w HB (1999)	Endangered	→	+
Pustertaler Sprinzen/Pusteria	128w OP (2000)	Endangered	↑	++
Pezzata R. d'Oropa	2365w HB (1999)	Vulnerable	→	+
Pinzgauer/Pinzgau	938w HB (1999)	Vulnerable	→	+
Valdostana P. Nera/Aosta	3330f/m OP (1998)	Vulnerable	↑	++

Black Pied				
Rendena	8693f/m OP (1999)	Rare	↓	+
Valdostana Castana/Aosta Chestnut	10650f/m OP (1998)	Rare	↑	++

* ++ (existing, with success), + (existing), - (non-existent)

** w = female animals, m = male animals, HB = herdbook, OP = Overall Population

11.1.3. Extinct cattle breeds / types

In this study 7 breeds, populations or types were assessed as extinct in the Italian Alpine region!

Camandona

This local type from the Piedmont was absorbed by the Italian Brown Highland Cattle.

Carniella

The breed Carniella, a local variety from Friuli, was absorbed by the Italian Brown Highland Cattle at the beginning of the 20th century.

Demonte

This red to straw-coloured type of the breed Piedmontese from the Stura Valley has died out.

Grigia di Val d'Adige/Grey Adige (Synonyms: Grey Adige, Ultimo, Ultinger, Ulten, Etschtaler)

This breed from the regions South Tyrol (Etsch Valley, Ulten Valley) and Veneto (Provinces of Padova and Vicenza) is considered to be extinct since 1996. In 1960, the population was still 40,000 animals. Stocks became drastically reduced because of the mechanisation of agriculture and also during the time between and after the first and second war. The Grey Adige was ousted by crossbreeding with Brown Highland Cattle (for higher milk and meat yields). In 1983, the population had already decreased to 20 animals. A herdbook was never started.

The local types from the Ulten and Etsch Valley were among the population of origin of the Grauvieh. The Ulten Valley type (the so-called Ulting Cattle) served mainly to breed draught oxen which used to be much in demand in northern Italy.

Mölltal

Mölltaler are an early type of Pinzgau cattle. They originate from northeast Tyrol.

Ossolana

This local type from northeast Piedmont was absorbed by the Italian Brown Highland cattle.

Val di Fiemme (Synonym: Sorcino)

This breed was absorbed in the 20th century by the Italian Brown Cattle.

11.1.4. Autochthone cattle breeds without national breeding organisation

Burlina/Pied Highland

Synonyms: Asiago, Bassanesce, Binda, Boccarda, Burlina, Pezzata degli Altipiani,

Background: The breed Burlina is particularly well adapted to barren regions. The animals are good roughage converters and suitable for mountain grazing. The breed has particularly good

production characteristics. Prof. L.di Stasio from the University of Torino is responsible for scientific questions. A herdbook has been kept since 1985.

Distribution:

Region: Veneto, sites: Treviso, Vicenza, Mt. Grappa, plateau of Asiago

Initiatives:

- ESAV is concerned with the conservation and support of the Burlina cattle.
- Burlina cattle are in the register for rare autochthonous cattle breeds of the AIA and therefore benefit from governmental support measures. AIA also supports breeding with regard to milk characteristics.
- Embryos from six cows and semen from 6 sires are cryoconserved.
- At the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione) animals of this breed are bred.
- The conservation of the breed is financially supported through EU regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- ESAV - Ente di Sviluppo Agricolo del Veneto, Via S. Croce, 187, 30125 Venezia
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Telefax: 0039-6/4424 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- Comunità Montana del Grappa, Assessorato Agricoltura-Municipio, 31017 Crespano del Grappa (Treviso)
- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello
- Slow Food, Via delle MadicITÀ, 14, 12042 Bra (CN), Tel: 0039- 172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1999: 364 herdbook animals, including 209 cows and 5 bulls,
kept by 12 breeders

1993: 347 herdbook animals, including 213 Kühe and 4 bulls

Development trend: stable

Assessment: endangered, very narrow genetic base

Need for action: The need for action is still acute. An increase in the population was recorded in the 1980s. Since then, stock numbers are stable. The AIA and ESAV. are in charge of conservation activities. The very narrow genetic basis is a problem.

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. has shown that the breed has a geographical, cultural, historical or productive relationship to the following cheese types: Asiago, Grana Padano, Montasio, Provolone Valpadana, Taleggio and Morlac. The creation of a sublabel of these cheeses explicitly produced from Burlina cattle milk would contribute considerably to the protection of this breed.

Montana (Tortonese) / Red Mountain

Synonyms: Varzese (region Lombardy), Ottenese/Ottonese (Reggio Emilia), Montana Rossa (Liguria Region), Cabellotta/Cabella (Liguria Region), Bionda Tortonese, Tortonese, Rossa montanina, Tortona

Background: Montana cattle are well adapted to forest pastures and mountainous regions. The breed originates from the Provinces of Alessandria, Pavia, Piacenza and Genova. Since 1950, it has crossbred with Reggiana cattle and Italian Brown Mountain. Today, 50 % of the female animals are purebreds.

Distribution:

Regions: Lombardy, Liguria, Piedmont, Emilia Romagna

Initiatives:

- The breed is listed in the AIA register for rare autochthonous breeds and receives governmental support.
- Semen of 20 bulls and embryos of 5 females are cryoconserved.
- At the University of Torino, scientific examinations of the breed are carried through.
- At the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione), animals of this breed are bred.
- The maintenance of this breed is supported by the Emilia-Romagna Region (Piano Regionale di Sviluppo Rurale 2000-2006). Breeders have to commit themselves for at least 5 years and to guarantee pure breeding. A maintenance support of 150-200 Euro is paid per animal.
- The organisation Slow Food supports a cheese produced by the milk of the cattle breeds Montana/Red Mountain, Cabanina and Friesian. Riccardo Fortina of the WWF Italy is trying to stop the milk from Friesian cattle being used any more for the production of this cheese. Only then will it be possible for the breeds Montana/Red Mountain and Cabanina to be supported sufficiently.

Contacts:

- Regione Lombardia, Assessorato Agricoltura, Viale Premuda, 27, 20129 Milano
- APA Alessandria, Strada Statale 10 EST, 1/3, 15029 Solero (AL), Präsident: Ing. I. Scavia, Tel.:0039-131/21 79 21, Fax: 0039-131/21 79 03, E-Mail: luscavi@tin.it
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Telefax: 0039-6/4424 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- Universität: Facoltà di Agraria – Dipartimento di Scienze Zootecniche, Università di Torino, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/670 85 75, Fax: 0039-11/670 85 63
- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello
- Riccardo Fortina, c/o WWF Sezione Regionale Piemonte e Valle d'Aosta, Via Peyron 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/437 39 44, E-Mail: mc1750@mcLink.it, fortina.wwf@libero.it
- Slow Food, Ufficio Arca e Presidi Slow Food, Via delle Mendicizie, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24 oder 0039-172/41 96 25, Fax: 0039-172/42 12 93, E-Mail: presidi@SlowFood.it

Stock:

1999: 49 animals in the herdbook, including 31 cows, kept by 13 breeders.

1993: 145 animals in the herdbook, including 91 cows and 1 bull, kept by 48 breeders.

Development trend: decreasing

Assessment: critical

Need for action: acute need for action! The stock of this breed is decreasing rapidly despite support measures.

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. showed that Montana/red Mountain cattle has a geographical, cultural, historical or productive relationship to the following cheese types: Gorgonzola, Grana Padano, Provolone Valpadana, Quartirolo Lombardo and Taleggio. The creation of a sublabel of these cheese types explicitly produced from Montana/re Mountain cattle milk would contribute considerably to the protection of this breed.

Via product promotion, the conservation of this breed could then be supported directly.

Pinzgauer /Pinzgau

Synonyms: Original Pinzgauer

Background: Pinzgau cattle is very well adapted to mountain regions. Their core breeding area is in Austria in the region of Salzburg. The breed is closely related to the smaller and lighter type of Pusteria cattle. Among their special characteristics are robustness, good roughage conversion, adaptability and parasite resistance. The herdbook is kept by the

working pool of Pinzgau cattle breeding associations. Today, 80 % of the animals are purebred. Because of their proven qualities, they are distributed throughout 24 countries today.

In Germany, the overall population comprises 2800 animals (status: 1999). Attention: the herdbook includes purebred and crossbred animals). The population in Austria amounts to 6900 purebred cows (status: 2000).

Distribution:

Region: Alto Adige, site: side valleys of the Pustertal (Ahrntal, Gsiersertal, Upper Pustertal from Welsberg to Toblach and Lower Eisacktal with the communities of Lajen and Gröden)

Initiatives:

- The breed is listed in the register for rare autochthonous cattle breeds of the AIA and therefore receives governmental support. AIA also supports breeding with regard to milk characteristics and calculates the genetical index for the features milk, fat and protein. AIA is particularly interested in the support of purebred Pinzgau animals. In order to improve performance breeding and the udder quality, the breed was controlledly crossbred to a limited degree with Red Holstein bulls during recent decades. Further selection took place via breeding measures.
- Semen of 15 bulls are cryoconserved.
- The conservation of this breed is supported through EU regulation 2078/92 (new: 1257/99).

Contacts:

- Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen, Präsident: Sig. J. Weissensteiner, Tel: 0039-471/97 64 78, Fax: 0039-471/97 38 43, E-Mail: grigio_alpina@dnet.it
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/854511, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- Austria: Arbeitsgemeinschaft der Pingauer Rinderzuchtverbände, Mayerhoferstrasse 12, 5751 Maishofen, Tel: 0043-6542/682 29 15, E-Mail: rinderzuchtverband@sbg.at
- Bavaria: Rinderzuchtverband Traunstein, Dr. Binser, Kardinal-Faulhaber-Strasse 15, 83278 Traunstein, Tel: 0049-861/700 20

Stock:

1999: 1735 animals in the herdbook, davon 938 Kühe und 5 Stiere, bei 96 Züchtern

1993: 1745 animals in the herdbook, including 973 cows and 7 bulls, kept by 92 breeders

Development trend: stable

Assessment: vulnerable

Need for action: Need for action is still great for purebred Pingau cattle as the government particularly supports performance breeding. Pedigree breeding needs urgently to be coordinated with South Tyrol and Bavaria.

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. showed that the breed has a geographical, cultural, historical or productive relationship with the cheese type Gran Padano trentino. The creation of a sublabel of this cheese type explicitly produced from Pinzgau cattle milk would contribute considerably to the protection of this breed. Via product promotion the conservation of this breed could directly be supported.

Pustertaler Sprinzen/Pusteria

Synonym: Pustataler, Pustertaler Schecken, Pezzata Rossa Norica, Mölltaler Rind, Noriker

Background: Pusteria cattle originate from the Ladinian side valley of the Pustertal in South Tyrol. The Walser people emigrated to the Pustertal in the Middle Ages and brought their cattle with them. They were considered to be the best cattle breed of the imperial and royal monarchy. For decades, the best cows were sold to dairy farms in Vienna. The term 'Vienna

Cow' arose from this trade. This cow was a large-framed black or red Pusteria female, pregnant with the second or third calf. The continuous sale of the best animals finally resulted in the breed's decline. In the 1950s, dedicated breeders undertook efforts to save the breed despite its very narrow genetical basis. There was no official herdbook which would have facilitated conservation efforts, however. Pusteria cattle were gradually replaced by Brown Highland cattle / Bruna Alpine. The herdbook is today kept by the South Tyrol Red Pied Breeding Association. The genetic basis, however, is very narrow with fewer than 100 animals. An additional problem is the increasing crossbreeding with Vosges cattle. In the 1960s, the breed was also crossbred with Pinzgau cattle. Only a limited number of purebred animals still exists.

In Germany, there are 123 animals (status: 2000). In Austria, there have been Pusteria since 1998 and 30 animals were counted in 2000.

Distribution:

Region: Alto Adige, Site: mountain area of the Pustertal, community of S. Lorenzo

Initiatives:

- This breed is listed in the register for rare autochthonous cattle breeds of the AIA and therefore receives government support.
- Conservation breeding is handled by the South Tyrol Red Pied Breeding Association. Semen of 2 bulls is cryoconserved. It is also conducting DNA tests. A milk performance test has to date only been carried out for individual animals.
- SAVE Foundation, the European umbrella organisation, coordinates the conservation efforts in the involved countries as the breed is distributed across borders.
- The conservation of the breed is financially supported through EU regulation 2078/92 (new 1257/99).
- Since 1998, an exchange of animals from Germany has taken place.

Contacts:

- South Tyrol Red Pied Breeding Association, Markthalle 1, 39030 St. Lorenzen
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- Dr. Stefan-Martin Niederfriniger, Thumenweg 75, 39040 Wiesen/Pfitsch
- Austria: VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92
- Germany: Coordinator of the GEH – Society for the Conservation of endangered Livestock Breeds: Eva Schwaab, Rheinstrasse 62, 65185 Wiesbaden, Tel: 0049-611/33 31 37
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049/7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 99 black and 29 red cows, 24 black and 4 red bulls

Development trend: increasing

Assessment: critical

Need for action: There is great need for action! At present, various bodies are involved in conservation work.

Tarina

Synonym: Savoiarda, Tarantaise

Background: This small-framed breed with short and strong legs developed from the breed Tarentaise in France. In 1888, the first herdbook was produced in Italy, but without success. In 1949, another herdbook was started. Tarina cattle are probably also found in France.

Distribution:

Region: Piedmont, Site: Province of Torino (Val. Susse e Chisone).

Initiatives:

- This breed is listed in the AIA register for rare autochthonous cattle breeds and should thus receive with governmental support. AIA, however, seems not to know of any existing animals.

Contacts:

- APA Torino, Via Valeggio, 22c, 10128 Torino, Präsident: Sig. G. Verderone, Tel: 0039-11/59 70 76, Fax: 0039-11/568 40 14, E-Mail: apa.to@mbox.sicap.it
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

Stock:

1993: 6 animals in Val Pellice

1960: 12,500 animals in the overall population

Assessment: extinct?

Need for action:

There is an acute need for action! AIA is at present not able to provide current stock numbers. The breed is probably extinct in Italy. It is therefore urgent that a search should be conducted in France.

11.1.5. Autochthone cattle breeds registered with a national breeding organisation

Grigia Alpina/ Grey Alpine

Synonym: Bigia alpina, Grauvieh, South Tyrol Grey

Background: The breed Grey Alpine is particularly well adapted to the mountains and is good at finding forage. It is therefore highly suitable for mountain grazing and can also use marginal areas well. It shows a relatively high resistance to diseases, is long-lived and fertile. There has been a herdbook since 1949. Female animals are 100% purebred. Populations of the breed also exist in Austria, Switzerland, the Balkans and former Yugoslavia (crossbreeds with local breeds).

Since 1985, the Grey Alpine has been officially recognised as a breed and therefore benefits from governmental support.

Grey Alpine cattle are also bred in Tyrol (2000: 3870 cows in the herdbook) and in Switzerland (2000: 1349 cows in the herdbook).

Stock:

2000: 3870 cows and 42 bulls in the herdbook

Distribution:

Region: mountain area of the Trentino-Alto Adige

Initiatives:

- Grey Alpine is under the supervision of ANABoRa Grigia Alpina.
- Semen of 100 bulls is cryoconserved.

Contacts:

- ANABoRa Grigia Alpina, Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen, Präsident. Sig. J. Weissensteiner, Tel: 0039-471/97 64 78, Fax: 0039-471/97 38 43, E-Mail: grigio_alpina@dnet.it
- Tyrol: Tiroler Grauvieh Zuchtverband, Brixner-Strasse 1, A - 6020 Innsbruck, Tel: 0043-512/57 30 94, Fax: 0043-512/58 02 16, E-Mail: grauvieh@lk-tirol.at
- Switzerland: GdG - Genossenschaft der Grauviehzüchter, Ruedi Gmür, Höhe Gätziberg, 9450 Altstätten, Tel: 0041-71/755 45 51, Fax: 0041-71/755 68 73

Stock:

1993: 14,269 animals in the herdbook

1991: 50,000 animals in the overall population (14,412 pedigree animals, including 7930 cows and 67 bulls)

Development trend: stable

Assessment: not endangered

Need for action:

Support is guaranteed through the governmental approval of the herdbook and the activities of national breeding associations.

Pezzata Rossa d'Oropa

Synonyms: Oropa, Razzetta d'Oropa, Pezzata Rossa Oropa

Background: This breed originated from crossbreeding Valdostana cattle with Piedmontese. The herdbook has existed since 1964. It is kept by ANAPRO. Since 1950, the breed has been crossbred with Simmental cattle. Today, 2 genetic main lines can be distinguished in performance breeding: one with Simmental blood, the other with Abondance (French Breed) blood.

Distribution:

Region: Piedmont, site: Vercelli, Oropa and Biella (Valley of dell'Elvo and del Cervo)

Initiatives:

- This breed is listed in the register of rare autochthonous cattle breeds of the AIA and thus receives governmental support. The AIA also supports the improvement of milk characteristics and calculates the genetic index for the features milk, fat and proteins. Programs to improve breeding performance as well as to support pure breeding were started in 1989.
- Semen of 7 bulls are cryoconserved.
- The cheese Toma Piedmontese has a better quality when produced from the milk of the breed 'Pezzata Rossa d'Oropa'. To support the cheese and the conservation of the breed, a type of unofficial cooperation exists.
- The conservation of the breed is financially supported through EU regulation 2078/92 (new 1257/99).

Contacts:

- Associazione Nazionale Allevatori Bovini Razza Pezzata Rossa d'Oropa - ANAPRO, Ufficio del Libro Genealogico, Via Romeo Battistig, 28, 33100 Udine
- APA Vercelli-Biella, V. Viotti, 24, 13100 Vercelli, Präsident: Dr.R. dell'Olmo, Tel/Fax: 0039-161/25 75 60, E-Mail: erraffo@tin.it
- Istituto per la Difesa e la Valorizzazione del Germoplasma Animale, Via Celoria 10, 20133 Milano
- AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

Stock:

1999: 4664 animals in the herdbook, including 2365 cows and 142 bulls, kept by 148 breeders

1993: 4824 animals in the herdbook, including 2339 cows and 139 bulls, kept by 139 breeders

Development trend: stable

Assessment: vulnerable

Need for action:

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. has shown that the breed Pezzata Rossa d'Oropa has a geographical, cultural, historical or productive relationship to the following cheese types besides the cheese Toma Piedmontese: Gorgonzola, Grana Padano, Toma Valle Cervo, Toma Valle Elvo, Toma Valle Mosso, Toma Val Sesia and Toma Val Sessera. The creation of a sublabel of those cheese types explicitly produced from Pezzata Rossa d'Oropa cattle milk would contribute considerably to the protection of this breed.

There is still need for action but this is to a large extent taken care of by breeders organisations.

Piedmontese/Piedmontese

Synonyms: Piedmont

Background:

The breed Piedmontese is today considered to be one of the main Italian meat breeds. Since 1975, the breed has only been selected with regard to meat production. The milk, however, is also used for cheese production. It would be desirable that selection considers both milk and meat production again. The first herdbook was opened in 1887, but already closed in 1891. In 1958, herdbook breeding started again. Today, the breed is subject to pedigree breeding. Besides Italy, the breed is also kept in Brazil, Argentina, Canada, USA and the Netherlands. In Alba and Cuneo, the double-muscled variety Albese is bred.

Distribution:

Regions: Piedmont, Liguria

Initiatives:

- Piedmontese cattle are kept by ANABoRaPi
- Cryoconservation of semen and embryos (at the University of Torino).
- The organisation Slow Food supports the promotion of products of the breed.

Contacts:

- ANABoRaPi, Strada Provinciale Trinità 32/A Fraz. Ronchil, 12061 Carrù (CN), Präsident: Dr. A. Pistone, Tel: 0039-173/75 07 91, Fax: 0039-173/75 09 15, anaborapi@areacom.it
- COALVI - Consorzio allevatori vitelli per la produzione carni garantite di razza Piedmontese e dei suoi incroci, Sede legale, Viale Industira, 4, 12042 Bra, Tel: 0039-172/412 80, Fax: 0039-171/427 65, E-Mail: coalvi@ape.apenet.it
- Dipartimento di Scienze Zootecniche Università Torino, Prof. Liliana di Stasio, Via Genova, 6, 10126 Torino
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1997: 104,585 animals in the herdbook, including 50,265 cows and 978 bulls

1992: 7966 animals in the herdbook (180,000 animals in the overall population)

Development trend: increasing

Assessment: not endangered

Need for action:

There is no need for action.

Rendena

Synonym: Brina di Val di Rendena

Background: The breed Rendena originated during the last century from local breeds from the Provinces of Trento, Varese, Vicenza and Padova by crossbreeding with Brown Highland cattle. Rendena cattle are small-framed. They are similar to the Brown Highland, but darker in colour. In the Middle of the last century, Rendena cattle stock numbers decreased massively, especially as the breed was not officially recognised in 1963. In 1982, however, the breed was approved thanks to very active breeding associations. The strong breeding orientation towards an increased milk yield led to a larger body frame. Since 1982, the herdbook has been kept by ANARaRe. Since 1950, the breed has crossbred with Italian Brown Highland. Today, 50% of the animals are purebred.

Distribution:

Regions: Venetia, Trentino, Liguria; sites: Padova, Vicenza, Trento

Initiatives:

- ANARaRe is active in the conservation of the breed Rendena.

- The conservation of the breed is supported through EU-regulation 2078/92(new: 1257/99).
- The organisation Slow Food supports the marketing of the breed.

Contacts:

- ANA Razza Rendena, Federazione Allevatori di Trento, Via Lavisotto, 125, 38100 Trento, Präsident: Sig. G. B. Polla, Tel: 0039-461/82 60 50, Fax: 0039-461/82 90 50, E-Mail: rendena@tin.it
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1999: 8693 animals in the overall population.

1991: 13,000 animals in the overall population, including 10,500 cows (7000 animals in the herdbook)

Development trend: decreasing

Assessment: rare

Need for action:

Because of the decreasing population development, need for action exists. Conservation is handled by ANARaRe.

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. has shown that the breed Pezzata Rossa d'Oropa has a geographical, cultural, historical or productive relationship to the following cheese types: Asiago, Grana Padano Trentino and Sprezza. The creation of a sublabel for these cheese types explicitly produced from Rendena cattle milk would contribute considerably to the protection of this breed. Via product promotion, the breed could be directly supported.

Valdostana Castana/ Aosta Chestnut

Synonyms: Valdôtaine châtaigne, Châtaignée, Pezzata castana valdostana, Castana

Background: The breed is today mainly kept because of the traditional cow fights 'Batailles de Reines'. It is optimally adapted to mountain regions. Since 1950, fighting characteristics have been improved by crossbreeding with Herens cattle from Switzerland. A herdbook has been kept since 1983. The animals imported from Switzerland are not recorded in the herdbook, but their offspring is.

The designation 'Neire' is used for both Aosta Black Pied and Aosta Chestnut.

Distribution:

Region: Aosta Valley

Initiatives:

- AREV is very interested in this breed and controls its breeding.
- Cryoconserved semen is available.

Contacts:

- AREV, P.za Arco d'Augusto, 11100 Aosta, Tel: 0039-165/345 10, Fax: 0039-165/36 12 63
- FERBA, Federation Européenne des races bovines du système alpin, c/o A.N.A.Bo.Ra.Va., Fraz. Favret, 3, 11020 Gressan (AO), Tel: 0039-165/25 10 09
- Les Amis des Batailles de Reines, Corso Ivrea, 107, 11100 Aosta
- ANA Bovini Razza Valdostana, Fraz. Favret, 3, 11020 Gressan, Präsident: Dr. A. Chatel, Tel: 0039-165/25 09 84, Fax: 0039-165/25 10 09, E-Mail: anaborava@netvallee.it

Stock:

1998: 10,650 animals in the overall population.

1992: 5108 animals in the overall population (4800 cows in the herdbook)

Development trend: Increasing

Assessment: Rare

Need for action:

Need for action is covered by AREV.

Valdostana Pezzata Nera/ Aosta Black Pied

Synonyms:, Valdôtaine pie-noire, Valdôtaine Pie Noire

Background: A herdbook for the breed has been kept since 1937. After 1940, the breed was partially crossbred with Aosta Chestnut.

The designation 'Neire' is used for both Aosta Black Pied and Aosta Chestnut.

The milk from both Aosta Black Pied and Aosta Red Pied is used to produce Fontina cheese.

Distribution:

Region: Aosta, site: Valpelline, St. Barthélemy, Ollomont, Dora Baltea

Initiatives:

- The population of Aosta Black Pied could be stabilised thanks to AREV.
- The conservation of this breed is supported through EU-regulation 2087/92 (new: 1257/99).
- Cryoconserved semen is available.

Contacts:

- AREV, P.za Arco d'Augusto, 11100 Aosta, Tel: 0039-165/345 10, Fax: 0039-165/36 12 63
- Fed. Razze Bovine d. Sistema Alpino, c/o A.N.A.Bo.Ra.Va., Fraz. Favret, 3, 11020 Gressan (AO)
- ANA Bovini Razza Valdostana, Fraz. Favret, 3, 11020 Gressan, Präsidnet: Dr. A. Chatel, Tel: 0039-165/25 09 84, Fax: 0039-165/25 10 09, E-Mail: anaborava@netvallee.it
- For Fontina cheese: Consorzio Produttori Fontina, Piazza Arco d'Augusto, 10, 11199 Aosta, Tel: 0039-165/440 91

Stock:

1998: Population: 3330 (this is equivalent to 8.5% of the entire cattle population in the Aosta valley)

1992: Population: 2200

Development trend: increasing

Assessment: vulnerable

Need for action:

Need for action still exists, but is, however, to a large extent handled by AREV.

The study 'Valorizzazione economica delle Razze locali: Il contributo dei prodotti caseari tipici' by G. Gandini et al. has shown that the breed Aosta Black Pied has a geographical, cultural, historical or productive relationship to the following cheese types: Fontina and Fromadzo. The creation of a sublabel for those cheese types explicitly produced from Aosta Black Pied cattle milk would contribute considerably to the protection of this breed. Via product promotion, the breed could be directly supported.

Valdostana Pezzata Rossa/ Aosta Red Pied

Synonyms:, Valdôtaine pie-rouge

Background: The breed Aosta Black Pied is optimally adapted to mountain regions. Today, 98% of females are purebred. The standard for the breed was defined in 1937 by the ministry responsible for agriculture. A herdbook has existed since 1958. The milk from both Aosta Black Pied and Aosta Red Pied is used to produce Fontina cheese.

Distribution:

Regions: Aosta Valley, Liguria, Piedmont; sites: Turin, Verceil, Cuneo, Imperia

Initiatives:

- The breed is taken care of by AREV.
- Cryoconserved semen is available.

Contacts:

- AREV, P.za Arco d'Augusto, 11100 Aosta, Tel: 0039-165/345 10, Fax: 0039-165/36 12 63
- FERBA, Federation Européenne des races bovines du système alpin, c/o A.N.A.Bo.Ra.Va., Fraz. Favret, 3, 11020 Gressan (AO)
- ANA Bovini Razza Valdostana, Fraz. Favret, 3, 11020 Gressan, Präsidnet: Dr. A. Chatel, Tel: 0039-165/25 09 84, Fax: 0039-165/25 10 09, E-Mail: anaborava@netvallee.it
- For Fontina cheese:: Consorzio Produttori Fontina, Piazza Arco d'Augusto, 10, 11199 Aosta, Tel: 0039-165/440 91

Stock:

1998: 24,000 herdbook animals (70,000 animals in the entire population kept by 2500 breeders. Of these 20,500 animals are kept in the Aosta Valley and 37,000 in the Piedmont, the remaining stock is kept in Liguria and central Italy).

Development trend: decreasing

Assessment: not endangered.

Need for action:

There is no need for action.

11.1.6. High-performance breeds in the Italian Alpine region

In the following, performance breeds occurring in Italy are listed. For each of these breeds, there is an Associazione Nazionale Allevatori (national breeding association) which is also responsible for keeping the herdbooks.

Bruna Alpina/ Brown Mountain

Synonyms: Bruna, Italian Brown, Brown Swiss, Brunax, Svitto

Distribution: This breed has its main area of distribution in Switzerland. It is also strongly represented in Italy and Austria. The names Frati and Preti are used for crossbreeds of Brown Mountain cattle and Friesian cattle.

Herdbook: since 1994, kept by ANABoRaBru

Stock 1993: 764,994 animals in the overall population.

Address:

ANABoRaBru - Associazione Nazionale Allevatori Bovini Razza Bruna, Loc. Ferlina 204, 37012 Bussolengo (VR), Tel: 0039-45/676 01 11, Telefax: 0039-45/715 66 55, E-Mail: anarb@anarb.it, Director/Predident: Dr. V. Mutti, Dr. G. Perotti

Frisona/ Friesian

Synonyms: Pezzata Nera, Holstein

Distribution: Today, the breed is distributed all over the world. Its main area of distribution is the Netherlands.

Herdbook: Established in 1952, it is today kept by ANABoRaFri Italiana

Stock 1993: More than 1.5 million herdbook animals

Addresses:

- 1) ANABoRaFri Italiana – Associazione Nazionale Allevatori Bovini Razza Frisona Italiana, Via Bergamo, 292, Loc. Miglioro, 26100 Cremona, Tel: 0039-372/47 42 15, Fax: 0039-372/47 42 03, President: G. Lanari
- 2) ANABoRaFri Italiana, Via Simone de Saint Bon, 61, 00195 Roma, Fax: 0039-6/372 44 19, E-Mail: anafi@anafi.it, President: G. Lanari

Pezzata Rossa Italiana/ Italian Red Pied

Synonyms: Friuli-Simmenthal, Friuli-Symmenthal, Pezzata Rossa Friulana

Distribution: Switzerland, Austria and Germany are the main distribution area today. The breed is, however, spread world-wide.

Herdbook: since 1964, it is today kept by ANABoRaPe Rossa Italiana.

Stock 1993: 360,000 animals in the overall population and 79,821 animals in the herdbook

Address:

ANABoRaPe Rossa Italiana - Associazione Nazionale Allevatori Razza Pezzata Rossa Italiana, Via Ippolito Nievo, 19, 33100 Udine, Tel: 0039-432/51 01 87, Fax: 0039-432/261 37, E-Mail: anapri@anapri.it, Präsident: P.A.V. Zanuttini

Jersey Italiana

Address:

ANA Jersey Italiana, Via dell'Edilizia, 85100 Potenza, Tel: 0039-971/47 00 00, Fax: 0039-971/47 04 05, Präsident: Dr. Di Ciommo

Charolais

Addresses:

- 1) Associazione Nazionale Allevatori delle Razze Charolais e Limousine, Via Tomassetti, 9, 00161 Roma, Tel: 0039-523/57 95 86, Fax: 0039-523/59 70 43
- 2) For correspondence: c/o APA Piacenza, Via C. Colombo, 33, 29100 Piacenza, Tel/Fax: 0039-523/57 95 86

Limousine

Addresses:

- 1) Associazione Nazionale Allevatori delle Razze Charolais e Limousine, Via Tomassetti, 9, 00161 Roma, Tel: 0039-523/57 95 86, Fax: 0039-523/59 70 43
- 2) For correspondence: c/o APA Piacenza, Via C. Colombo, 33, 29100 Piacenza, Tel/Fax: 0039-523/57 95 86

11.2. Sheep and goats

11.2.1. Confusion concerning goat and sheep breeds

Many Italian goat and sheep breeds cannot be assigned to a particular breed. They are, however, divided up into so-called local types. These are often named according to their area of origin. According to ASSONAPA, they often cannot be distinguished clearly enough to be defined as individual breeds. In Italy, barely any efforts have been made to breed the different types in distinguishable breeds and to define a standard for them. The confusing abundance of local types is a problem when trying to establish clear lists of Italian goat populations. Varying information is supplied depending on who is asked. This shows that in Italy, too, considerable confusion exists in this area.

11.2.2. Governmental tasks in goat and sheep breeding

Tasks of ASSONAPA - Associazione Nazionale della Pastorizia- in the area of goat and sheep breeding:

The ASSONAPA fulfills by order of the MIPAAF the following tasks:

- Morphological and functional improvement of the officially recognised Italian goat and sheep breeds.
- Keeping the herdbooks of these breeds.
- Coordination of scientific and technical studies (tecnico-scientifico)

The register for autochthonous goat and sheep populations ('registro anagrafico delle popolazioni ovine e caprine autoctone a limitata diffusione') is today administered by the ASSONAPA. This register serves to conserve and protect the listed populations. Young animals, as well as males and females integrated in the reproduction process which comply with the standards, are listed. The activities are coordinated by the 'Uffici delle popolazioni ovine e caprine a limitata diffusione' of the respective region and autonomous Provinces. These offices are obliged to send quarterly the current stock numbers quarterly to the National Focal Point Italiano of the FAO. At the time of the creation of the register in 1997, 33 goat and 34 sheep populations were registered for Italy. The most recent version dating from April 2001 includes only 13 goat and 20 sheep populations! Information on the breeds contained in the register may be taken from the portraits of the individual breeds.

General address ASSONAPA:

ASSONAPA, Contacts: Dott. Nazzarri, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30, E-Mail: info@assonapa.it, direzione@assonapa.it, amministrazione@assonapa.it, URL: <http://www.assonapa.it>

Adresse Ufficio Centrale Libro genealogico ovino e caprino della ASSONAPA:

Registri Anagrafici delle popolazioni ovine e caprine autoctone a limitata diffusione, Dr. Salvatore Schembri, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30, E-Mail: : libgen@assonapa.it, info@assonapa.it, URL: <http://www.assonapa.it>

Task of APA – Associazione Provinciale Allevatori –is goat and sheep breeding:

The respective APAs - Associazioni Provinciali Allevatori are responsible for the coordination of the individual Provinces where the breeds occur. The tasks of AIA in the area of sheep and goat breeding are to control milk and meat production and publish the results for individual breeds and Provinces quarterly.

Address: AIA, Via G. Tomassetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

CNR (Consiglio Nazionale delle Ricerche):

Within the framework of the program 'Protection of genetic resources of livestock', the CNR (National Research Council) and the AIA (Italian umbrella organisation for all animal breeding associations) conducted an inventory of livestock breeds in Italy during the years 1976-82. The results of this survey were published in a distribution atlas of Italian sheep and goat breeds (Atlante Etnografico). Today, CeSGAVE and AIA cooperate. Together, they elaborate programs for the conservation of genetic diversity.

Address: IDVGA-CNR – Istituto per la Difesa e la valorizzazione del germoplasma animale, Facoltà di Medicina Veterinaria, Università Milano, Via Celoria, 10, 20133 Milano, Tel: 0039-2/26 68 03

11.2.3. Sheep: Overview

In the following table, endangered sheep breeds and populations from the Alpine region are listed. Extinct breeds are not included. Listing follows the risk status and is alphabetical within a risk category.

Breed	Stock (most recent)**	Risk status	Trend	Initiatives*
Ciavenasca	?	Extinct?	?	-
Bellunese	130f/m OP (2000)	Critical	↑	+
Brianzola	150f/m OP (2001)	Critical	↑	++
Garessina	80f/m OP (1998)	Critical	→	+
Plezzana/Bovec	40-50f/m OP (2000)	Critical	?	+

Rosset	Few animals (1998)	Critical	?	+
Saltasassi	3? f/m OP (1998)	Critical	↓	(+)
Savoirda	65f/m OP (1998)	Critical	→	+
Steinschaf	40f/m OP (1993)	Critical	?	-
Alpagota	1400f/m OP (1998)	Endangered	→	+
Brogna	1200f/m OP (2000)	Endangered	↓	+
Corteno	500f/m OP (2000)	Endangered	↓	+
Istrian/Istrian Milk	300f/m OP (2000)	Endangered	↑	+
Lamon/Lamonese	<400f/m OP (2000)	Endangered	↓	+
Pusterese	250f/m OP (1998)	Endangered	↓	-
Tacola	633f/m HB (1998)	Endangered	↑	++
Sampeirina/Sampeyrina	<500f/m OP (1998)	Endangered	→	-
Val d'Ultimo	970f/m HB (1998)	Endangered	↑	++
Villnösser	900f/m HB (2000)	Endangered	↑	++
Bretegana	<4000f/m OP (1996)	Vulnerable	→	+
Finarda	4500f/m OP (1994)	Vulnerable	→	-
Frabosana	6700f/m OP (1998)	Vulnerable	↑	++
Sambucana	4250f/m HB 2000	Vulnerable	↑	++
Varesina	>1000f/m OP (1998)	Vulnerable	→	-

* ++ (existing, with success), + (existing), - (non-existent)

** f = female animals, m = male animals, HB = herdbook, OP = Overall population

11.2.4. Extinct Italian sheep breeds/ types/ populations

In the frame of this study, 9 breeds, populations or varieties were found to be extinct!

Cadorina (Synonym: Del Cadore)

This breed was formerly distributed in the Veneto Region (Cadore, Belluno), but disappeared after crossbreeding with Lamon and other breeds.

Carnica

The breed Carnica was last mentioned in 1976.

Cinta

Cinta sheep from the Alpine region are today considered to be extinct. They were last mentioned in 1976.

Ciuta

Ciuta sheep were relatively small (42 – 47cm, 32-37kg) straw-blond animals. They were mainly kept in Lombardy (Val Masino in the Province of Sondrio) for meat production. Both sexes were horned and had small horizontal ears. In 1979, a stock of approx. 100 animals was last reported to be seen. In 1983, Ciuta sheep were already considered to be extinct.

Friulana (Synonyms: Furlana, Pecora del Friuli)

Friulana sheep were considered to belong to the group of Alpine sheep, and to have descended from Lamonese sheep. Occasionally, crossbreeding with Padovane, German and Carso line rams took place. The hornless medium-sized animals (65-75cm, 52-62kg) with drooping ears were mainly bred for meat production. The main distribution area was in the Friuli Venezia-Giulia Region (Carnian Alps, valleys of Cellina and Meduna, river valleys Pella and Natisone as well as on both sides of the Tagliamento). Last stock numbers were recorded in the year 1960 (10,000 animals). In 1971, the Friulana sheep was said to be extinct.

Livo

The Livo sheep (67-72cm, 52-70kg) was formerly distributed in the Lombardy Region around Como and in the Livo valley. This straw-blond hornless breed still consisted of 500 animals in 1979. Since 1994, it has been considered extinct.

Noventana (Synonyms: di Monselice, Monselesana)

Noventana sheep originated from Padovana sheep. They were formerly distributed in Noventana and Monselice. Since the beginning of the 1970s, they have been considered to be extinct.

Padovana (Synonym: Paduan)

The Padovana sheep originated from Lamon sheep by crossbreeding with the Carinthian sheep (Austria) and Solcava (northern Slovenia). Since the beginning of the 1970s, they have been considered to be extinct.

Vicentina (Synonyms: Vicentina di Foza, Vicentina Fodata)

Vicentina sheep (70-77cm, 52-72kg) were a type of Lamon sheep. They were last mentioned in 1979 with a stock of 100 animals. Since 1983, they have been considered to be extinct because no purebred animals have been found any more. This breed was formerly distributed in Veneto (Asiago, Fossat, Province of Veneto). Typical for Vicentina sheep were the irregular dark-brown spots on the head and an otherwise white fur.

11.2.5. Officially recognised sheep breeds

The following breeds are officially recognised. ASSONAPA is responsible for keeping the herdbook.

Address: ASSONAPA – Associazione Nazionale della Pastorizia, Contacts: Dott. Nazzari, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30

Bergamasca/Bergamasque

Synonyms: Bergamacia, Bergamasker, Gigante di Bergamo

Distribution:

Alps and Apennines and the regions of: Lombardy (Bergamo, Clusone, Alp valleys), Veneto, Marches, Abruzzi

Initiatives:

- The local breeding organisation of Bergamo has been pressing for the distribution of the Bergamasca sheep for a long time.

Contacts:

- APA Bergamo, Via Aldo Moro, 9, 24050 Zanica (BG), Tel: 0039-35/67 05 36, Fax: 0039-35/21 63 79, E-Mail: claudio.caggioni@allevatoribg.inet.it

Stock:

1999: 60,000 herdbook animals

1991: 30,000 ewes and 215 rams in the overall population.

Development trend: increasing

Assessment: not endangered

Need for action:

There is no need for action.

Biellese

Synonyms: Biellese-Bergamasca, Ivrea, Nostrale, Bielles, Piemontese Alpina, Locale, Nostrana, Vercelli

Background: Biellese sheep are composed of two types: Biellese Vercelli and Biellese Piemontese alpina. They belong to the Alpine sheep. In 1988, Luca Tempia published the

paper 'La Pecora ,Biellese' nel Biellese' for the 'Comunità montana bassa valle cervo e valle oropa'.

Distribution:

Region: Piedmont, Lombardy; site: Biella

Initiatives:

- A tourist path is at present being established along the migration path (le vie della transumanza) of Biellese sheep by the WWF Piedmont. Along the path are information boards on Biellese sheep.
- The LIFE project of the EU for the protection of the large Alpine carnivores (wolves, bears, lynxes) has recently replaced sheep killed by carnivores with Biellese sheep.

Contacts:

- Consorzio V. Vezzani, Fraz. Richardet, 63, 10050 Sauze d'Oulx (TO)
- APA Vercelli Biella, V. Viotti, 24, 13100 Vercelli
- APA Torino, Via Valeggio, 22/b, 10100 Torino
- APA Cuneo, Via Torre Roa, Fraz. Madonna dell'Olmo, 12100 Cuneo
- Comunità Montana bassa valle cervo e valle oropa
- WWF Sezione Regionale Piemonte e Valle d'Aosta, Riccardo Fortina, Via Peyron 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/437 39 44, E-Mail: mc1750@mcLink.it, fortina.wwf@libero.it

Stock:

1999: 30,000 herdbook animals

1995: 40,000 herdbook animals

Development trend: decreasing

Assessment: not endangered

Need for action:

There is no need for action.

Langhe

Synonyms: Della Langa, Delle Langhe

Distribution:

Region: Piedmont, sites: Province of Cuneo, Asti, Savona

Initiatives:

- At the University of Torino, some sheep breeds are at present being studied with regard to the quality of their products (amongst others the Langhe sheep).
- Since 1993, there has been a project to improve breeds genetically (BLUP-ANIMAL MODEL), coordinated by ASSONAPA.
- In the Piedmont Region, Murazzano chesse is produced from Langhe sheep milk and from cow milk (at most 60%). The cheese has received the DOP seal.
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Cuneo, Via Torre Roa Fraz. Madonna dell'Olmo, 12020 Cuneo, Tel: 0039-171/41 08 00, Fax: 0039-171/41 38 63, E-Mail: apa@multiwire.net
- COZOAL, Regione Cervera, Murazzano (CN)
- Murazzano cheese: Cons. di tutela comunità montana alta langa, Via Umberto I, 1, 12060 Bossolasco (CN), Tel: 0039-173/79 90 00
- Facoltà di Agraria – Dipartimento di Scienze Zootecniche, Università di Torino, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/670 85 75, Fax: 0039-11/670 85 63
- Slow Food, Via delle Madicita, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@SlowFood.it

Stock:

1999: 15,000 herdbook animals

1995: 27,000 herdbook animals

Development trend: decreasing sharply!

Assessment: not endangered

Need for action only with regard to the development of stocks, which have to be monitored.

Merinizzata Italiana

Background: The breed Merinizzata Italiana is descended from Merino sheep. It originated by crossbreeding Merino sheep with the breeds Gentile di Puglia and Sopravissana. The breed was given official recognition in 1995.

Distribution:

The whole of Italy

Stock:

1999: 600,000 herdbook animals

Development trend: stable

Assessment: not endangered

Need for action: None

11.2.6. Sheep breeds and types in the register for endangered livestock breeds

The register is managed by ASSONAPA.

Address ASSONAPA:

Ufficio Centrale Libro genealogico ovino e caprino della ASSONAPA, Registri Anagrafici delle popolazioni ovine e caprine autoctone a limitata diffusione, Dr. Salvatore Schembri, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30, E-Mail: libgen@assonapa.it, info@assonapa.it, URL: <http://www.assonapa.it>

Alpagota

Synonyms: Pagota

Background: The breed Alpagiota is well adapted to hilly and mountainous regions. The former triple-purpose sheep has probably the same origin as the breeds Lamon and Istriana/Istrian milk. A herdbook exists and is kept by ESAV. Scientific investigations are being conducted by the University of Torino.

Distribution:

Italian Alpine region, site: Chies, Farra, Pieve, Puos, Tambre, Province of Belluno (Alpago high plateau) and Treviso

Initiatives:

- ESAV and the Comunità Montana dell'Alpagota are active in the conservation of this breed.
- The breed is listed in the national register (April 2001) of ASSONAPA for endangered goat and sheep populations. Responsible for data recording is APA Belluno.
- Animals of this breed are conserved at the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione).
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products of this breed.

Contacts:

- Ente di Sviluppo Agricolo del Veneto, Via S. Croce, 1187, 30125 Venezia
- APA Belluno, 32025 Mas di Sedico, Tel: 0039-437/878 27, Fax: 0039-437/877 76
- Dr. Emilio Pastore, Dip. di scienze zootecniche, Facoltà di Agraria, Università di Padova, Agropolis, 35020 Legnaro, Tel: 0039-49/827 26 46, E-Mail: emilio.pastore@unipd.it

- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2000: <1400 animals in the overall population

1990: 1165 animals in the herdbook

Development trend: stable

Assessment: endangered

Need for action:

There is need for action, but several institutions are active.

Bellunese

Background: The population of Bellunese is very heterogenous. In the 1980s, it was bred without selection criteria. The bellunese sheep was kept especially in the valley plains and for the cultivation of river and channel dikes. The breed derives presumably from Alpagota and Lamon sheep.

Distribution:

Italian Alps, site: Province of Treviso (Mansuè) and Veneto.

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthone goat and sheep populations. APA Belluno is responsible for data recording.

Contacts:

- APA Belluno, 32025 Mas di Sedico, Tel: 0039-437/878 27, Fax: 0039-437/877 76

Stock:

2000: approx. 130 animals in the overall population (ASSONAPA)

1994: 20 animals in the overall population

Development trend: increasing

Assessment: critical

Need for action:

There is great need for action and what is done is not sufficient.

Brentegana

Synonyms: Brentegana veronese

Distribution:

Region: Veneto, site: Affi, Caprino, Monte Baldo

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthone goat and sheep populations. APA Verona is responsible for data recording.

Contacts:

- APA Verona, Via Belgio, 10, 37135 Verona, Tel: 0039-45/82 00 16 30

Stock:

1996: <4000 animals in the overall population

1991: 3000 ewes in the overall population

Development trend: stable

Assessment: vulnerable

Need for action:

There is need for action, especially with regard to breeding, but this is partially handled.

Brojna

Synonyms: Brognola, Projna, Testa rossa, Rossa a vis

Background: The Brogne sheep is related to the Lamon and Bergamasca sheep. It is threatened to be slowly replaced by the Bergamasca sheep. The University of Torino examines the breed scientifically.

Distribution:

Region: Veneto, site: Verona (Val d'Illasi), Breonio, Tregnago, Mezzanedi Sotto, Illasi, Roverè Veronese, Selva di Progno e Grezzana

Initiatives:

- This breed is listed in the national ASSONAPA register (state: April 2001) for endangered autochthonic goat and sheep populations. APA Verona is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- APA Verona, Via Belgio, 10, 37135 Verona, Tel: 0039-45/82 00 16 30
- Dr. Emilio Pastore, Dip. di scienze zootecniche, Facoltà di Agraria, Università di Padova, Agropolis, 35020 Legnaro, Tel: 0039-49/827 26 46, E-Mail: emilio.pastore@unipd.it
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino

Stock:

2000: approx. 1200 animals in the overall population

1994: 4500 ewes in the overall population

Development trend: decreasing

Assessment: endangered

Need for action:

There is still need for action. It is partially handled by various parties.

Corteno

Synonyms: Di Corteno, Pecora di Corteno, Dicorteno

Distribution:

Region: Lombardy (Province of Brescia), site: Valle di Corteno, Golgi, Edolo, Malonno, Paisco Lovenio (all belong to the Comunità Montana di Valle Camonica (BS))

Initiatives:

- The APA Brescia is active in the conservation of Corteno sheep.
- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Brescia is responsible for data recording.
- At the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione) animals of this breed are conserved.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- APA Brescia, Via Dalmazia, 27, 25125 Brescia, Tel: 0039-30/242 23 86, Fax: 0039-30/242 23 98, E-Mail: apabrescia1.alle@numerica.it
- Dr. Luigi Andrea Brambilla, Consiglio Direttivo Associazione Allevatori per la tutela e la Valorizzazione della Capra Bionda, Via P. Finzi, 15, 20126 Milano, E-Mail: zooagri@imiucca.csi.unimi.to, luigi.brambi@tin.it
- Dr. Lorenzo Noè, AGER – Agricoltura e Ricerca, Soc. Coop a.R.L., Via Druso, 10, 20133 Milano, E-Mail: luni.noe@tiscalinet.it
- Prof. Michele Corti, Ist. di Zootechnia Generale, Via Celoria 2, 20129 Milano, Tel: 0039-2/58 35 64 44, E-Mail: michele.corti@unimi.it
- L. Passero, AGER – Agricoltura e Ricerca s.c.r.l., Via Druso, 10, 20133 Milano

- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello

Stock:

2000: 500 animals in the overall population, 276 ewes and 20 rams are registered in the herdbook.

1991: 2000 ewes in the overall population

Development trend: decreasing

Assessment: endangered

Need for action:

Need for action exists, especially with regard to breeding. Conservation measures are being implemented. Stock numbers decreased dramatically in the 1990s. They urgently need monitoring. Thanks to a touristic development of the Val di Corteno, lambs from this breed can be marketed well as a raw product for the preparation of the local speciality 'Cus'.

Frabosana

Synonyms: Rastela, Roaschina, Roaseia, Frabosana, Roascia

Distribution:

Region: Piedmont, Liguria (Alpine region); Province of Cuneo: Val Corsaglia, Valli Mongeralesi, Valle Gesso, Vermenagna, Pesio; Province of Torino: Val Pellice; Province of Imperia; Asti; Alessandria

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthone goat and sheep populations. APA Cuneo and Alessandria is responsible for data recording.
- At the University Torino, some sheep breeds (amongst others the Frabosana sheep) are being investigated with regard to the quality of their products.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Cuneo, Via Torre Roa Fraz. Madonna dell'Olmo, 12020 Cuneo, Tel: 0039-171/41 08 00, Fax: 0039-171/41 38 63, E-Mail: apa@multiwire.net
- APA Alessandria, S.S. 10 EST, 1/3, 15029 Solero (AL), Tel: 0039-131/21 79 21
- Consorzio per la tutela delle razze ovine a rischio, c/o Comunità Montana Val Pellice, C.sp Lombardini, 2, 10066 Torre Pellice (TO)
- Comunità Montana Valli Monregalesi, V. Mondovi Piazza 1D, 12080 Vicoforte (CN)
- Comunità Montana Valli Gesso, P.za Regina Margherita, 27, 12017 Robilante
- Facoltà di Agraria – Dipartimento di Scienze Zootecniche, Università di Torino, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/670 85 75, Fax: 0039-11/670 85 63
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1998: 6700 animals in the overall population (out of these 4218 in the herdbook) kept by 90 breeders

1991: 1100 ewes in the overall population

Development trend: increasing

Assessment: rare

Need for action:

There is still need for action, but various parties are active.

Garessina

Synonyms: Muma, Razza di Garessio

Background: The Garessina sheep was originally bred for wool production. Because of the diminishing market, the breed came under pressure in the 1960s and 1970s. The remaining animals are distributed among a few breeders. An additional problem is the fact that only very few animals are purebred.

In the 1980s, scientific studies were conducted by the University of Torino. These showed that the breed has satisfactory preconditions for conservation with regard to genetic variability.

Distribution:

Region: Piedmont (Province of Cuneo), Ligurian Alps (Province of Savona); **sites:** Val Pesio, Alta Valle Tanaro, Alta Valle del Negrone, Val Casotta, smaller valleys at Tanarao between Ceva and Ormea.

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Cuneo is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- APA Cuneo, Via Torre Roa Fraz. Madonna dell'Olmo, 12020 Cuneo, Tel: 0039-171/41 08 00, Fax: 0039-171/41 38 63, E-Mail: apa@multiwire.net
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino
- Comunità Montana, Ormea

Stock:

1998: 80 animals in the overall population

1991: 500 animals in the overall population

Development trend: decreasing

Assessment: critical

Need for action:

There is acute need for action and what is being done is insufficient! The remaining animals should be integrated urgently into a concrete conservation program.

Istriana/Istrian Milk

Synonyms: Carsolina, Primorska, Istarska mljecna, Dalmatian-Karst

Distribution:

Region: Friuli Venezia Giulia; **site:** Comunità Montana del Carso

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Gorizia, Pordenone and Udine is responsible for data recording.
- Dott. Roberta Leonarduzzi from the University of Udine deals with the breed.

Contacts:

- ARA Friuli Venezia Giulia, Via G. Ferraris, 20/a, 33170 Pordenone Tel: 0039-434/54 15 11
- Associazione Allevatori del Friuli Venezia Giulia, V. le XXIII Marzo, 19, 33100 Udine, Tel: 0039-434/54 15 11, Fax: 0039-434/443 73, E-Mail: aafvOPn@interbusiness.it
- Dott. Roberta Leonarduzzi, Università degli Studi di Udine, Dipartimento di Scienze della Produzione Animale, Via S. Mauro, 2, 33030 Udine, Tel: 0039-432/65 01 10, Fax: 0039-432/66 06 14

Stock:

2000: 300 purebred animals in the overall population (ASSONAPA)

1994: 150 ewes and 10 rams in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

There is considerable need for action which is only partially taken care of.

Lamon/ Lamonese

Synonyms: Feltrina

Distribution:

Region: Veneto, Friuli; sites: Belluno and Trento

Initiatives:

- This breed is listed in the national ASSONAPA register (state: April 2001) for endangered autochthone goat and sheep populations. APA Belluno is responsible for data recording.
- At the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione) animals of this breed are conserved.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The University of Torino studied the Lamon sheep scientifically in the 1980s. Most probably, no purebred animals do not exist any more.

Contacts:

- APA Belluno, 32025 Mas di Sedico, Tel: 0039-437/878 27, Fax: 0039-437/877 76
- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino
- Dr. Emilio Pastore, Dip. di scienze zootecniche, Facoltà di Agraria, Università di Padova, Agropolis, 35020 Legnaro, Tel: 0039-49/827 26 46, E-Mail: emilio.pastore@unipd.it

Stock:

2000: <400 animals in the overall population

1992: 60 ewes in the overall population

Development trend: decreasing

Assessment: endangered

Need for action:

There is acute need for action. Preconditions for successful conservation are bad because of extensive crossbreeding.

Plezzana/ Bovec

Synonym:, Trentarka, Krainer Steinschaf, Bovska Ovca

Background: Plezzana sheep have their origin in the Valley d'Isonzo. They are particularly well adapted to higher altitudes. Most probably, they originate from the Steinschaf and the Zaupel. The name is taken from the Slovenian town Plezzo. They still occur in Slovenia today (Bovska sheep in the Valle dell'Isonzo). In Slovenia, a population of 250 purebred sheep was registered by SAVE in 1999, and the public estimated the overall population to be 1500 animals.

In Germany (65 animals in the overall population) and Austria (1999: 270 ewes and 30 rams), animals of this breed are also to be found.

Distribution:

Region: Friuli-Venezia-Giulia, sites: Val Resia, Travisiano, Valle dell'Isonzo

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthone goat and sheep populations. Associazione Regionale Allevatori Friuli Venezia Giulia is responsible for data recording.
- In the Parco Naturale della Prealpi Giulie (UD), a nucleus herd is conserved consisting of Bovec sheep of the type Val Resia.
- SAVE Foundation, the European umbrella organisation, coordinates the conservation efforts of the countries involved as this breed is distributed across borders.

Contacts:

- ARA Friuli Venezia Giulia, Via G. Ferraris, 20/a, 33170 Pordenone Tel: 0039-434/54 15 11
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München
- Austria: Dr. R. Seibold, Laufenberg 20, 9545 Radentheim
- Slovenia: Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, 1230 Domzale, Tel: 00386-61/71 78 65, Fax: 0386-61/724 10 05, E-Mail: drago.kompan@bfro.uni-lj.si
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: approx. 40-50 animals in the region Friuli-Venezia-Giulia (ASSONAPA)

Need for action:

Need for action is acute. Animals must be exchanged with sheep from Slovenia.

Sambucana

Synonyms: Demontina, Dematina

Background: At the beginning of the 1980s, only 40% of the Sambucana population could be considered to be purebred. Crossbreeding with Biellese and French sheep breeds often took place. The Sambucana is well suited for grazing remote and steep valleys. In winter, it must be kept indoors and given indoor keeping with supplementary hay. The University of Torino conducted a genetical analysis in the 1980s. Research has shown that preconditions for a conservation project are favourable.

Slow Food published a study of Sambucana sheep in 2000.

Distribution:

Region: Piedmont, sites: Cuneo, Val di Stura (Sambuco), Val di Gesso, Val Maira

Initiatives:

- In 1985, an association named l'Escaroun was founded in the Stura valley, supported by the local mountain community. Its aim is to support and reevaluate of the Sambucana sheep. It manages a ram center, supports and holds of exhibitions and organises breeder's meetings. It has taken several measures including: improvement of breeding techniques, development of sheep breeding with Alpine grazing, reutilising abandoned farms, improving pastures and helping to improve hay harvests. The creation of a label has led to an upgrading of Sambucana lamb.
- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthone goat and sheep populations. APA Cuneo is responsible for data recording.
- At the University of Torino, some sheep breeds (amongst them the Sambucana sheep) are being studied with regard to the quality of their products.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Cuneo, Via Torre Roa Fraz. Madonna dell'Olmo, 12020 Cuneo, Tel: 0039-171/41 08 00, Fax: 0039-171/41 38 63, E-Mail: apa@multiwire.net

- Consorzio l'Escaroun, c/o Comunità Montana Valle Stura di Demonte, P.zza R. Spada, 19, 12014 Demonte (CN)
- Facoltà di Agraria – Dipartimento di Scienze Zootecniche, Università di Torino, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/670 85 75, Fax: 0039-11/670 85 63
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2000: 4250 herdbook animals (information from APA Cuneo)

1997: 3200 herdbook animals (3100 ewes and 100 rams) kept by 82 breeders

Development trend: increasing

Assessment: vulnerable

Need for action: Yes, but various parties are active.

Tacòla

Synonyms: Bertuna, Cücch

Background: Tacola sheep are a smaller variety of Biellese sheep. They are mainly bred for nomadic use.

Distribution:

Region: Piedmont, site: Biellese (Province of Vercelli)

Initiatives:

- A breeders' association was active in the beginning of the 1990s for the conservation of Tacòla sheep.
- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Cuneo, Vercelli and Novara is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- APA Cuneo, Via Torre Roa Fraz. Madonna dell'Olmo, 12020 Cuneo, Tel: 0039-171/41 08 00, Fax: 0039-171/41 38 63, E-Mail: apa@multiwire.net
- APA Novara, Piazza Costituente, 6, 28100 Novara, Tel: 0039-321/62 63 51
- APA Vercelli, Via Viotti, 24, 13100 Vercelli, Tel: 0039-161/25 75 60, Fax: 0039-161/25 75 60, E-Mail: erraffo@tin.it
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino

Stock:

1998: 633 herdbook animals (598 ewes and 35 rams) and 733 animals in the overall population kept by 30 breeders.

1994: 300 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action: Yes, but various parties are active

Tirolese della Montagna/ White Mountain

Synonyms: Pecora Alpina Tirolese, Tiroler Bergschaf, Delle Rocce, Tirolese delle Rocce, Bergschaf, Carinthian Mountain, Tiroler, Weisses Bergschaf, Weisses Gebirgsschaf, Pecora bianca delle Montagna, Pecora delle Rocce, Bianca di Montagna, Pecora dei Sassi, Tyrol Mountain

Former synonyms: Val Senales, Schnalser

Background:

The Tirolese della Montagna belongs to the group of Alpine sheep. They were bred in Austria after the war by crossbreeding white Steinschaf with Bergamasca sheep. Approx. 100 white Steinschafs were bought in the Schnals valley for this purpose. Today, many animals still exist in Austria (White Mountain Sheep).

Distribution:

Region: Altoadige Trentino; site: Bolzano, Val Venosta

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. The Federazione Zootecnica dell'Alto Adige is responsible for data recording.

Contacts:

- Federazione Zootecnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Barbara Mock, Via Galvani, 40, Bolzano, Tel: 0039-471/20 28 39, Fax: 0039-471/20 41 86

Stock:

1994: 34,000 animals in the overall population

1992: 24,000 animals in the overall population

Development trend: stable

Assessment: not endangered

Need for action: No

Val d'Ultimo

Synonyms: Ultnerschaf, Utterschaf, Fuchsfarbenes Engadiner Schaf (Schweiz), Besch da Pader (Schweiz), Braunes Bergschaf (Germany, Austria), Paterschaf (Austria), Rotes Bergschaf

Background: The Val d'Ultimo sheep originated from the Eastern Alpine Steinschaf and the Bergamasca sheep. It is well adapted to the high mountain area. The herdbook is kept by the South Tyrol Association for Small Animal Breeders.

It also occurs in Germany (2000: 1600 animals in the overall population), Switzerland (2000: 1281 ewes and 147 rams in the herdbook) and Austria (1998: 516 animals). The cooperation between the breeders' associations of the different countries has intensified during recent years. In November 2000, the 'Vereinigung der Bergschafzüchter' (association of mountain sheep breeders) was founded. The new association aims to support sheep breeding and sheep-keeping in the Alpine region. In the year 2001, the Bavarian Herdebuchgesellschaft (Herdbook Association) chaired of the association.

Distribution:

Region: Altoadige Trentino; sites: mainly the Ulten valley (southwest of Meran), partially also the Schnals, Sarn and Martello valley.

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. The Federazione Zootecnica dell'Alto Adige is responsible for data recording.
- SAVE Foundation, as an European umbrella organisation, coordinates the conservation efforts of the countries involved as this is a breed distributed across borders.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- Federazione Zootecnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Barbara Mock, Via Galvani, 40, Bolzano, Tel: 0039-471/20 28 39, Fax: 0039-471/20 41 86
- Herr Johann Götsch, Schönweg 42, Altratheis im Schnallstal

- Germany: Josef Grasegger, Schlossweg 10, D-82467 Garmisch-Partenkirchen
- Switzerland: SEZ, Kathrin Krieg, Sonnentäl, 8712 Stäfa, Tel: 0041-1/920 06 55
- Austria: Tiroler Schafzuchtverband, Herr Jaufenthaler, Brixner Strasse 1/Zi 12, A-6020 Innsbruck
- Arbeitskreis Braunes Bergschaf, Georg Palme, Amt für Landwirtschaft und Ernährung Mühldorf, Am Kellerberg 11, 84453 D - Mühldorf am Inn
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 D-München, Tel: 0049-89/53 62 27
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

1998: 800 ewes and 170 rams in the herdbook kept by approx. 50 breeders.

1992: 297 herdbook animals

Development trend: increasing

Assessment: endangered

Need for action: Yes, but various parties are involved.

Villnösser

Synonyms: Brillenschaf, Seeländer Schaf, Jezersko Schaf

Background: The Villnösser originated in the 18th century from the Carinthian sheep, the Bergamasca and the Padovanesse Steinschaf. Till the beginning of the Second World War, the Villnösser was the most strongly represented breed in South Carinthia, Friuli and Slovenia. As the first important mountain sheep breed in the Alps, it had an influence on many other mountain sheep breeds. A new precise breed description was produced in 1999. The Villnösser also occurs in Austria (2000: approx. 1000 animals), Slovenia (1999: approx. 4500 animals) and Germany (2000: 348 ewes and 14 rams). A herdbook exists and is kept by the association of South Tyrol small animal breeders.

Distribution:

Region: Altoadige -Trentino, sites: Bolzano, Val d'Isarco

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonous goat and sheep populations. The Federazione Zootechnica dell'Alto Adige is responsible for data recording.
- In the 1990s, the Verband der Südtiroler Kleintierzüchter (Association of South Tyrol small animal breeders) imported rams of the Carinthian sheep to broaden the genetic basis of the sheep.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99) since 1999.
- SAVE Foundation, the European umbrella organisation, coordinates the conservation efforts of the countries involved as the breed is distributed across borders.

Contacts:

- Federazione Zootechnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Barbara Mock, Via Galvani, 40, Bolzano, Tel: 0039-471/20 28 39, Fax: 0039-471/20 41 86
- Johann Götsch, Schönweg 42, Altratheis im Schnallstal
- Austria: Verein der Kärntner Brillenschafzüchter Alpen-Adria, Friedhelm Jasbinschek, Sponheimerplatz 1, Postfach 44, 9170 Ferlach
- Slovenia: Mag. D. Kompan, Groblje 3, Biotehniška Fakulteta, SLO-1230 Domžale
- Germany: GEH, Antje Feldmann, Postfach 1218, D-37202 Witzenhausen
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 900 ewes and rams in the herdbook
Development trend: increasing
Assessment: endangered
Need for action: yes, but various parties are involved.

11.2.7. Sheep breeds and populations not included in the national register of endangered breeds

The following breeds were listed in the national register for endangered autochthonous goat and sheep breeds (started in 1997). They did not appear any more in the revised list of April 2001!

The register is kept by ASSONAPA.

Adresse ASSONAPA:

Ufficio Centrale Libro genealogico ovino e caprino della ASSONAPA, Registri Anagrafici delle popolazioni ovine e caprine autoctone a limitata diffusione, Dr. Salvatore Schembri, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30, E-Mail: libgen@assonapa.it, info@assonapa.it, URL: <http://www.assonapa.it>

Ciavenasca

Synonyms: Gavenasca

Distribution:

Region: Lombardy, sites: S. Giacomo Valley, Bregaglia, Chiavenna plain (Sondrio)

Initiatives:

- None

Contacts:

- Sig. Mario Pighetti, Comunità Montana della Valchiavenna, Tel: 0039-343/337 95
- APA Sondrio, Via Trieste, 8, 23100 Sondrio, Tel: 0039-342/513 900, Fax: 0039-42/51 39 50, E-Mail: apaso@novanet.it

Stock:

2001: according to APA Sondrio, the breed has become extinct!

1994: 300 animals in the overall population, ewes in the herdbook

1983: 2500 animals in the overall population

Development trend: ?

Assessment: extinct?

Need for action:

It must be urgently clarified on-site whether this breed has really disappeared! If animals should appear again, they must be integrated immediately in a conservation program.

Finarda

Synonyms: Finarola

Distribution:

Regions: Lombardy, Piedmont; site: Po valley

Initiatives:

- None

Stock:

1994: 4500 animals in the overall population

1979: 10,000 animals in the overall population

Development trend: stable

Assessment: vulnerable

Need for action: yes, nobody is doing anything.

Pusterese

Synonyms: Val Badia, Badiota, Gadertaler, Nobile di Badia, Pustera gigante, Tedesca di Pusteria, Val di Pusteria, Nobile di Badia, Sextner, Tauferer, Aurina

Background: Pusterese sheep belong to the group of drooping ear Alpine sheep and descend from the Lamon sheep. They are well adapted to mountainous regions.

Distribution:

Italian Alps (Province of Bolzano), site: Garder valley/Val Biota (Side valley of the Pustertal at Brunico)

Initiatives:

- None

Stock:

1994: 250 animals in the overall population

1979: 50 animals in the overall population and approx. 100 descendants.

Development trend: decreasing

Assessment: endangered

Need for action: yes, nobody is doing anything.

Rosset

Background: In the 1980s, the stocks of this breed decreased greatly because of increasing pressure from tourism and other, more performance-oriented breeds. Rosset sheep are considered to be partially extinct. In the Val di Savaranche, some animals are supposed to be still present (information from the 'Patrimonio zootecnico del Piemonte e della Valle d'Aosta'). AREV estimates that 30-40% of the sheep in the Aosta valley (2000: 2624 animals) have Rosset sheep characteristics.

Distribution:

Region: Aosta valley, sites: Val Grisanche, Val di Rhemes, Val Savaranche

Initiatives:

- AREV is trying at present to set up a 'registro anagrafico' for Rosset sheep. In cooperation with ASSONAPA, the conditions for registering have now been defined for sheep farmers. Starting in autumn 2001, owners of animals with typical Rosset sheep characteristics can apply for registration with the 'registro anagrafico'.

Contacts:

- Institut Agricole Régional, Auguste Chatel, La Rochère 1A, 11100 Aosta
- AREV, Association Régionale des Eleveurs Valdôtains, Sezione ovi-caprina, P.za Arco d'Augusto, 10, 11100 Aosta
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino

Stock:

1998: some animals in the Val di Savaranche

1979: <300 animals in the overall population

Assessment: critical

Need for action: yes, acute. At present, AREV is in charge. It has to be clarified urgently how many purebred animals are still in the Val di Savaranche.

Saltasassi

Distribution:

Region: Piedmont, Site: Novara, Valle Isorno (VB), Comuni di Altoggio e Montecrestese, Piana di Domodossola

Initiatives:

- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

- The WWF Piedmont plans to set up a breeding group in the Nature Park 'Val Grande'.

Contacts:

- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino
- WWF Sezione Regionale Piemonte e Valle d'Aosta, Riccardo Fortina, Via Peyron 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/437 39 44, E-Mail: mc1750@mclink.it, fortina.wwf@libero.it

Stock:

1998: 3 animals kept by one breeder (FAO/DAD-IS: >1000 animals)

1991: 2500 ewes in the overall population

Development trend: rapidly decreasing!

Assessment: Critical

Need for action:

The need for action is acute! A search found only 3 animals kept by one breeder. Further searches are urgently needed. If more animals should be found, a conservation program must be started quickly.

Sampeirina/ Sampeyrina

Distribution:

Region: Piedmont

Initiatives:

- None.

Contacts:

- Ass. Reg. Allev. del Piemonte, C.so Inghilterra, 25, 10138 Torino, Tel: 0039-11/434 55 50, Fax: 0039-11/434 44 59, E-Mail: arap@alpcom.it

Stock:

1998: <500 animals in the overall population

1993: 200 ewes in the overall population

Development trend: stable

Assessment: endangered

Need for action: yes, nobody is doing anything.

Savoiarda

Synonyms: Cuorgnè, Di Torino, Piemontese alpina, Razza delle Alpi

Background: The breed Savoiarda is related to the breed Rosset and probably also to Thones-Marthod (France).

Distribution:

Region: Piedmont, site: Val di Susa (Turino), Val di Lanzo, Environs of Giaveno, Val Chisone, Val Pellice

Initiatives:

- The WWF Piedmont bought 25 animals in 2000 and plans to set up a herd.
- A group of Savoiarda breeders is coordinated by Prof.J.Errante.
- The organisation Slow Food supports the marketing of products from this breed.
-

Contacts:

- WWF Sezione Regionale Piemonte e Valle d'Aosta, Riccardo Fortina, Via Peyron 10, 10143 Torino, Tel: 0039-11/473 18 73, Fax: 0039-11/437 39 44, E-Mail: mc1750@mclink.it, fortina.wwf@libero.it
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1998: 65 purebred animals in the overall population

1991: 50 ewes in the overall population

1979: 100 animals in the overall population

1960: 2500 animals in the overall population

Development trend: stable

Assessment: critical

Need for action: yes, acute. Little is being done and concrete conservation measures are completely missing.

Varesina

Distribution:

Region: Lombardy, Province of Varese: Travedona, Molgesso, Arpero, Gornate, Biandronno, Lonate Cepino, Gazzada, Ispra Cuvio, Cumenza

Initiatives:

- None.

Contacts:

- Regione Lombardia, Assessorato Agricoltura, Viale Premuda, 27, 20129 Milano
- Consorzio Provinciale incremento e tutela Zootecnica, Regione Lombardia, Via Daverio, 10, 21100 Varese

Stock:

1998: >1000 animals in the overall population

1991: 900 ewes in the overall population

Development trend: stable

Assessment: vulnerable

Need for action: yes – still existent. Nobody is doing anything.

11.2.8. Further sheep breeds

Brianzola

Background: In 1997, Dr. Lorenzo Noè from AGER published in cooperation with the Comunità Montana Lario Orientale the study 'La Pecora Brianzola'. In this study, the breeding standard is redefined. Several sources consider the breed already to be extinct.

Distribution:

Region: Lombardy; Provinces of: Como (Proserpio), Lecco (Alta Brianza, Galbiate, Suello, Valmadrera)

Initiatives:

- The Comunità Montana Lario Orientale planned a project for the protection of Brianzola sheep and to ensure an increase in numbers in cooperation with the Consorzio Parco Monte Barro and the Museo Etnografico di Camparese. For that purpose, 20 active Brianzola sheep breeders joined the association 'Associazione della Pecora Brianzola'.

Contacts:

- Associazione della Pecora Brinazola, c/o Comunità Montana Lario Orientale, Via Pedro Vasena 4 Sala al Barro, 23856 Galbiate, Tel: 0039-341/24 07 24, Fax: 0039-341/24 07 34
- Consorzio Parco Monte Barro e Museo Etnografica di Camparese, Via Vasena, 4, 22043 Sala al Barro di Galbiate (LC), Tel: 0039-341/54 22 66, Fax: 0039-341/24 02 16
- ASSONAPA, Viale di Villa Massimo, 39, 00161 Roma, E-Mail: libgen@assonapa.it
- Dr. Lorenzo Noè, AGER – Agricoltura e Ricerca, Soc. Coop a.R.L., Via Druso, 10, 20133 Milano, luni.noe@tiscalinet.it

Stock:

2001: 150 animals in the overall population (information from Dr. Lorenzo Noè)

1997: 129 animals in the overall population

(1994: extinct)

Development trend: increasing

Assessment: critical

Need for action: Yes, acute. For the remaining animals, some action is being taken (see initiatives).

Steinschaf

Synonym: Weisses Steinschaf

Background: The Steinschaf is not, as was originally assumed, related to the Tyrolyan Steinschaf! Its origins date back to Hungarian or Yugoslavian sheep breeds which were already exported regularly to South Tyrol in the 16th and 17th century. The Steinschaf has an especially high fertility. Crossbreeding with the Bergamasca sheep gave rise to the breed White Mountain.

Distribution:

South Tyrol (Stilfserjoch)

Initiatives:

- None, no herdbook is kept.

Contacts:

- Ass. Prov. Federazioni fra Allevatori Altoatesini – APA, Via Crispi, 15, 39100 Bolzano, Tel: 0039-471/97 77 45, Fax: 0039-471/97 63 60, E-Mail: vstz@em.cenida.it

Stock:

1993: 40 animals in the overall population (kept in smaller, mixed herds)

Assessment: critical

Need for action:

The local breeding associations could not supply any recent information on the breed. It has urgently to be clarified on-site if animals still exist. If they do, conserving measures will have to be undertaken urgently. N.B: Steinschaf stocks are grazed together with other mountain sheep breeds on mountain pastures. Therefore, winter lambs usually have a high proportion of foreign blood.

11.2.9. Goats: overview

In the following table, endangered goat breeds and populations from the Alpine region are listed. Extinct breeds are not included. Listing follows the risk status and is alphabetical within a risk category.

Breed	Stock (most recent)**	Risk status	Trend	Initiatives*
Bormina	Wenige Tiere (2001)	Critical	↓	-
Istriana/Istrian	<100f/m OP (1998)	Critical	→	-
Sempione	10-15f/m OP (2000)	Critical	↓	-
Rocaverano	630f/m OP (1998)	Endangered	↑	++
Vallesana	200f/m OP (2000)	Endangered	→	+
Alpina/Alpine	6000f/m OP (1999)	Vulnerable	→	+
Bionda dell' Adamello	1500f/m OP (2000)	Vulnera ble	↑	++
Frisa Valtellinese	5000f/m OP (2000)	Vulnerable	↑	++
Livio	1300f/m OP (1999)	Vulnera	?	-

		ble		
Orobica	4000f/M OP (1998)	Vulnerable	→	+
Verzaschese	1500f/m (2000)	Vulnerable	↑	+
Passeier Gebirgsziege	6122w HB (2000)	Rare	?	+

* ++ (existing with success), + (existing), - (non-existent)

** w = female animals, m = male animals, HB = herdbook, OP = Overall population

11.2.10. Extinct goat breeds

In this study, one breed from the Italian Alpine region was assessed as extinct!

Locale 4 Corna

The 'Locale 4 Corna' was bred near Sondrio. This breed was last mentioned by Rognoni in 1979. The stock consisted of 4 animals. The breed is today considered to be extinct. A 4-horned goat was last mentioned by the Swedish author Hakan Hallander (1989) in his book 'Svenska Lantraser'. This book contains a photo of a four-horned goat in a zoo in Tunis (North Africa), taken in 1985.

11.2.11. Officially recognised goat breeds

The following breeds are officially recognised in Italy. ASSONAPA is responsible for herdbook keeping.

Address: ASSONAPA – Associazione Nazionale della Pastorizia, Contacts: Dott. Nazzari, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30

Camosciata delle Alpi/ Chamois coloured

Synonyms: Camosciata alpina, Gemsfarbige Gebirgsziege, Chamoisée des Alpes, Chamoix alpine, Passiria Mountain, (Alpina, Alpine)

Background: The goat 'Camosciata delle Alpi' belongs to the group of mountain goats and chamois-coloured mountain goats. It is well suited for mountain regions. The population is very heterogeneous. In the 1980s, efforts were made to breed an Italian Chamois goat differing from the French and Swiss goat. A herdbook has been kept since 1986. The Chamois coloured goats also live in Switzerland, where it is known as the Chamois coloured Mountain Goat.

N.B.: The Chamois coloured goat is often called Alpina. This often results in confusion with the breed Alpina.

In the Aosta Valley, a goat type exists called Chamois common. It differs from the Chamois coloured, but it is difficult to distinguish them. Differences exist mainly with regard to size (Nanny-goats: 78cm, billy-goats: 85 cm), weight (nanny-goat: 70-80 kg, billy-goat: 90-110 kg), horn position and fur (35% black, 45% chamois, 20% fromentina chiaro). In 1998, there were approx. 3000 animals of Chamois common, kept by 450 breeders. It is assumed that Chamois coloured as well as Chamois common are descended from the breed Alpina. In the origin of both breeds, however, a hybridisation between ibex (*Capra ibex*) and domesticated goats (*Capra hircus*) could have been involved.

Distribution:

Region: Piedmont, Lombardy, Liguria, Aosta Valley, South Tyrol (individual animals also occur in other regions).

Initiatives:

- Since 1993, attempts are being made to genetically improve the breed (BLUP-ANIMAL MODEL). They are coordinated by ASSONAPA.

Contacts:

- Dipartimento di Scienze Zootecniche, Università de Torino, Prof. Liliana di Stasio, Via Genova, 10126 Torino

Stock:

1998: 40,000 animals in the overall population and 4398 animals in the herdbook.

Development trend: stable

Assessment: not endangered

Need for action: yes, with regard to breeding, but this is partially taken care of by ASSONAPA.

Orobica

Synonyms: Valgerola, Gerola, Valgerola, Val Gerola

Background: The breed Orobica is especially suited for hilly country. It is a very robust, medium-sized mountain goat. It is kept in small and medium-sized farm enterprises with indoor stabling in winter and spring and autumn pasturing and alpine pasturing in the summer. An application for breed recognition was made at the beginning of the 1990s. In 1991, the breed was recognised officially by ASSONAPA. A herdbook exists. The cheese types 'Bitto di Geröla' and Maschérpa are traditionally produced from this goat's milk. The cheese type 'Bitto di Geröla' is today officially supported by the Consorzio formaggi Valtellina.

Distribution:

Region: Lombardy, sites: Orobica slopes, valley bottom of the lower Veltins, Sondrio-Como-Bergamo, Valsassina, Valvarrone, upper Val Brembana and Val Gerola in the Province of Sondrio

Initiatives:

- This breed was registered with the National Register for Autochthonous Goat and Sheep breeds, started in 1997. In the most recent list from April 2001, it was not included any more. The register is kept by ASSONAPA.
- Since 1995, ASSONAPA has been running a program for the improvement of breeding guidelines (BLUP-ANIMAL MODEL).
- APA Sondrio set up a breeding program at the beginning of the 1990s. In the breeding station 'Centro Cooperativa Verde Agricola', 13 rams were kept for a first selection and for the scientific study of breeding performance.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Sondrio, Sig. Carlo Gianonceli, Via Trieste, 8, 23100 Sondrio, Tel: 0039-342/51 39 00, Fax: 0039-342/5139 50, E-Mail: apaso@novanet.it
- APA di Como Lecco Varese, Via Armando Diaz, 5, 22036 Erba (Como)
- Istituto di zootecnica generale, Facoltà di Agraria, Università degli studi di Milano, Via Celoria, 2, 20133 Milano
- Slow Food, Via delle MadicITÀ, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1998: 4000 animals in the overall population, including 2041 animals in the herdbook

1995: 4300 animals in the overall population (1774 animals kept by 99 breeders are supported by EU regulation 2078/92)

Development trend: stable

Assessment: vulnerable

Need for action: yes, but some conservation work is being done.

Saanen/ Italian Saanen

Background: The Italian Saanen goat is descended from imported Swiss Saanen goats. A herdbook has been kept since 1981. Italian Saanen, which are kept in large specialised enterprises, are mostly purebred. The Italian Saanen is now to be found in many countries.

Distribution:

Region: mainly Piedmont and Lombardy, but also Emilia Romagna, Tuscany, Lazio and Apulia

Initiatives:

- ASSONAPA is at present improving the guidelines for breeding (BLUP-ANIMAL MODEL).

Stock:

1998: animals in the overall population, including 4764 herdbook animals.

1991: 4184 goats in the herdbook.

Development trend: stable

Assessment: not endangered

Need for action:

ASSONAPA is taking appropriate action.

11.2.12. Goat breeds and populations in the register of endangered breeds

The register is kept by ASSONAPA.

Address ASSONAPA:

Ufficio Centrale Libro genealogico ovino e caprino della ASSONAPA, Registri Anagrafici delle popolazioni ovine e caprine autoctone a limitata diffusione, Dr. Salvatore Schembri, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 06/4090011, Fax: 06/40900130, E-Mail: : libgen@assonapa.it, info@assonapa.it, URL: www.assonapa.it

Alpina/ Alpine

Synonyms: Italian Alpine, Alpine Polychrome, and other local names

Background: The breed Alpine is very heterogeneous. It is very well suited to mountain areas and belongs to the group of Alpine goats. It is robust and spends most of the year on Alpine pastures. During wintertime, it is kept inside and fed with hay. The breed is widespread throughout the entire Alpine region. In France, however, stock numbers do not exceed a few hundred animals.

Attention:

The name 'Alpina' is sometimes also used for Chamois coloured. This often results in confusion.

In Piedmont, a goat type named Alpina comune or Nostrana is spread. Animals of this type belong only partially to the breed Alpine. Alpina comune is not a distinguishable breed, but a group of animals which cannot be clearly allocated to another Piedmontese breed (Italian Saanen, Chamois coloured, Roccaverano, Valais Blackneck). In 1998, approx. 55'000 animals of this group were counted. Alpina comune shows a considerable variability with regard to fur, colours, ears and utilisation types.

Distribution:

Northern Italy (Italian Alps), Piedmont

Initiatives:

- This breed is listed in the national ASSONAPA register (state: April 2001) for endangered autochthonous goat and sheep populations. APA Milano is responsible for data recording.

Contacts:

- APA Milano, Viale Isonzo, 27, 20135 Milano, Tel: 0039-2/58 30 27 26, Fax: 0039-2/58 30 27 08
- Dipartimento di Scienze Zootecniche. Università de Torino, Prof. Liliana di Stasio, Via Genova, 6, 10126 Torino
- AREV, Association Régionale des Eleveurs Valdôtains, Sezione ovi-caprina, P.za Arco d'Augusto, 10, 11100 Aosta

Stock:

1999: 6000 goats in the overall population

Development trend: stable

Assessment: vulnerable

Need for action:

Yes, mainly with regard to breeding. This is to a large extent taken care of by ASSONAPA.

Bionda dell'Adamello/ Adamello Blond

Synonyms:, Bionda

Background:

The breed 'Bionda dell'Adamello' is probably descended from the Toggenburg goat. Dr. L. A. Brambilla conducted a study comparing both goats at the beginning of the 1990s. Dr. Brambilla is a connoisseur of sheep and goat breeds in Italy and is also active in supporting the Bionda dell'Adamello goat.

The Bionda dell'Adamello is well adapted to mountainous regions. It has many similarities with the Bormina in the Upper Veltlin. At the beginning of the 20th century, the breed was widespread in the Val Camonica. In the 1980s, stock numbers decreased heavily, with only a few animals were in Val Savio. In the 1990s, a continuous increase in stock numbers could be noticed thanks to a rising interest in the breed. Today, 70% of females are purebred. The cheese types 'Fatuli' and 'Mascarpin/Mischerpa' are produced traditionally from Bionda dell'Adamello milk.

Distribution:

Region: Lombardy, Trentino-Alto Adige, site: Brescia (Vallecamonica, Valtrompia), Bergamo (Valle di Scalve), and Lecco (Lariano)

Initiatives:

- In 1996, the breeders' organisation 'Associazione Allevatori per la Tutela e la Valorizzazione della Capra Bionda dell'Adamello' was founded. It is mainly active in conservation at the local level. Twice a year, an exhibition takes place: In November (exhibition with animals) and in May (Topic: products from meat and milk of the Adamello blond. The breeding standard was recently defined by the University of Milano.
- Cryopreservation of embryos or semen is not carried out.
- This breed is listed in the national ASSONAPA register (April 2001) for endangered autochthon goat and sheep populations. APA Como Lecco Varese is responsible for data recording.
- Animals of this breed are kept at the CeSGAVE (Centro di Salvaguardia di Germoplasma animale in via di estinzione).
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- Associazione Allevatori per la Tutela e la Valorizzazione della Capra Bionda dell'Adamello, Via Zandrini, 62, 25050 Valle di Savio (BS), Tel: 0039-364/63 82 46, E-Mail: caprabionda@yahoo.it, President: Sig. Giacomo Riccardo Bonomelli, contacts: Dr. L.A. Brambilla

- Dr. Luigi Andrea Brambilla, Consiglio Direttivo Associazione Allevatori per la tutela e la Valorizzazione della Capra Bionda, Via P. Finzi, 15, 20126 Milano, E-Mail: zooagri@imiucca.csi.unimi.to, luigi.brambi@tin.it
- Istituto di Zootecnica Generale – Facoltà di Agraria, Università degli Studi di Milano, Prof. Michele Corti, Via Celoria 2, 20133 Milano
- Dott. Massimo Giacomelli, Aiuto tecnico, Associazione Provinciale Allevatori di Brescia, Via Dalmazia, 27, 25125 Brescia
- Associazione Provinciale Allevatori di Como Lecco Varese, Via A. Diaz, 5, 22036 Erba (Como)
- Dott. Bonu, Via Vittoria Emanuele, 11, 25122 Brescia
- CeSGAVE, Prof. Donato Matassino, Azienda Casaldianni, 82020 Circello
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/4196 24, E-Mail: presidi@Slow Food.it

Stock:

2000: 1500 animals in the overall population, kept by 50 breeders

1999: 1200 animals in the overall population, kept by 40 breeders

Development trend: increasing

Assessment: vulnerable

Need for action: yes, but various parties are active.

Frisa Valtellinese

Synonyms: Frontalasca, Frontolasca, Lafrisa, Valtellinese, Frisa Nera, Rezzalasca

Background: The breed Frisa is very robustly. It originates from the village of Frontale, in Val di Rezzalo (Upper Veltlin). It is most probably related to the breed Grisons striped. Frisa is controlled by APA Sondrio. Recording is, however, difficult as only a few breeders are willing to participate in herdbook breeding. They are mainly interested in selling meat. Mrs. Giocarelli from APA Sondrio conducted a study of the breed Frisa. Its meat is used traditionally to produce ‘Viulin de càvra de Ciàvéna’ and ‘Firùn’.

Distribution:

Region: northern Lombardy, site: Province of Sondrio (Valmalenco), Upper Veltlin (slightly larger animals), Livigno, Valchiavenna and Valle del Mera

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) for endangered autochthonous goat and sheep populations. APA Sondrio is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Sondrio, Mario Alberti, Via Trieste, 8, 23100 Sondrio, Tel: 0039-342/51 39 00, Fax: 0039-342/51 39 50, E-Mail: apaso@novanet.it, President: Sig. A. Aquistapace
- Dr. Lorenzo Noè, AGER – Agricoltura e Ricerca, Soc. Coop a.R.L., Via Druso, 10, 20133 Milano, luni.noè@tiscalinet.it
- Sra. Giocarelli, Veterinaria e collaboratrice dell’APA Sondrio, Tel: 0039-342/21 57 84, 0039-342/59 13 82
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2000: approx. 5000 animals in the overall population

1996: 6000 animals in the overall population

Development trend: increasing

Assessment: vulnerable

Need for action: yes, but various parties are active.

Passeier Gebirgsziege

Synonyms: Capra Passiria, Capra di Montagna di Passiria, Passeira

Background: The Passeier Gebirgsziege is not identical with the Chamois coloured! The grey type could be equivalent to the 'Graue Geiss' from the Swiss Tessin (Information from Sabine Lanfranchi, Pro Specie Rara).

Distribution:

Region: South Tyrol, sites: mainly in the Passei valley, Schnals valley, Sarn valley and Wipp valley.

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. The Federazione Zootecnica dell'Alto Adige is responsible for data recording.

Contacts:

- Federazione Zootecnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Herr Johann Götsch, Barbara Mock, Via Galvani, 40, Bolzano, Tel: 0039-471/20 28 39, 0039-335/66 03 32 Fax: 0039-471/20 41 86
- Università degli Studi di Milano, Facoltà di Agraria, Istituto di Zootecnica Generale, Via Celoria 2, Tel: 02/58356434, Fax: 02/58356447, E-Mail: mario.cicogna@unimi.it

Stock:

2000: 6122 female and 459 male animals in the herdbook

Assessment: rare

Need for action: Yes, but the 'Associazione sudtirolese degli allevamenti di piccoli animali'.

Roccoverano

Background: The population Roccoverano is very heterogeneous. It is well adapted to hilly country. Today, many animals are crossbreds with Italian Saanen. The milk of the breed is used to produce a D.O.C. cheese.

Distribution:

Region: Piedmont, sites: Alta Langa Astigiana, Langa Cuneese

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Asti is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Asti, Via Guttuari, 41, 14100 Asti, Tel/Fax: 0039-141/53 06 90, E-Mail: apaasti@tin.it
- C.M. Alta Langa Astigiana – Val Bormida, Via Roma, 8, 14050 Roccoverano (AT)
- Dr. Marco Salvo, 14100 Asti, Tel: 0039-141/53 06 90
- Slow Food, Via delle Madicita, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@SlowFood.it

Stock:

1998: 630 animals in the overall population, including 35 males

1994: 500 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action: Yes, both for conservation as well as in the field of breeding. Various parties are involved, but the small number of billy goats is an additional problem.

Vallesana/ Valais Blackneck

Synonyms: Capra dal Collo Nero, Vallese, Vallesana del collo nero, Chèvre des Glaciers, Valaisan à col noir, Valaisanne col noir, Viège, Schwarzweises Walliser Sattelziege, Walliser Sattelziege, Walliser Schwarzhals, Walliser Schwarzhalsziege, Valais Blackthroat

Background: The breed Valais Blackneck is well adapted to hilly country. It is descended from the Swiss Valais Blackneck.

Distribution:

Region: Piedmont, sites: Val d'Osola, Alta Valle Sesia

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Novara and Vercelli is responsible for data recording.
- Coordination between breeders through Prof. J. Errante
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- APA Vercelli, Via Viotti 24, 16100 Vercelli, Tel/Fax: 0039-161/25 75 60, E-Mail: erraffo@tin.it, President: Dr. R. dell' Olmo
- APA Novara, Piazza Costituente, 6, 28100 Novara, Tel: 0039-321/62 63 51
- Dipartimento Zootechniche, Università degli Studi di Torino, Josephine Errante, Via Genova, 10126 Torino
- Switzerland: Fédération des Eleveurs Caprins du Haut Valais, Chateaufort s/Sion
- Slow Food, Via delle Madicita, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2000: approx. 200 animals in the overall population

1993: 300 goats in the overall population

Development trend: stable

Assessment: endangered

Need for action:

To some extent, as in its area of origin, the breed is increasingly threatened by touristic and infrastructure development. Organised breeding is particularly necessary.

Verzaschese

Synonyms: Varzaschese nera

Background: The goat Verzaschese originates from the Tessin in Switzerland. It is a medium-sized breed with short black hair. Both sexes are horned. The milk is used for the production of several cheese types. The cheese Zigerino is especially well known.

Distribution:

Region: Lombardy, Provinces of: Como (Lario occidentale), Varese (Valli del Luinese), Verbania (Val Vigizzo), Novara, Biella and Sondrio (Valle del Mera)

Initiatives:

- This breed is listed in the national ASSONAPA register (April 2001) of endangered autochthonic goat and sheep populations. APA Como Lecco Varese is responsible for data recording.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- Associazione Allevatori Nera di Verzasca, Sig. Mario Alberti, c/o Comunità montana Valli del Luinese, Via Collodi, 4, 21016 Luino (varese)

- Associazione Provinciale Allevatori di Como Lecco Varese, Via A. Diaz, 5, 22036 Erba (Como)
- Istituto di medicina legale e legislazione veterinaria generale, Facoltà di Veterinaria, Università degli Studi di Milano, Via Celloria, 10, 210133 Milano
- Slow Food, Via delle Madicita, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2000: 1500 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

Various parties are active.

11.2.13. Not officially recognised goat populations

Bormina

Synonym: Bormina dell'Alta Valtellina

Background: The Bormina goats from the Region Lombardy (Provinces of Sondrio and Brescia) are probably descended probably from the Toggenburg goat. It is similar to the Adamello Blond and is also horned.

Distribution:

Region: Lombardy; site: Bormio/Alta Valtellina (Province of Sondrio)

Initiatives:

- None

Contacts:

- Dott. Luigi Brambilla, Via P. Finzi, 15, 20126 Milano, E-Mail: luigi.brambi@tin.it

Stock:

2001: Purebred animals are only kept by 2-3 breeders in Bormina. (Information by Luigi Bramilla).

Development trend:

1992: 100 animals in the overall population (most probably not entirely purebred).

Development trend: decreasing

Assessment: critical

Need for action:

Yes, acute. The remaining animals must be conserved. At present, there are no initiatives for the conservation of the Bormina goat. Because of its strong similarity to the Toggenburg goat, interest in the breed is lacking. The breeders' organisations, APA Brescia and APA Sondrio, are not interested in the Bormina goat and they consider the breed to be extinct.

Istrian/Istrian

Background: The breed Istrian is well adapted to karst soils. It probably originates from Croatia, but it was also influenced by Alpine goats. The Istrian goat is bred by small family enterprises for cultivating marginal areas. In 1993, purebred billy-goats were scarce. So, crossbreeding with the Italian Saanen increased. The Registro Anagrafico was formerly kept the Associazione Allevatori del Friuli Venezia Giulia. At the University of Udine, Dott. Roberta Leonarduzzi deals with the breed.

Distribution:

North-eastern Italy, site: Gorizia (Friuli)

Initiatives:

- This breed was originally listed in the national register for endangered autochthonous sheep and goat populations (started in 1997, see also above), but not in the revised list of April 2001. The register is kept by ASSONAPA.

Contacts:

- Associazione Allevatori del Friuli Venezia Giulia, V. le XXIII Marzo, 19, 33100 Udine, Tel: 0039-434/54 15 11, Fax: 0039-434/443 73, E-Mail: aafvOPn@interbusiness.it
- Dott. Roberta Leonarduzzi, Università degli Studi di Udine, Dipartimento di Scienze della Produzione Animale, Via S. Mauro, 2, 33030 Udine, Tel: 0039-432/65 01 10, Fax: 0039-432/66 06 14
- ASSONAPA - Associazione Nazionale della Pastorizia, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30

Stock:

1998: <100 animals in the overall population

1994: 80 animals in the overall population

Development trend: stable

Assessment: critical

Need for action: Yes, acute.

The situation is especially critical because of the lack of billy-goats. These could perhaps be imported from former Yugoslavia.

Livio

Synonyms: Val di Livio

Background: Variability within the population is considerable. The breed is mainly kept for meat production. Its origins are not known. Most probably, it is a crossbreed of various Alpine goats which were mainly kept for self-sufficiency together with the Livio sheep. Mason and the FAO consider this breed to be extinct. As a recent study of the Istituto di Zootechnia of the University of Milano has however shown, 1300 animals still exist. Several studies of the genetic characteristics of the breed Val di Livo have been conducted. These studies have also shown that the goat population in the Val di Livo differ genetically significantly from other autochthonous goat populations in the Lombardian Alps. They have consequently to be regarded as an independent breed. A herdbook does not exist. In the herdbook of the breed Orobica, some Val di livo sheep are registered.

Distribution:

Region: Lombardy, site: Val di Livio (between Como and the Swiss border)

Initiatives:

- None. The breed does not come under regulation 2078/92.

Contacts:

- Istituto di Zootechnia generale, Prof. Mario Cicogna, Prof. Michele Corti, Dott. Paola Crepaldi, Via Celoria, 2, 20133 Milano

Stock:

1999: 1300 animals in the overall population (Ist. Zootecni generale, Università Milano)

1983: 150 animals in the overall population

Assessment: vulnerable

Need for action: Yes.

The results of the above mentioned study shows that a protection program must be started.

More needs to be done!

Sempione

Distribution:

Region: Piedmont, site: Vercelli, Rovasenda (between Bielle and Novarra)

Initiatives:

- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

- This breed was listed in the national register for endangered autochthonous sheep and goat populations (started in 1997, see also above), but not in the revised list of April 2001. The register is kept by ASSONAPA.

Contacts:

- Dir. Dott. Ermano Raffo, Via Viotti, 24, 13100 Vercelli, Tel/Fax: 0039-161/615 68
- ASSONAPA - Associazione Nazionale della Pastorizia, Via Palmiro Togliatti, 1587, 00155 Roma, Tel: 0039-6/409 00 11, Fax: 0039-6/40 90 01 30

Stock:

2000: 10-15 animals in the overall population

1992: 80 females and 2-3 billy-goats in the overall population in 2 herds

Development trend: decreasing

Assessment: critical (the genetic base is also very narrow)

Need for action:

Yes, acute because of the narrow genetic base. Inbreeding is a problem today. Searching for further animals are needed as fast as possible. Animals matching the description of the breed appear sporadically, but a real nucleus herd has not yet been established.

11.2.14. Goat populations without further information

In this study, 22 Italian populations were found mentioned without any further details! For many breeds, the area of origin is not known. The following breeds, however, definitely originate from the Alpine region:

Grigio Alpina (Synonym: Grey Alpine)

The breed Grigio Alpina belongs to the group of Alpine goats. It was distributed in the Italian Alpine region (Trentino, Alto Adige).

Sources:

- Mason
- Goats of the world: 100 animals in the overall population
- In the report at the meeting 'La Conservazione della Biodiversità in Umbria - 18-20 Maggio 1996 Perugia', the breeds Alpina and Grigio Alpina were regarded as synonyms.

Tibetana/ Tibetan Dwarf

Synonyms: Derivata africana nana, Nana Africana, Chèvre de Casamance, Chèvre naine de l'est, Chèvre naine des Savannes, African Dwarf, Cameroon Dwarf, West African Dwarf, Forest Goat, Grassland Dwarf, Guinean, Guinean Dwarf, Nigerian Dwarf, Diougry, Djallonké, Fouta Djallon, Kosi, Pygmy).

The Tibetan goat was bred in the Piedmont Region (Vercelli) and along the coasts of West and Central Africa. It is diverse in colour and resistant to sleeping sickness (trypano resistance).

Sources:

- Mason
- Rognoni 1979
- ConSDABI: IN 1998, 8 animals were kept there.
- Report on the meeting 'La Conservazione della Biodiversità in Umbria - 18-20 Maggio 1996 Perugia'

Valdostana

The Valdostana goat was bred in the Piedmont Region (Vercelli, Turin). The APA Vercelli has not heard of the breed.

Sources:

- Mason

- Rognoni 1979 - 30 animals in the overall population

11.3. Horses and donkeys

11.3.1. General information

In 1990, the former MiRAAF – ‘Ministero per le Risorse Agricole, Alimentari e Forestali’ founded the ‘Registro Anagrafica delle popolazioni equine riconducibili a gruppi etnici locali’. Today, the register is kept by AIA.

Address:

AIA, D.ssa Silvana Gioia, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: gioia.s@aia.it, info@aia.it, URL: <http://www.aia.it>

In the ‘Atlante etnografico delle popolazioni equine ed asine italiane – Per la salvaguardia delle risorse genetiche’, published in 1996 by the Consiglio Nazionale delle Ricerche, 13 autochthon horse breeds, 2 autochthon horse populations and 5 donkey populations are described.

Contacts:

Dr. G. Gandini, Istituto di Agraria/Istituto Zootecnica Generale, Università degli Studi di Milano, Via Celoria 2, 20133 Milano

11.3.2. Donkeys and mules

Donkey breeds from the Alpine region are not known. Mule breeding was in Piedmont but is no longer carried out.

General address for donkey breeding:

AIVAM – Associazione Italiana per la Valorizzazione dell’Asino e Mulo, Aldo Vico, Borgata Ruadamonte, 28, 10050 Coazze (TO), Tel: 0039-11/934 03 78

11.3.3. Overview of endangered horse breeds in the Italian Alpine region

In the following table, endangered Italian horse breeds are listed. Extinct breeds are not included. Listing follows the risk status and is alphabetical within a risk category.

Breed	Stock (most recent)**	Risk Status	Trend	Initiatives*
Samolaco/Samolaca	Few mares (2000)	Extinct?	↓	-
Norico/Noric	142f HB (2000)	Endangered	↑	++
Avelignese/Hafling Mountain Pony	5025f HB (1995)	Rare	↓	+

* ++ (existing, with success), + (existing), - (non-existent)

** f = female animals, m = male animals, HB = herdbook, OP = Overall Population

11.3.4. Officially recognised autochthon horse breeds

Avelignese/ Hafling Mountain Pony

Synonyms: Haflinger, Hafling Pony,

Background: The name Hafling was used in South Tyrol in the 17th century for ponies suitable for use as pack animals. The name did not refer to a breed as such but to the use of the animal. The year 1897 is the real ‘year of birth’ of Hafling Mountain breeding. Particularly the Austrian army bought many of the tough pack horses at this time.

The Hafling Mountain pony was bred by crossbreeding the horse population in South Tyrol with Arabian Thoroughbred horses (Cavallo Arabo). The animals are relatively small and

very robust. The herdbook has been kept for 120 years. Since 1973, it is officially recognised and kept by ANACRA.

This breed is today also widespread in Western Europe, Asia and America. The world-wide population was estimated to be approx. 35,000 in 1995. In Germany (1998: 12,869 animals in the overall population) and Austria (1998: 7153 mares in the herdbook), Hafling Mountain ponies are bred on a larger scale. In Switzerland, there is a small population (1999: 506 mares in the herdbook).

Distribution:

Region: mainly Tyrol, but also elsewhere in Italy

Initiatives:

- The Florence-based national association of breeders for the Hafling Mountain horse is the central herdbook office. A local breeding association exists in each region.

Contacts:

- ANACRA - Ass. Naz. Allev. Cavalli Razza Avelignese, Viale Lavagnini, 50129 Firenze, Tel/Fax: 0039-55/57 18 67, E-Mail: anacra@haflinger.it
- Federazione Provinciale degli Allevatori di Cavalli di razza Aveglinese dell'Alto Adige – Südtiroler Haflinger Pferdezuchtverband GmbH, Via Monte Rotondo 1/B, 39100 Bolzano
- Switzerland: Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08
- Austria: Zentrale Arbeitsgemeinschaft Österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Germany: Arbeitsgemeinschaft der Haflingerzüchter und -halter in der BRD, Dr. Uvo A. Wolf, Ringstrasse 20, 82432 Walchensee, Tel: 0049-8858/253

Stock:

1995: 5025 mares and 267 stallions in the herdbook (Total HB: 8271) kept by 3861 breeders

1992: 7778 mares in the herdbook

Development trend: decreasing

Assessment: rare

Need for action: This is handled by ANACRA.

Norico/ Noric

Synonyms: Konie Sloyskie, , Noriker, Norisches Kaltblut, Pinzgauer, Silesian Norik, Elmar, Schaunitz, Vulkan, Heavy Noric, Light Noric, Oberland, South German Coldblood, Abtenauer (Type)

Background: Noric horses originate from the Pinzgau valley in Austria. Organised breeding was already started in 1565. Noric horses are among the oldest purebred horse breeds in the world. The large Roman horse and the mountain-suited Teuton horse are considered to be its ancestors. The breed was named after the former Province of Norikum. In Italy, the five original male bloodlines still exist (Vulkan, Nero, Diamant, Schaunitz and Elmar). Stocks have decreased with the increasing mechanisation of agriculture.

In 1897, the first breeding associations were founded. The herdbook has been officially recognised since 1990 and is today kept by AIA.

In Austria (1999: 3575 mares in the herdbook), Slovenia (1993: 100 mares and 40 stallions, not taken care of at present) and in former Yugoslavia, there are also Noric horses.

Distribution:

Region: South Tyrol, Friuli-Venetia Giulia; sites: Val Gardena, Val Badia, Val Pusteria

Initiatives:

- Since 1953, the South Tyrol Hafling Breeding association takes care of the breed. 4 breeders associations were already founded before the turn of the century. At the beginning of the 1930s, the official herdbook for Noric horses was set up in Italy.

- The conservation of this breed receives financial support through EU-regulation 2078/92 (new 1257/99).

Contacts:

- Federazione Provinciale degli Allevatori di Cavalli di razza Aveglinese dell'Alto Adige – Südtiroler Haflinger Pferdezuchtverband GmbH, Via Monterotondo 1/B, 39100 Bolzano, Tel: 0039-471/97 16 82
- AIA, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>
- Assessorato all'Agricoltura e Foreste, Provincia Autonoma di Bolzano, Via Brennero, 6, 39100 Bolzano
- Austria: Arbeitsgemeinschaft der Norischen Pferdezüchter Austrias, Kirchhamerstrasse 47, 5751 Maihofen

Stock:

2000: 142 mares in the herdbook

1995: 90 mares and 5 stallions in the herdbook

Development trend: increasing

Assessment: endangered (only in Italy)

Need for action:

The breeders' association is active, but there is urgent need to ensure a sufficiently broad genetic basis.

11.3.5. Italian saddle horse populations in the Italian Alpine region

Sella Italiano/ Italian Saddlebreed

Background: Any horse which belongs to the Italian saddle horse population is named Italian Saddlebred. It is not a breed in the proper sense as the population is descended from autochthonous ancestors (e.g. Calabrese, Maremmano, Persano and Salerno) which were crossbred with the English Thoroughbred, Arabian horses, Anglo-Arabian horses and Anglo-Arabian Sardinian horses and their offspring. Since 1973, Italian Saddlebred has been officially recognised as a breed. At the beginning of the 1970s, a herdbook was established to support the Italian saddle horse population. It is kept by ENCI. The herdbook is today divided up into three parts, and also contains Arabian horses and Anglo-Arabian horses.

Distribution: Throughout Italy

Initiatives:

- ENCI supports the population Sella Italiano

Contacts:

- ENCI - Ente Nazionale per il Cavallo Italiano, P.zza Sallustio, 24, 00187 Roma, Tel: 0039-6/48 80 57, Fax: 0039-6/48 80 91
- UNIRE – Unione Nazionale Incremento Razze Equine, c/o AIA, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

Stock:

1995: 14070 mares and 1250 stallions in the herdbook (Total HB: 37320) kept by 7000 breeders.

Assessment: not endangered

Need for action: No

11.3.6. Officially not recognised horse breeds

Samòlaco/ Samolaca

Synonyms: Samolago, Samolicano

Background: The breed Samolaca is a local population from Andalusia. Its origins in Italy date back to the 15th century. At this time, Andalusian horses were brought to the Po plain. The Count of Chiavenna, Gian Giacomo Trivulzio, brought Andalusian horses to the Samolaco plain during the same century. The typical Samolaca horses originated from the Andalusians crossbred with Hafling Mountain ponies. They are very similar to the Hafling Mountain pony in appearance, but smaller in size. The white star on the forehead is typical. They mainly proved their worth as pack horses. Animals today have mostly been crossbred with Freiberg horses and Hafling Mountain ponies. The population is officially not recognised and no herdbook is kept.

Distribution:

Region: Lombardy, site: Chiavenna (Samolaco), Sondrio

Initiatives:

- In 1990, Samolaca horses were entered in the Registro Anagrafico. They are no longer listed.
- The conservation of this breed is financially supported through EU-regulation 2078/92 (new 1257/99).

Contacts:

- AIA, D.ssa S. Gioia, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 06/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

Stock:

2000: According to APA Sondrio, the population has actually become extinct and only some old purebred mares still exist. Stallions are completely missing.

1990: 12 purebred animals

Development trend: 1990s: decreasing

Assessment: extinct?

Need for action:

It is presumably too late for any conservation effort. But on-site searches should urgently be conducted to check if further animals still exist! In order to conserve the genes, those mares still available should be mated with stallions as purebred as possible.

11.3.7. Internationally known horse breeds in the Italian Alpine region

Cavallo Agricolo di Razza Belga

Address: Società Italiana per il Cavallo Belga, Via Solferino, 33, 26100 Cremona, Tel: 0039-372/41 06 66

Cavallo Trottatore/ Italian Trotter

Synonyms: Trotta, Noram Trotter, Trottatore Italiano

Addresses:

- ANA Cavallo Trottatore, Viale del Policlinico, 131, 00161 Roma, Tel: 0039-6/44 27 28, Fax: 0039-6/855 32 08
- UNIRE – Unione Nazionale Incremento Razze Equine, c/o AIA, Via Tomasetti, 9, 00161 Roma, Tel: 0039-6/85 45 11, Fax: 0039-6/44 24 92 86, E-Mail: info@aia.it, URL: <http://www.aia.it>

Quarter Horse

Address: Ass. Ital. Quarter Horse, P.zza Artom, 12, 50127 Firenze, Tel: 0039-55/436 05 09, Fax: 0039-55/849 59 94

Cavallo Arabo/Arabian Horse

Synonyms: Cavallo Arabo, Arabisches Vollblut

Address: ANA Cavallo Arabo, Viale Libertà, 23, 43044 Collecchio, Tel: 0521/805250, Fax: 0521/800212

11.4. Pigs

11.4.1. General information

Until the 1950s, Italian pig breeds did fairly well. Later, stocks decreased because of the introduction of foreign breeds (mainly Large White and Landrace). The plains of the Emilia Romagna and of South Italy are the most important Italian pig breeding areas. In the Alpine region, however, pig breeding was never of great economic importance. None of the still existing autochthonous breeds today originated from the Alpine region. Here, the bristly animals were mainly kept in small numbers as converters of kitchen and harvest waste. Even in the Vinschgau, renowned for its bacon, pig breeding is not carried out on a large scale – most of the meat needed is imported.

The national pig breeders organisation was started in 1962. Since 1991, herdbooks of Italian pig breeds have been kept by ANAS. The coordination of the registration of hybrid pigs is also an ANAS task.

Address:

ANAS – Associazione Nazionale Allevatori Suini, Ufficio Centrale del Libro Genealogico, Via Giovan Battista di Rossi, 3, 00161 Roma, Tel: 0039-6/441 70 61, Fax: 0039-6/44 17 06 38, E-Mail: anas@ana.it, Herdbuch: lgs@anas.it, URL: <http://www.anas.it>, Contacts: Dr. Luci Buttazzoni

In 1996, the IDVGA has founded a semen bank for endangered Italian pig breeds, in cooperation with the ELPZOO (Ente lombardo potenziamento zootecnico). They are also participating in the study 'Characterisation and conservation of pig genetic resources in Europe', due to be published at the end of 2001.

Address:

IDVGA-CNR – Dr. Gandini, Istituto per la Difesa e la valorizzazione del germoplasma animale, Facoltà di Medicina Veterinaria, Università Milano, Via Celoria, 10, 20133 Milano, Tel: 0039-2/36 94 40, E-Mail: gustavo.gandini@unimi.it

11.4.2. Extinct Italian pig breeds and types from the Italian Alpine region

In this study, 6 breeds, populations or types from the Italian Alpine region were found to be extinct !

Cavourese (Synonym: Cavour)

The pig breed Cavourese from the Piedmont Region has – according to Riccardo Fortina – WWF Italy – died out.

Garlasco

This pig breed from Pavia and Lomellina (Lombardy Region) disappeared in the 1970s.

Lombarda (Types: Lodigiana, Bergamasca-Bresciana)

Lombarda pigs from Lombardy are no longer found today – information from Riccardo Fortina – WWF Italy.

Mora Friuliana (Synonyms: Nera del Friuli, Friuliana Nera, San Daniele, Sandanielese, Friuli Black)

This former breed from Venezia was already in the 1950s considered to be extinct. In Slovenia, animals might still exist.

Samolaco

The Samolaco pig has died out according to APA Sondrio. It was formerly bred in Lombardy (Sondrio, Chiavenna, Samolaco). The breed might be identical with the Valtellina pig.

Valtellina

This breed was formerly bred in Northern Lombardy.

11.4.3. International pig breeds in the Italian Alpine region

Breeds

- Landrace
- Landrace Belga
- Large White Italiana
- Duroc (Synonym: Duroc Jersey)

There were 410 female herdbook animals of the reddish-coloured Duroc pigs existed in Italy in 1991. Stock numbers did not change at the beginning of the 1990s. The degree of purity is a critical factor.

- Hampshire (Synonyms: Belted, Gempshir, Hampshire, Mackay, Norfolk Thin Rind, Ring Middle, Ring Necked, Saddleback, Woburn)

The breed Hampshire belongs to the group of Saddleback pigs. It is black and white coloured with a white belt and has upright ears. They are registered in the 'registro anagrafico' of the ANAS. In 1991, 24 female animals and ten boars were mentioned in the herdbook. The degree of purity is a critical factor.

- Pietrain
- Spotted (Synonym: Spot)

Contacts

ANAS – Associazione Nazionale Allevatori Suini, Via G.B. de Rossi, 3, 00161 Roma, Tel: 0039-6/441 70 61, Fax: 0039-6/44 17 06 38

11.5. Poultry

11.5.1. General information

During recent decades, the increasingly stricter requirements of a performance-orientated production have led to an intensive breeding of high-performing breeds. Traditional Italian poultry breeds have been increasingly replaced. Today, nearly all remaining autochthonous breeds have inbreeding problems. Initiatives for the conservation of Italian chicken breeds are almost non-existent. Funding for conservation work is not available.

National organisation for poultry breeding:

ANPASA – Associazione Nazionale per Allevamento Selezione Avicola, Via Porrettana, 34, 40057 Lovoletto di Granarolo (BO), Tel: 0039-51/602 17 12, Fax: 0039-51/602 14 89

National organisation for high-performing breeds:

Unione Nazionale dell'Avicoltura, Via Vivio Mariano, 58, 00189 Roma, Tel: 0039-6/33 25 40 15, Fax:0039-6/33 25 24 27

11.5.2. Overview of endangered chicken breeds from the Italian Alpine region

In the following table, endangered chicken breeds from the Alpine region are listed. Extinct breeds are not included. Listing follows the risk status and is alphabetical within a risk category.

Breed	Stock (most recent)**	Risk Status	Trend	Initiatives*
Bianca di Saluzzo	<100f/m OP (2001)	Critical	↑	(+)
Bionda Piemontese	<100f/m OP (2001)	Critical	?	(+)
Millefiori	<100f/m OP (2001)	Critical	?	(+)
Padovana/Paduan Fowl	<1000f/m OP (1994)	Endangered (1999)	→	+
Polverara-Schiatta	<1000f/m OP (1994)	Endangered	↑	+
Bionda di Cuneo	>1000f/m OP (2001)	Vulnerable	?	+

* ++ (existing, with success), + (existing), - (non-existent)

** w = female animals, m = male animals, HB = Herdbook, OP = overall population

11.5.3. Poultry Breeds from the Italian Alpine region

Bionda di Cuneo

Distribution:

Region: Piedmont, Site: Province of Cuneo

Initiatives:

- 1) The breeders' organisation 'Club Avicolo 3C di Cuneo' is active for the conservation of this breed. At present, 20 breeders of the 'Club Avicolo 3C di Cuneo' are active in conserving the breed.

Contactss:

- Club Avicolo 3C di Cuneo, c/o Giuseppe Prandi, Via Villan Nova, 13, 12100 Cuneo

Stock:

2001: >1000 birds in the overall population

Assessment: vulnerable

Need for Action:

At present handled by the 'Club Avicolo 3C di Cuneo'.

Bianca di Saluzzo

Synonyms: Bianca di Cavour

Background: The white/ pearl-coloured breed, Bianca di Saluzzo, lays on average 180 eggs/year.

Distribution:

Region: Piedmont, site: Saluzzo

Initiatives:

- 2 breeders' organisations work for the conservation of the breed Bianca di Saluzzo. The breeders' club from Cuneo has redefined the standard for the breed and admitted at the FIAV. 10 breeders of Bianca di Saluzzo are linked to this organisation.
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- Club Avicolo 3C, c/o Giuseppe Prandi, V. Villanova, 13, 12100 Cuneo
- Club Avicolo 3C, c/o Armando Manassero, V. Centallo, 91, 12145 Fossano
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

2001:

A few breeders around Saluzzo still breed pure Bianca di Saluzzo chicken.

Development trend: increasing

Assessment: critical

Need for action: Yes, great.

The breeders' organisations in Cuneo and Fossano can only partially handle the work needed.

Bionda Piemontese

Synonyms: Bionda di Villanova , Rossa delle Crivelle, Nostralina

Background: This breed with its sandy-haired plumage is today mainly kept in small family enterprises. Annual egg production amounts to 180-200 eggs. Each year at the second Sunday in November, a market takes place in Fossano (CN) where Bionda Piemontese chicken are available (Mostra-Mercato della Bionda di Cuneo). On the Mostra-Mercato del Pollo Agostano, on the first Thursday in September, Bionda Piemontese chicken are also available in Villanova.

Distribution:

Region: Piedmont and Aosta valley, sites: Cuneo and Villanova

Initiatives:

- The breeders' organisation 'Club Avicolo 3C' is active in conserving this breed. The Club Avicolo 3C from Cuneo also plans to include this breed in its breeding program.
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- Club Avicolo 3C di Cuneo, c/o Giuseppe Prandi, Via Villanova, 13, 12100 Cuneo
- Club Avicolo 3C, c/o Armando Manassero, V. Centallo, 91, 12145 Fossano
- Slow Food, Via delle Madicità, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock: The current stock is not known. Around Cuneo and Villanova, a few poultry keepers still breed pure Bionda Piemontese.

Assessment 1999: critical

Need for action: Yes, great.

Both breeders' organisations in Fossano can only handle some of the work needed.

Millefiori

Background: Millefiori chicken are black in colour with white speckles.

Distribution:

Region: Piedmont, site: Province of Cuneo

Initiatives:

- 2) The breeders' organisation 'Club Avicolo 3C di Cuneo' is active in conserving this breed. They only discovered this breed in the 1990s and are still searching actively for animals which match the description of this breed.

Contacts:

- Club Avicolo 3C di Cuneo, c/o Giuseppe Prandi, Via Villanova, 13, 12100 Cuneo

Stock:

2001:

Less than 100 birds in the overall population. At present, it is not known whether purebred cocks still exist.

Assessment: critical

Need for action:

The 'Club Avicolo 3C di Cuneo' can only do some of the work needed. Searches for remaining animals should be carried out urgently.

Padovana/ Paduan fowl

Synonyms: Padovana Nana, Polish, Padoue,

Background: The Paduan fowl is a very old breed. It originated in Italy or Poland. Today, it is mainly kept by poultry fanciers. In Italy the colour types black, white, gold and silver exist.

Annual egg production is on average 220 eggs. The breed is bred throughout Europe.

Distribution:

Region: Veneto, site: Padova

Initiatives:

- Conservation by AERA
- The organisation Slow Food supports the marketing of products from this this breed.

Contacts:

- AERA – Associazione Emiliana Romagnola Avicola, Via Ronchetti, 33, 41038 San Felice (Modena), Presidente: Alfredo Regiono, Tel: 0039-535/830 41, Fax: 0039-535/811 10
- Prof. Dr. Giulia Giordani, Facoltà Agraria, Istituto di Zoocolture, Università di Bologna, Via S. Giacomo, 9, 40126 Bologna, Fax: 0039-51/25 19 36
- Slow Food, Via delle Madicita, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1994: 100-1000 animals in the overall population

Development trend: stabil

Assessment: 1999: endangered (AERA) Some of the colour types have become extinct!

Need for action: Yes – great.

Little is being done.

Polverara-Schiatta

Background: This old breed was named after the town of Polverara. It lays an average of 190 eggs/year and has white or black plumage (50% each). Today, Polverara chicken are mainly kept by poultry fanciers.

Distribution:

Region: Veneto, site: Paese Pulverana

Initiatives:

- A group of animals is supported by AERA

Contacts:

- Prof. Dr. Giulia Giordani, Facoltà Agraria, Istituto di Zoocolture, Università di Bologna, Via S. Giacomo, 9, 40126 Bologna, Fax: 0039-51/25 19 36
- AERA – Associazione Emiliana Romagnola Avicola, Via Ronchetti, 33, 41038 San Felice (Modena), Presidente: Alfredo Regiono, Tel: 0039-535/830 41, Fax: 0039-535/811 10

Stock:

1994: 100-1000 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action: Yes - great

At present, it is only partially handled.

11.5.4. Geese breeds from the Italian Alpine region

Comprehensive information on Italian geese breeds could not be obtained in this study. Only for the regions Friuli and Lombardy, the following entries were found:

Friuli Geese

Friuli Geese are a crossbred between the Romagna and the Emden Gans. In former times, they were distributed throughout the region. Today, they are considered to be extinct. The breed was traditionally used to produce geese sausage and geese ham.

Geese from Lombardy

For a long time, Lombardy has been considered to be the center of geese breeding. It can therefore be assumed that some breeds originated there.

11.6. Dogs

11.6.1. General information

In Italy, 14 autochthonous dog breeds exist. ENCI supervises the breeding of 13 breeds. The breed 'Lupo Italiano' is not officially recognised. Only the breed Pastore Bergamasca originated from the Alpine region.

Contacts:

- ENCI – Ente Nazionale della Cinofilia Italiana, Viale Premuda, 21, 20129 Milano, Tel: 0039-2/76 02 17 06, E-Mail: enci@cta.it, URL: <http://www.cta.it/enci.htm>

11.6.2. Pastore Bergamasca

Synonyms: Cane da Pastore Bergamasca, Cane delle Alpi, Bergamasker Hirtenhund):

Background: The Bergamasca dog is mainly distributed in Northern Italy. It is of medium size (54-62cm), with a rustic appearance and lush hair all over its body. Fur colour varies from bright grey to black in all shades. The dog is intelligent, independent and modest in its food requirements. It is assumed that the European shepherd dogs were brought from East Asia to Europe by the animal-breeding nomads of primeval prehistory. Along the most probable route of the nomads from the East to Europe, it is still possible to find the straggly-haired dogs being kept and bred today in the Hungarian Puszta as Comondor or Puli, in Poland as Owczarek Nizynni, in the Italian Alps as Bergamasca, in the French Alps as Briard and in the Spanish Pyrenees as Gos d'Atura. Therefore, it can be assumed that the Pastore Bergamasca has been around for hundreds of years.

In the year 1898, the first Bergamasca was entered into the Italian dog register. The SAB – Società Amatori del Cane da Pastore Bergamasco- is active in Italy in conserving Bergamasca dogs. Besides its flawless character, shepherds set great store by its weatherproof, thick straggly hair which is supposed to protect the dog from the cold and the heat as well as from snake bites.

Bergamasca dogs are also kept and bred in Switzerland. In 1990, the Swiss club for Bergamasca shepherd dogs was founded.

In Austria, the General Shepherd and Watch Dog Club handles of the breed. At present, no dogs of this breed are kept in the country.

(AHHC, Frau G. Höllbacher, Untere Marktstrasse 14, 3481 Fels)

Initiatives:

- The SAB supports the conservation of this breed and occasionally organises championships.

Stock:

- 1992: 72 animals in the herdbook, overall population is probably several hundreds.

Contacts:

- SAB - Società Amatori del Cane da Pastore Bergamasco, S. Carlo, 1, 24100 Bergamo, Tel: 0039-35/21 89 74
- D.ssa Maria Andreoli, Veterinaria e allevatrice di cani bergamaschi, Boarone, 32, 13100 Vercelli

Need for action:

The breed pastore Bergamasca is at present only insufficiently protected. An additional problem is that there is little interest in pure-breeding.

11.7. Rabbits

11.7.1. General information

In the Italian Breeding Standard for rabbits, more than 40 breeds are listed. Among them are 4 heavy, 16 medium and 17 light meat breeds. 4 breeds with special fur qualities are listed, too. These are mainly Dutch hybrid breeds. According to the Dipartimento di Scienze Zootecniche of the University of Torino, only one autochthonous rabbit breed exists in Italy, the Grigio Carmagnola. It originated from the Piedmont Region.

Nazionale Association of Rabbit Breeders:

Associazione Nazionale Coniglicoltori Italiani, Via de Rosse, 12, 00161 Roma, Tel: 0039-6/44 24 32 46, Fax: 0039-6/44 23 63 83

Further contacts for rabbit breeding in Italy:

Unconventional Rabbit Breeding Experimental Centre, Animal Production Institut, Tuscia University, 01100 Viterbo

11.7.2. Grigio di Carmagnola

Synonym: Coniglio Grigio

Background: This breed is descended from the local population in Piedmont. It is mostly kept in an extensive way on family farms for meat production.

The 'Coniglio Grigio' is only purebred at the University of Torino. Some breeders are still active in Piedmont, they pay little attention, however, to pure breeding. In 1982 the first trials were started to conserve the breed.

Distribution:

Region: Piedmont

Initiatives:

- At the University of Torino, scientific investigations on the breed Coniglio Grigio are conducted.
- A questionnaire was recently developed to find out about the numbers of animals kept by private breeders.
- The organisation Slow Food supports the marketing of products from this breed.

Contacts:

- Facoltà di Agraria, Dipartimento di Scienze Zootecniche, Università di Torino, Dr. Riccardo Fortina oder Dr. Ivo Zoocarato, Via Leonardo da Vinci, 44, 10195 Grugliasco (TO), Tel: 0039-11/670 85 75, Fax: 0039-11/670 85 63
- Centro Allevamento del Dipartimento di Scienze Zootecniche, Strada Torino, 620, Carmagnola (TO)
- Istituto di Zootecnica Generale, Università degli Studi di Perugia, Perugia (Umbrien)
- Slow Food, Via delle MadicITÀ, 14, 12042 Bra (CN), Tel: 0039-172/41 96 24, E-Mail: presidi@Slow Food.it

Stock:

1999: At the University of Torino, 70 female and 10 male purebred animals are kept – the overall stock number is not known.

Assessment: critical

Need for action: Yes – acute. There is no breeders' association working to conserve this breed. The aim of the universities is not conservation but scientific study.

The interest of breeders could be awakened by enhanced support for the products of the breeds.

12. General report on cultivated plants in the Swiss Alpine region

12.1. Protection of cultivated plants

12.1.1. Distribution of seed

Management of the distribution of local varieties of potatoes, cereals, forage plants and hemp:

Today, detailed regulations concerning the production and marketing of seed and planting material exist for potatoes, cereals, forage plants (grasses, leguminosae, Swedish turnip, fodder rape, fodder kale, phacelia, oil raddish) and hemp in Switzerland. Only seed of the above mentioned species that is registered in the national variety catalogue (Nationaler Sortenkatalog) may be traded. Within a company, further reproduction is possible without registration in the variety list. In order to be admitted to the national variety catalogue, a variety has to show the characteristics of differentiability, homogeneity and stability as well as a satisfactory suitability for cultivation and reproduction. Admission to the national list of varieties follows successful testing in a Swiss research station (Eidgenössische Forschungsanstalt) and a final decision by the Federal Office for Agriculture. The bilateral agreements concluded in 2001 with the EU require not only that varieties registered in the national list may be marketed in the near future but also that all varieties registered in the EU may be offered. Swiss variety lists will then lose their exclusive character and merely serve as recommendations for cultivation in Switzerland. The task of testing will remain with Swiss research stations.

According to the regulation on cereal seeds and plant potatoes, marketing seeds and planting material of local varieties which are not registered in the national variety catalogue and without seed certification are allowed (SR 916.151.1, chapter 1, art. 29). Approval must, however, be obtained from the Federal Office. The seed and planting material must also be given an unofficial label stating 'seeds not certified, local variety, marketing limited to Switzerland'. The Federal Office may further define the highest amount per local variety to be marketed.

For potatoes and cereals, there is a list defining the local varieties to be traded for conservation purposes in small amounts (potatoes: 10 kg per variety and year).

Information on the national variety lists is available on the website: <http://www.admin.ch/sar/fal>

Other species of cultivated plants

All other species of cultivated plants may be traded according to the usual restrictions (variety protection, health certificate, directives concerning genetically engineered seed). That is, local breeds may also be traded freely. For vegetables, various recommendations without binding character are available.

12.1.2. Legal basis for the conservation of cultivated plants

For the implementation of agricultural practices for the conservation of cultivated PGR, there are the following legal provisions:

Conservation and sustainable use of genetic resources in nutrition and agriculture:

- Agricultural legislation: Article 140 enables the Federal Government to offer financial support for the conservation of Plant Genetic Resources in agriculture. The article creates the current legal basis for the financing of the National Plan of Action.

Protection of habitats:

- Environmental protection legislation (USG, SR 814.01): The law provides for the protection of humans, animals, plants, their biotic communities and their habitats. These elements include biodiversity in a wider sense.
- Land use planning legislation: The land use planning legislation secures the area necessary for the conservation of PGR.
- Nature protection legislation (NHG; SR 451) of the Federal Government and the cantons: Enables the responsible bodies to conserve biotopes and habitats of high ecological value by making contractual agreements with farmers to continue the to date applied cultivation method or by laying down specific cultivation guidelines. This measure includes the conservation and support of traditional knowledge and methods of local communities with a traditional lifestyle, thus having a positive impact on the conservation of biodiversity.

Conservation of biodiversity, support measures in agriculture supposed to contribute to it, particularly in mountain farming:

- Conservation or creation of extensive and less intensive pastures, extensive orchards, hedges, embankments, fallow areas and fruit tree stands contributes to genetic diversity (ecotypes for forage plants, varieties for fruit trees) as well as to species and ecosystem diversity (Art. 31b).
- Ecoprogram (Art. 31b, paragraph. 1 LwG): Contributes to the diversity of ecosystems (habitat and landscape).
- Reform of agriculture: counteracts the tendency to lose natural habitats through intensification of farming practices.

12.1.3. Implementation of the National Plan of Action

In 1994, the Swiss parliament ratified the Rio Convention on Biological Diversity. Each signing country has committed itself to conserving its the national plant heritage. The Swiss government directed the Federal Office for Agriculture (BLW) to set up a working group on 'Genetic Resources'. At the end of October 1997, the National Plan of Action was launched by the Swiss government. Article 140 of the Federal Law on Agriculture forms the current legal base for the financing of the implementation of the National Plan of Action for cultivated plants. For the protection of endangered cultivated plants, the following focal points have particularly been emphasised in a first stage: inventories of the whole country, conservation program for fruit species, implementation of on-site conservation and utilisation programs and the implementation of regeneration programs for genebank material. Private organisations were particularly considered when placing projects. The SKEK – Swiss commission for the conservation of cultivated plants – is responsible for assessing current activities and projects and reporting on them regularly to the Federal Office for Agriculture (for further information on SKEK: see below).

In a first step (1999-2002), the following projects were given grants within the frame of the National Plan of Action:

- NAP 2: Conservation of the biological diversity of cereals and field accompanying flora in the Valais mountains and the variety garden Erschmatt.
- NAP 3: Conservation of fruit variety diversity, particularly endangered varieties through the association 'Obstsor tensammlung Roggwil'.

- NAP 5: Inventories, description and conservation of walnut varieties (*Juglans regia* L.) in western Switzerland through Fructus in cooperation with the University of Applied Sciences Changins.
- NAP 6: Pomological characterisation of the pear variety collection through Rétropomme.
- NAP 7: Long-term conservation of genetic resources of fruit through the experts' group fruit variety conservation of the SKEK.
- NAP 8: Inventories of fruit and berry varieties in Switzerland through Fructus and the Swiss Research Station Wädenswil
(Contacts: Simon Egger and Peter Rusterholzer).
- NAP 12: Conservation of genetic resources of chestnut varieties from Ticino through Fructus and the Swiss Research Station FNP
(Contact: Marco Conedera).
- NAP 13: Conservation and description of Swiss farm varieties of red clover (*Trifolium pratense* L.) through the Eric Swiss Seeds AG.
- NAP 14: Setting up a representative Swiss berry fruit collection through Pro Specie Rara.
- NAP 15a: Setting up a central fruit database and nucleus monitoring through Pro Specie Rara.
- NAP 15b: Decentralised on farm conservation of fruit varieties in contract-arboreta through Pro Specie Rara.
- NAP 20: Conservation and support of regional diversity through the variety-specific utilisation and marketing of standard apple and pear varieties in the Upper Fricktal through the Forum Doracher, 5079 Zeihen (Contact: Heiner Keller, ANL, Aarau).
- NAP 26: Development of plans and methods for conserving fruit genetic resources in Switzerland and international cooperation through Fructus, Pro Specie Rara and FOB (Fachstelle für Obst und Beeren, Oeschberg).
- NAP 27: Setting up variety gardens in Grisons for the *in situ* conservation of approx. 400 local wheat and barley varieties or lines which are at present conserved in the genebank Changins by Peer Schilperoord.
- NAP 28: Program for the conservation of medicinal and spice Plant Genetic Resources from the collections of Mediplant and the genebank Changins under the direction of Mediplant.
- NAP 29: Conservation of the dinkel breeding lines from the Swiss Research Station for Agroecology and Agriculture Reckenholz (Eidgenössische Forschungsanstalt für Agrarökologie und Landbau Reckenholz) through transfer to the genebank Changins.
- NAP 30: Development of plans, methods and a control system for the conservation of genetic resources of vegetables, field and industrial plants and the organisation of a national databank through the SKEK working group vegetables.
- NAP 31: Conservation and description of Rheintal Ribelmaize by the Association for Rheintal Ribelmaize (Verein Rheintaler Ribelmais).
- NAP 32: Carrying out a historical inventory of Swiss cultivated plants through the Monitoring Institute.
- NAP 39: Redevelopment, description and sustainable *in situ* conservation of old potato varieties through Pro Specie Rara.

Address BLW: Hansjürg Lehmann, Abteilung Ökologie, Mattenhofstrasse 5, 3003 Bern, Tel: 0041-31/322 26 77, Fax: 004131/322 26 34, URL: <http://www.blw.admin.ch>

Address SKEK: SKEK – Schweizerische Kommission für die Erhaltung von Kulturpflanzen, Fr. B. Schierscher Viret, Domaine de Changins, Postfach 254, 1260 Nyon, Tel: 0041-22/363 47 01, Fax: 0041-22/362 13 25, E-Mail: beate.schierscher-viret@rac.admin.ch

12.1.4. Direct financial support

The following direct support measures exist for the conservation of cultivated plants in Switzerland:

- Projects within the framework of the National Plan of Action.
- Existing legislation in the area of seed and planting material (LwG; SR 910.1) enables the Federal Government to allocate subsidies for the conservation of so-called local varieties and to enact regulations for marketing.
- Fonds Agriculture Switzerland
The Fonds Agriculture Switzerland was launched during the 700th anniversary of the confederation in the year 1991. Its task is the initiation, support and promotion of measures for the conservation and care of subnatural cultural landscapes. Within this framework, projects are supported which promote the conservation of old varieties of cultivated plants – particularly of cereals, fruit and chestnuts. More detailed information may be taken from the chapter '*Portraits of actors committed to the conservation of cultivated plants in the Swiss Alpine region*'
Address: Thunstrasse 36, 3005 Bern, Tel: 0041-31/351 71 81, Fax: 0041-31/351 71 84

12.1.5. Financial support indirectly promoting the conservation of cultivated plants

In 1993, income-complementing direct payments for the compensation of product price reductions and ecocontributions to satisfy ecological services were paid for the first time. The division of price and income policy, an objective of the Agricultural Policy 2002, has started then. The financial support of ecological services, especially in the area of nature protection, has, however, a longer tradition.

For the following activities, direct contributions have been made which indirectly promote the conservation of cultivated plants in the Alpine region and which are especially relevant for the Alpine region :

- Maize and other cultures on slopes
- Extensive cereal production
- Standard field fruit trees
- Subsidies in mountainous and hilly areas
- Ecological compensation areas in mountainous regions (divided into 4 zones)
- Support of ecological production systems such as organic agriculture and integrated production.

12.1.6. Non-Governmental-Organisations (NGOs) active at the national level

Pro Specie Rara

Pro Specie Rara is the Swiss foundation for the conservation of the genetic and cultural-historical heritage of livestock and cultivated plants. As the only such organisation in Switzerland, it promotes the conservation of the entire range of species in all parts of Switzerland. The organisation was founded in 1982 and conducts projects to promote the conservation of old cultivated plants and endangered livestock breeds from Switzerland. The varieties taken care of by Pro Specie Rara are conserved on farm (live). More than 1000 organisations (institutions, amateurs and professionals) are today active in this conservation work. They are coordinated by the PSR Sortenzentrale (central office for varieties). The selected varieties are annually cultivated for conservation at different sites in Switzerland. For that purpose, seeds are available free of charge for the conservationists. A large number of activities are coordinated by the small central office. PSR still searches actively for old varieties today. Information on old varieties is stored in electronic databanks. The

conservation of each variety is secured within a long-term conservation scheme. A large number of varieties are additionally secured in the genebank at Changins.

As a contact organ for activists and interested persons, the 'Sortenfinder (variety finder)' is published twice a year in German, French and Italian. The PSR-Bulletin is published quarterly (with information on animals and plants) and the 'Herdenspiegel' once a year (with information on animal breeds).

Pro Specie Rara is also trying to conserve biodiversity in Switzerland. In the conservation program, mountain varieties are also included and secured.

For some years, Pro Specie Rara has increasingly been supporting the marketing of old varieties for conservation purposes, for example, by starting a cooperation with the large distributor Coop. PSR cooperates with different governmental research stations for the sanitation of varieties.

Contacts:

- Office: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (vormittags), Fax: 0041-62/823 50 25, E-Mail: sekretariat@psrara.org, URL: , Business Manager: Bela Bartha
- Garden Plants: Sortenzentrale, Pfrundweg 14, 5000 Aarau, E-Mail: gartenacker@psrara.org, Contacts: Kurt Eichenberger
- Fruit: Sortenzentrale, Pfrundweg 14, 5000 Aarau, E-Mail: obst@psrara.org
- Italian Switzerland: Voce del Sud, Casella postale 47, 6504 Bellinzona, Tel: 004191/821 52 35, Fax: 0041-91/821 52 39, E-Mail: psr-fnp@wsl.ch, Contact: Sabine Lanfranchi
- French Switzerland: Antenne romande PSR, Conservatoire e Jardin botaniques, c.p. 60, 1292 Chambésy, Tel: 0041-22/418 52 25, Fax: 0041-22/418 51 01, E-Mail: denise.gautier-beguvin@cjb.ville-ge.ch, URL: <http://www.cjb.unige.ch/ps>, Contact: Denise Gautier
- Animals: Animal Projects, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20 (mornings only), Fax: 0041-71/223'74'01, E-Mail: [tiere@psrara.org](mailto:tierre@psrara.org), URL: <http://www.psrara.org>

Fructus

Since 1985 the Association Fructus has been collecting, supporting and conserving old Swiss fruit varieties. The collection also includes varieties from the Alpine region. Altogether 7956 fruit plants at 1218 sites are registered. Fructus is also involved in PR-activities (variety descriptions, field trips, training and exhibitions). Old varieties are conserved in arboreta – amongst others in a collection in Höri and in the private collection of Karl Stoll – founder of Fructus.

Address: Vereinigung zur Förderung und Erhaltung alter Obstsorten, Glärnischstrasse 31, 8820 Wädenswil, Tel: 0041-1/780 43 78, E-Mail: fructus@bluewin.ch, URL: <http://www.fructus.ch>,

President: Klaus Gersbach, Contact: Sabine Vögeli

Verein für alpine Kulturpflanze (Association for Alpine Cultivated Plants)

The Association for Alpine Cultivated Plants) was founded in August 2000 and aims to conserve and develop Alpine cultivated plants as a living part of agriculture. The Association is supposed to help re-establish mountain field cropping with local varieties of cultivated plants on a small scale. As a start, a touring exhibition on the topic mountain field cropping has been developed. This exhibition opened in the Chasa Jaura in Valchava (Münstertal) with plans to visit Valais, Grisons, North and South Tyrol. For the time being, only Swiss actors are participating in the Vfak. Through the exhibition, contacts in other countries will be established as well. Cooperating and networking between organisations active in the Alpine region is an important objective of their work.

At their first general meeting in November 2000, VfaK's areas of activities were defined. The VfaK wants to cover the gaps in the conservation of Alpine cultivated plants. *Ex situ* conservation in genebanks and *in situ* conservation in variety gardens have now been taken care of to a large extent. To date, there have been no attempts to transfer Alpine varieties from the genebanks and variety gardens and to conserve them on farm. When this happens, the products should be suitably marketed. PR work is at present unsatisfactory.

Therefore, the VfaK plans to support the marketing of old cereal varieties through the development of a suitable mixture of varieties.

Address: Verein für alpine Kulturpflanzen, Peer Schilperoord, Unter der Kirche 24, 7492

Alvaneu Dorf, Tel: 0041-81/404 22 29, E-Mail: schilperoord@bluewin.ch

12.1.7. Schweizerische Kommission zur Erhaltung von Kulturpflanzen

The SKEK - Schweizerische Kommission zur Erhaltung von Kulturpflanzen (Swiss commission for the conservation of cultivated plants) is first and foremost a platform for actors working in the area of cultivated plants. It is financially supported by the Federal Office for Agriculture. The SKEK was founded in 1991, at the same time as the SKEW-Schweizerischen Kommission für die Erhaltung von Wildpflanzen (Swiss commission for the conservation of wild plants).

Tasks:

- To coordinate and support the exchange of information at the national level between actors from the private and the public sector who are active in conserving cultivated plants.
- To guarantee international exchange.
- To combine and update the inventory lists of all the institutions involved and of the material they conserve.
- To make information on all existing cultivated Plant Genetic Resources in Switzerland easily accessible.
- To keep an address list of those actors involved in conserving of cultivated plants with important addresses from Switzerland and from foreign countries.
- To cooperate closely with the responsible official bodies (BUWAL- Federal Office for the Environment, Forest and Landscape (Bundesamt für Umwelt, Wald und Landschaft)).
- To coordinate project applications within the framework of the National Plan of Action.
- To provide information on national and international activities

Working groups for the following groups of cultivated plants have been set up:

- Vegetables: the working group 'vegetables' of the SKEK is responsible within in the framework of the National Plan of Action for developing plans, methods and a control system for the conservation of genetic resources of vegetables, field and industrial plants and organising of a national database (NAP 30).
- Potatoes
- Vines: The working group 'vines' is at present trying to secure all existing varieties in Switzerland.
- Experts' group fruit variety conservation: The working group 'fruit' was started to coordinate the conservation of fruit nationally.

Address: SKEK – Schweizerische Kommission für die Erhaltung von Kulturpflanzen, Fr. B. Schierscher Viret, Domaine de Changins, Postfach 254, 1260 Nyon, Tel: 0041-22/363 47 01, Fax: 0041-22/362 13 25, E-Mail: beate.schierscher-viret@rac.admin.ch

12.1.8. Governmental institutions for the conservation of cultivated plants

BLW - Bundesamt für Landwirtschaft (Federal Office for Agriculture)

The Federal Office for Agriculture is responsible for the implementation of the National Plan of Action. For detailed information, see chapter 12.1.3..

Address: Mattenhofstrasse 5, 3003 Bern, Tel: 0041-31/322 26 77, Fax: 0041-31/322 26 34, URL: <http://www.blw.admin.ch>

Contacts: Hansjörg Lehmann, Jean-Daniel Tièche, H. Hänni

Eidgenössische Forschungsanstalten (Swiss Agricultural Research Stations)

The main task of the Swiss Agricultural Research Stations is to help agriculture adapt to new conditions and to provide the required scientific and technical basis required for this process. They are involved in the preparation of political decisions in the area of agriculture and, in certain cases, in drawing up legislation. They supervise plant protection products, seed, fertilizers, fodder, detergents for the dairy industry as well as diverse other forms of production used in agriculture. The following research stations work in the field of the conservation of Plant Genetic Resources.

FAW - Eidgenössische Forschungsanstalt für Obst-, Wein- und Gartenbau Wädenswil

Address: Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 61 11, Fax: 0041-1/783 63 41

RAC – Eidgenössische Forschungsanstalt für Pflanzenbau Changins, Station fédérale de recherches en production végétale de Changins

Headquarters: Case postale 254, Rte du Duillier, 1260 Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/362 13 25, E-Mail: geert.kleijer@rac.admin.ch, Contact: Dr. G. Kleijer

Address Center for Vine Cultivation: Centre viticole du Caudoz, Av. de Rochettaz, 21, 1009 Pully, Tel: 0041-21/721 15 60, Fax: 0041-21/728 96 29, Contact: Monsieur D. Maigre

Address Medicinal and Spice Plants: Médiplant, Centre de Recherches sur les Plantes Médicinales e Aromatiques, Centre de Fougères, 1964 Conthey, Tel: 0041-27/345 35 11, Fax: 0041-27/346 30 17, E-Mail: mediplant@rac.admin.ch, URL: <http://www.mediplant.ch>

FAL - Eidgenössischen Forschungsanstalt für Agrarökologie und Landbau Zürich-Reckenholz

Address: Reckenholzstrasse 191-121, 8046 Reckenholz, Tel: 0041-1/377 71 11, Fax: 0041-1/377 72 01

Internetaddress for all research stations: <http://www.admin.ch/sar/>

Genebank Changins

The national genebank is managed by the Eidgenössische Forschungsanstalt für Pflanzenbau Changins –RAC (Swiss Research Station for Plant Production). More detailed information on the actors may be taken from the chapters on the individual plant groups.

Address: RAC - Station fédérale de recherches en production végétale de Changins, Case postale 254, Rte du Duillier, 1260 Nyon, Tel: 0041-22/363 47 22, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

Contact: Dr. G. Kleijer

Forum Biodiversität / Forum biodiversity

The Forum Biodiversität has developed from the ‘Schwerpunktprogramm Umwelt’ (priority program environment) of the ‘Schweizerischer Nationalfonds’ (Swiss National Science Foundation) and belongs to the SANW- Schweizer Akademie für Natur-Wissenschaften (Swiss Academy for the Natural Sciences).

The Forum is, in contrast to the SKEK – not directly involved in the conservation of Plant Genetic Resources in agriculture. The focus is mainly on information. The tasks include the identifying of research gaps in science and monitoring the implementation of the Rio Convention. The focus is on the biodiversity of wild plants.

Address: Forum Biodiversität Schweiz, Bärenplatz 2, 3011 Bern, Tel: 0041-31/312 02 75, E-Mail: biodiversity@sanw.unibe.ch, URL: <http://www.biodiversity.ch>

12.1.9. Labels in Switzerland

Projects are urgently needed to support the production of local breeds by improving sales through controlled marketing, e.g. regional marketing. Products may, in particular, be promoted by launching labels (e.g. the high quality label).

Protected Designation of Origin PDO and Protected Geographical Indication PGI

Through regulation 910.12 of 28th May 1997, it became possible to award products with strong roots in a certain region one of the following designations of origin in Switzerland:

- Protected Designation of Origin PDO (German: GUB, French: AOC): The label Protected Designation of Origin guarantees that the specified products are produced, processed and refined in a specific region.
- Protected Geographical Indication PGI (German: GGA, French: IGP): The label Protected Geographical Indication marks products which are produced, processed or refined in a certain region.

Until now, only two of these designations have been awarded. Amongst them is the PDO designation for 'Rheintaler Ribel'. This product is, amongst other things, linked to a specific maize variety. The conservation of this variety is directly supported by the designation of origin. 27 other applications are at present being processed. To protect old varieties through designations of origin presents an interesting way of promoting possibility outside market economic mechanisms. However, the present situation shows that this will rather tend to be the exception. The lengthy procedures and relatively high costs needed to award a designation of origin may be, too, considerable a hindrance for varieties only produced on a small scale.

Responsible office:

Bundesamt für Landwirtschaft: Frederic Brand, federic.brand@blw.admin.ch

Schweizerische Vereinigung zur Förderung der GUB-GGA, 1936 Verbier, Tel: 0041-878 87 89 97, E-Mail: infos@aoc-igp.ch, URL: <http://www.aoc-igp.ch>

Label Hochstamm Suisse

On 11th January 2000, the standard tree label launched by the 'Schweizerischer Vogelschutz' (Swiss ornithological society) and Pro Natura was handed over to a new responsible body, the 'Verein Hochstamm Suisse'.

Address: Urs Chrétien, Geschäftsstelle, Kasernenstrasse 24, 4410 Liestal, Tel/Fax: 0041-61/923 86 64, E-Mail: info@hochstamm-suisse.ch

12.1.10. Switzerland as genetic centre

Switzerland is not an actual genetic centre for cultivated plants, with the exception of a few forage grasses.

12.1.11. Switzerland as a breeding site

In Switzerland, little breeding of cultivated plants has been done. Most varieties have been imported from neighbouring countries and have, at most, been improved in Switzerland. Exceptions are fruit, cereals and some local vegetable species, particularly chard. The production of seed, too, was never of much importance in Switzerland. Only a few regions

are climatically suitable for seed cultivation, as for example the Plainpalais area close to Geneva where Huguenots immigrants cultivated seed and bred vegetables for more than 300 years until the middle of the 20th century. Seed cultivation, as well as breeding, gained importance when Switzerland was cut off from seed imports during the wars. After the Second World War, these efforts faded as foreign competition became too strong.

12.2. International organisations and institutions

12.2.1. Participation of Switzerland in the ECP/GR

Contacts and participations in working groups of the ECP/GR in Switzerland.
More detailed information on ECP/GR may be found in the chapter 'Introduction'.

ECP/GR National Coordinator:

- Dr. Geert Kleijer, Station federale de recherches en production vegetale de Changins , Route de Duillier - BP 254, 1260,Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

ECP/GR On-Farm Conservation and Management Task Force Member

- Martin Bossard, PRO SPECIE RARA, Sortenzentrale , Pfrundweg 15 , 5000 Aarau, Tel: 0041-62/823 50 30, Fax: 0041-62/823 50 25 , E-Mail: sekretariat@psrara.org
- Dr. Geert Kleijer, Station federale de recherches en production vegetal de Changins , Route de Duillier - BP 254 , 1260 Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

ECP/GR working groups

- ECP/GR *Allium* working group
Partner in Switzerland: Robert Theiler, Swiss Federal Research Station for Fruit Growing, Vitic. & Horticult., Schloss, 8820 Waedenswil, Tel: 0041-1/783 62 69, Fax: 0041-1/780 63 41, E-Mail: robert.theiler@mbox.faw.admin.ch
- ECP/GR *Avena* working group
Partner in Switzerland: Dr. Geert Kleijer, Station federale de recherches en production vegetal de Changins , Route de Duillier - BP 254 , 1260 Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch
- ECP/GR Barley working group
Partner in Switzerland: Dr. Geert Kleijer, Station federale de recherches en production vegetale de Changins , Route de Duillier - BP 254 , 1260 Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch
- ECP/GR Forage plants working group
Partner in Switzerland: Beat Boller, Eidgenössische Forschungsanstalt für Agrarökologie & Landbau, Reckenholtzstr. 191, 8046 Zürich, Tel: 0041-1/377 73 63, Fax: 0041-1/377 72 01 , E-Mail: beat.boller@fal.admin.ch
- ECP/GR *Malus / Pyrus* working group
Partner in Switzerland: Dr. Markus Kellerhals, Swiss Federal Research Station for Fruit Growing, Vitic. & Horticult. , 8820 Waedenswil, Tel: 0041-1/783 61 11, 783 62 42, Fax: 0041-1/780 63 41, E-Mail: markus.kellerhals@faw.admin.ch
- ECP/GR *Prunus* working group
Partner in Switzerland: Dr. Markus Kellerhals, Swiss Federal Research Station for Fruit Growing, Vitic. & Horticult. , 8820 Waedenswil, Tel: 0041-1/783 61 11, Fax: 0041-1/780 63 41, E-Mail: markus.kellerhals@faw.admin.ch

- ECP/GR wheat working group
Partner in Switzerland: Dr. Geert Kleijer, Station federale de recherches en production vegrtale de Changins , Route de Duillier - BP 254 , 1260 Nyon 1, Tel: 0041-22/363 44 44, Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

12.2.2. Swiss participation in projects of the EU Regulation 1467/94.

Switzerland, despite not being an EU member, participates in the following projects of EU regulation 1467/94 (More detailed information on EU regulation 1467/94 may found in the introduction).

- GENRES 081 - Grapevine
Contact: Dr. D. Maigre, Station Fédérale de Recherches Agronomiques de Changins, RAC, Centre Viticole de Caudoz, Av. de Rochettaz 21, 1009 Pully
- GENRES 061 - *Prunus*
Contact: Dr. Markus Kellerhals, Swiss Federal Research Station, FAW, 8820 Wädenswil
- GENRES 060 - Rabbit
Contact: Dr. Richard Piccinin, European Association of Poultry, EAPPRB, Weissenbuhlaegg 43, 3007 Bern

12.3. Summary of the Need for Action for the conservation of cultivated plants in Switzerland

Need for action for the individual plants and species, particularly with regard to necessary inventories are dealt with in the chapter 'Portraits of actors committed to the conservation of cultivated plants in the Alpine region' in the sections on particular plants.

General situation

The need for action is largely taken care of in Switzerland, especially through the private organisations Pro Specie Rara and Fructus. Conservation work is at present being stimulated by setting-up of variety gardens for cereals. For the implementation of the National Plan of Action, private organisations are integrated in a rather special way in Switzerland, compared to the other Alpine countries.

Active search for old varieties in Ticino

In southern Switzerland, especially the canton Ticino, active searches for old varieties have still not been started. This area should urgently be subject to more intensive observation especially as seed was often imported from Italy, in contrast to the rest of the country, and as self-sufficiency played a central role in remote valleys.

Conservation through labels and support measures

Projects supporting the production of local varieties through improved sales by well-directed marketing need specific promotion. One possibility is e.g. product promotion through so-called labels, e.g. the standard tree label in Switzerland. In cases where these products are directly linked to old varieties, this method might well actively contribute to variety conservation. Other products could experience a certain protection on the market as regional specialities. Unusual local varieties could obtain a certain right to exist as niche products for direct marketers.

Large-scale cultivation

The conservation of old varieties is mostly guaranteed through genebanks, variety gardens and private conservationists. Efforts are, however, needed to take these varieties out of the genebanks and variety gardens, to cultivate them increasingly and to offer them on the market. Pro Specie Rara and the Verein für alpine Kulturpflanzen are at present trying to improve the situation.

Variety gardens for vegetables and arboreta in the Alpine region

There are still not enough variety gardens with a specific vegetable, potato and legume assortment from the Alpine region. There is also lack of arboreta housing particularly fruit varieties from higher altitudes.

Species where the need for action is considerable

- Chestnut: inventories in central Switzerland, cantons Vaud and Valais
- Almond: inventories in the cantons Valais and Ticino
- Walnut: conservation efforts in central, eastern and southern Switzerland
- Tropical fruit: conservation efforts for fig, kaki and quince
- Inventories of trellis vines
- Mulberries: conservation of old varieties
- Buckwheat, foxtail millet and common millet
- Dinkel: conservation breeding
- Olives: conservation efforts

13. Conservation of cultivated plants in the Swiss Alpine region –portraits of actors

The following section portrays actors committed to the conservation of Plant Genetic Resources in the Swiss Alpine region. The state of information is valid for the year 2000 if not specified otherwise.

Information on actors is taken from questionnaire responses, Internet and literature searches and from personal contacts as well as from publications. Not all the information could be verified, but was used as transmitted. Investigations were carried out in the year 2000. Within this time frame an attempt was made to organize investigation as broadly as possible.

Listing was subdivided into the categories fruit & wild fruit, berries, nuts, chestnuts, vines, vegetables, potatoes, legumes, cereals, forage plants, olives, medicinal plants & spice plants and special cultures. Private actors are listed first, followed by public institutions and governmental actors (within categories, the institutions are listed according to the size of the collection wherever possible). Cantonal organisations are described as 'public institutions'. The list does not claim to be complete.

13.1. Fruit and wild fruit

13.1.1. Background

During the course of the centuries, an enormous fruit diversity developed through conscious and coincidental breeding. Switzerland has been an important transit country for a long time, thus many varieties from other countries were brought there. The change to half standard trees in the 1950s has resulted in the large-scale disappearance of extensive orchards. In 1961 there were still 11.5 million field fruit trees in Switzerland. By the end of the 1990s, more than 60 % of these standard trees had disappeared. A less dramatic decrease of tree numbers is still taking place for most fruit species.

The Swiss standard tree culture is still suffering from great economic and disease-caused pressure. In the future, a decrease of pome trees is to be expected because of the increasing pressure on prices caused by loosened import protection and an increasing international supply of must concentrate. Many farmers have suffered from the impacts of the fire blight in 2000. Thousands of trees had to be cut down due to the disease. If the fire blight continues to spread, it will possibly have a disastrous impact on the existing standard tree stock.

Considering the decreasing agricultural incomes, it cannot be expected that farmers will conserve old trees and varieties for altruistic reasons. The standard tree subsidies of 10 Euro (status: 2001) paid by the Federal government will do little to prevent this development. An increase to 17 Euro is planned if additional requirements are fulfilled. It is furthermore planned to pay care subsidies to the owners of arboreta with rare fruit varieties. Subsidies are distributed by the Federal Office for Agriculture within the framework of the National Plan of Action.

Fruit cultivation in the Swiss Alpine region

Adaptation to the special climatic conditions of the Alpine region through early maturity and a certain frost resistance has led to the development of many local varieties. At more favourable sites, fruit growing is actually possible in all valleys up to altitudes of 1100 m a.s.l.. Important species in the Swiss Alpine region are apples, pears (mostly as must or dried pear), cherries (particularly Central Switzerland) and damsons. Switzerland also distinguishes itself from other Alpine countries through its very important cherry cultivation. The Valais is

characterised by apricot cultivation and in Ticino, the so-called tropical fruit (figs and kaki) are important. Quinces and several wild fruit varieties (cornelian cherry, elder, sorb tree, checker tree, sweet mountain ash, white beam tree and medlar) were regionally of subordinate importance. For long-living plants such as fruit trees which may reach an age of up to 300 years old, the Alpine region is a challenge. A single year with heavy frosts can destroy the fruit trees of decades in an entire region. This has, however, never kept humans from trying to cultivate fruit, too valuable was the fruit, and too abundant the yield in good years. Some varieties have proven particularly suited to survival in high altitudes.

Traditionally important fruit growing regions in the Swiss Alpine region are:

Appenzell: Fruit growing has a long tradition despite the relatively rough climate.

Glarus: Apples and pears are cultivated on a small scale - mainly for the production of dried fruit. Cherries play a subordinate role.

Grisons: Fruit trees grow freely up to 1300 m. Economic production is at present only possible up to an altitude of 700 m a.s.l.. For home use, fruit is however cultivated up to the upper height limit. The following regions are important for apple and pear cultivation: Churer Rheintal, Vorderrheintal, Hinterrheintal (Domleschg), southern valleys of Puschlav and Bergell, Prättigau, Unterengadin, Albulatal.

Cherries are often used dried – cooked with potatoes, as an addition to the flour soup, for the production of the schnapps ‘Bündner Röteli’ or to add colour to white wine. Historically particularly important cherry cultivation areas are in Domleschg, Churer Rheintal, Prättigau and around Illanz. Apricot cultivation has never been possible because of the danger of frost.

Lucerne, Bern, Fribourg: Apples, cherries and damsons are traditionally important species.

Nidwalden: Standard trees (apple, pear, damson, plum, cherry) are generally important. Must pear trees play a central role. They also serve as windbreakers.

Obwalden: Production of dried fruit from apples, plums and damsons played a central role for home use and as an export product at the beginning of the 20th century. The cooked juice of apples and pears was used to produce the so-called pear and apple honey (not to be confused with ‘Birnel’). Fruit cultivation was, besides animal husbandry and alpine farming, the third most important branch in agriculture. In the 14th century, fruit cultivation was already intensively pursued. It was possible to pay the Time partially in fruit. Cherry cultivation has an old tradition as well.

Schwyz: Cherries and damsons are particularly important. Apple and pear cultivation plays a subordinate role.

St. Gallen: The pear already occupied an important position at the beginning of the 20th century as must and dried pear. It was particularly represented in Toggenburg and Werdenberg. Apple cultivation (with a focus on must apples) gained importance in the 1930s. Damson cultivation became important after the Second World War.

Ticino: The following species were important in the valleys of the canton Ticino: apples, pears, plums, peaches, cherries/sour cherries, figs, kaki, medlar and cornelian cherry.

Uri: Fruit cultivation was very important in Uri. It has, however, considerably decreased during the last 50 years (1951: >43.000 standard trees, 1991: only approx. 13.000 standard trees). Cherries played an important role in the first half of the 20th century.

Wallis: Fruit were already cultivated in the very fertile Rhone valley in the Lower Valais in the 19th century. Apricots can be grown in the Rhone valley as it is one of the Alpine regions least threatened by frosts.

Zug: Cherries are especially important. Pears are also cultivated at higher altitudes.

13.1.2. Overview of organisations and institutions

Organisations and institutions active in the conservation of fruit (apples, pears, cherries, damsons) from the Swiss Alpine region. The actors are described below in more detail:

	National NGO(s)	Regional NGO(s)	Public institutions	Governmental institutions	Nurseries
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Fruit*	2	9	3	4	7
Apricots	2	1	1		
Quinces	1		1		
Figs	2				
Kaki	1				
Wild fruit	2	2		1	
Mulberries		1			

* Apples, pears, cherries, damsons/plums

Private collections

Switzerland has until now mainly left the conservation of fruit to private organisations. Fructus and Pro Specie Rara are both active at the national level in the conservation of fruit diversity. Cooperation exists in several areas. The arboreta project of Pro Specie Rara has become an important factor in the conservation of fruit varieties in Switzerland. Several smaller organisations are regionally active in the conservation of fruit diversity.

Governmental collections

At the governmental level, there are only marginal collections. Some cantonal agricultural schools support the conservation of fruit diversity at the regional level.

Coordination and inventories in Switzerland

- The experts' group fruit variety conservation of the SKEK was started in 1999 in order to coordinate the national fruit conservation organisations. At present, the group is developing a concept for the long-term conservation of genetic resources of fruit. Contact: Jürg Maurer, FOB Öschberg; Boris Bachofen, Rétropomme (Projekt des Nationalen Aktionsplan – NAP 7)
- The Federal Government financed a project on the biodiversity of sweet cherries from 1995 to 1998. 585 different varieties in Switzerland could be characterised.
- Within the framework of the National Plan of Action, a fruit and berry inventory was started in Switzerland at the end of the 1990s (Projekt des Nationalen Aktionsplan – NAP 8). Within 5 years, an as complete as possible inventory of the entire variety diversity of all indigenous fruit and berry varieties in Switzerland is to be carried out. This means that it will be possible to assess the risk status of Swiss fruit varieties and to initiate overall conservation. The project is being carried out by the Eidgenössische Forschungsanstalt (Swiss Research Station) Wädenswil. Pro Specie Rara and Fructus participate as partners in the project.
- Developments of concepts and methods for the conservation of genetic resources of fruit in Switzerland and international cooperation are carried out by Fructus, Pro Specie Rara and the 'Fachstelle für Obst und Beeren' (Office for Fruit and Berries) in Oeschberg (Project of the National Plan of Action – NAP 26).

13.1.3. Need for action

The conservation of fruit in Switzerland is well taken care of through the activities of the private organisations Fructus and Pro Specie Rara. The gaps in the inventories are comprehensively covered by the overall inventory within the framework of the National Plan of Action. A national coordination centre is presently being set up.

Within the framework of this study, the following gaps, however, were discovered concerning the conservation of fruit:

Apricot diversity in Valais

There is no complete apricot collection in the canton Valais. A Valais apricot arboretum should therefore be set up using existing collections. If additional varieties were to be found within the framework of the overall inventory in Switzerland, these should also be conserved there. A well-planned search of search lists based on historical data would also be worth the effort.

Valais pear varieties

There are only a few pear varieties from Valais in the Rétropomme collection. An active search for old Valais pear varieties should start immediately.

Arboreta with local varieties in the Alpine region

There are too few arboreta in the cantons Valais, Grisons and the central Swiss cantons.

Cherry varieties from Central Switzerland

Central Swiss cherry varieties are extremely endangered, particularly as the classical cherry cultivation for spirit production is no longer economic and cherry consumption is decreasing. To date, there is only one arboretum with cherry varieties from Central Switzerland. The varieties tracked down within the framework of the project on the conservation of sweet cherry biodiversity should therefore be conserved in arboreta.

Fruit diversity in Ticino

In Ticino, an intensive search for old varieties would be worthwhile. Only in the communities of Sala Capriasca, Faido and Rossura, have inventories been set up with the help of the canton authorities.

Fig, kaki and quince

Only the fig, kaki and quince collections of the Fructus Association are worth mentioning. These collections, however, are also incomplete. Collection efforts, particularly in Ticino, should be initiated in the future.

Wild fruit

There is need for action (tracking down, conserving) for medlar and sorb trees.

13.1.4. Actors

Fructus

Address: Vereinigung zur Förderung und Erhaltung alter Obstvarieties, Glärnischstrasse 31, 8820 Wädenswil, Tel: 0041-1/7804378, E-Mail: fructus@bluewin.ch, URL:

<http://www.fructus.ch>

President: Klaus Gersbach

Contact: Sabine Vögeli

Description:

The association Fructus collects, supports and conserves old fruit varieties from Switzerland. The collection also includes varieties from the Alpine region. Fructus also carries out PR-work (description of varieties, field trips, training and exhibitions). Old varieties are conserved in arboreta (Höri, private collection of Karl Stoll – founder of Fructus, fruit garden Dorigny of the University of Lausanne). Altogether, 7956 fruit plants are registered at 1218 addresses.

The following fruit species are covered:

- Apples: 716 varieties
- Pears: 583 varieties

- Damsons, plums, apricots, peaches, nectarines and yellow plums: 277 varieties and 484 plants
- Sour and sweet cherries: 134 varieties
- Figs: 70 plants
- Nashi: 26 plants
- Quinces: 7 varieties
- Kaki: 10 plants
- Kiwi: 5 plants
- Special fruit varieties: 31 plants

Within the framework of the National Plan of Action, Fructus has participated in several fruit projects.

Type of organisation: private

Active since: 1985

Size: 847 members

Databank: yes, in cooperation with Pro Specie Rara

Additional protection of conserved varieties: for most of the varieties.

Long-term conservation: yes

Pro Specie Rara

Address Fruit: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30, Fax: 0041-62/823 50 25, E-Mail: obst@psrara.org, URL: <http://www.psrara.org>

Description:

The conservation of the species being kept by the Swiss Foundation Pro Specie Rara (PSR) is secured by the arboreta project. PSR supports those interested in setting up fruit cultures with at least 25 standard trees. The arboreta are looked after by experts who are responsible for their respective region. The long-term continuation of the individual facilities is secured with so-called arboreta contracts. At present the project covers more than 80 fruit cultures. The arboreta project is supported by the Fonds Landschaft Schweiz, Thunstrasse 36, 3005 Bern, Tel: 0041-31/3517181 (Fund for Landscape Switzerland). Some arboreta have also been established in the Alpine region. However, there are large gaps. At present, efforts are being made to set up more fruit gardens, especially in the cantons Valais (a scattered fruit culture in the Val d'Anniviers is planned), Ticino and Grisons. It is planned to pay care subsidies to the owners of arboreta with rare fruit varieties. Within the framework of the National Plan of Action the distributor of payments is the Federal Office for Agriculture. The following fruit varieties are presently being conserved in arboreta in the 12 cantons and 4 half cantons (status May 2000):

- Apples – 564 varieties (only Alpine region)
- Pears – 210 varieties (only Alpine region)
- Sweet and sour cherries – 104 varieties (only Alpine region)
- Damsons and plums – 71 varieties (the whole of Switzerland)
- Greengages – 8 varieties (the whole of Switzerland)
- Yellow Plums – 4 varieties (the whole of Switzerland)
- Apricots – 2 varieties (the whole of Switzerland)
- Peaches – 4 varieties (the whole of Switzerland)
- Figs – 1 variety (the whole of Switzerland)
- Medlar – 1 variety (the whole of Switzerland)
- And further rare fruit species (black aronia, checker tree, dogrose, cornelian cherry, bullace plum, black elder, white or yellow elder, sorb tree, white-thorn, edible rowan tree, *Prunus insititia ssp prisca*).

On request interested individuals can obtain scions of old varieties or addresses of nurseries which keep old varieties in their assortment (compare below). In order not to lose contact with those very rare varieties, registration cards are sent back after planting or grafting.

Within the framework of the National Plan of Action, Pro Specie Rara has been assigned to manage the projects 'Anlegen einer zentralen Obst Datenbank und Aufbau eines Nukleus-Monitorings (Set-up of a Central Fruit Database and Set-up of Nucleus Monitoring) (NAP 15a) and 'Dezentrale on farm Erhaltung von Obstsorten in Vertrags-Arboretren (Decentralised On-Farm Conservation of Fruit Varieties in Contract Arboreta) (NAP 15b). In the future, the collected fruit data will be centrally administered by PSR. All fruit species cultivated in Switzerland are recorded, particularly wild fruit varieties.

Using search lists based on historical data, Pro Specie Rara is still actively searching for old varieties which have not yet been located.

In cooperation with Fructus, a CD-Rom has been published with data on old Swiss fruit varieties. It includes information on approx. 3000 pome varieties. Information on PSR may be taken from the general section on Switzerland.

Type of organisation: private

Active since: 1982

Databank: yes

Long-term conservation: guaranteed

Arboretum National d'Aubonne

Address: 18, Rte de Bénex, 1197 Prangins, Tel: 0041-22/361 45 24, Fax: 0041-22/361 45 24

Contact: Prof. R. Corbaz

President: P.-R. Martin

Description: The Arboretum National d'Aubonne (former name: AAVA - Association des Amis du Vallon de l'Aubonne) takes care of a fruit collection with old local varieties. These varieties originate mainly from French-speaking Switzerland. Varieties from the Alp cantons Valais, Vaud and Fribourg are in the collection. Conservation is mainly done *in situ*.

The collection includes the following fruit species:

- Apples: 101 varieties
- Pears: 91 varieties
- Cherries: 69 varieties
- Plums: 25 varieties
- German medlar: 4 varieties
- Black elder: 3 varieties

The proportion of varieties from the Alpine region is estimated to be approx. 80 %.

Type of organisation: private

Active since: 1975

Size: 4 members of staff and approx. 2000 members

Databank: yes

Additional protection of conserved varieties: partially (genebank)

Long-term conservation: yes

Rétropomme

Address: Case postale, 64, 2206 Les Geneveys-sur-Coffrane,

Tel/Fax: 0041-32/842 44 10, 032/731 61 93

Description: Rétropomme conserves fruit genetic resources from French-speaking Switzerland. The collection includes varieties from French border areas. The varieties are mostly conserved in tree gardens. Rétropomme also conducts ethnobotanical studies. Within the framework of the National Plan of Action, Rétropomme was entrusted with the following project: 'Pomologische Charakterisierung der Birnensortensammlung von Rétropomme' (Pomological Characterisation of the Pear Variety Collection of Rétropomme) (NAP 6).

The following species are included in the collection:

- Pears: 125 entries (including 14 from France)

- Apples: 81 entries (including 7 from France)
- Cherries: 21 entries
- Plums: 51 entries (including 3 from France)

Type of organisation: private

Active since: middle of the 1980s

Size: 150 members

Databank: partially

Additional protection of conserved varieties: Yes, each variety is looked after in two different tree gardens.

Long-term conservation: yes

Privatsammlung (private collection) Pavel Beco

Address: Albisboden, 9115 Dicken, Tel/Fax: 0041-71/3771924,

E-Mail: pavel.beco@bluewin.ch

Description: At an altitude of 800 m, Pavel Beco looks after a fruit variety collection with 700 fruit and 100 berry varieties. In an additional nursery, approx. 400 of the most endangered varieties are reared. Pavel Beco cooperates with Pro Specie Rara.

Type of organisation: private

Privatsammlung Marco Regazzi

Address: Vivaio di piante da frutta, Via ai Pontini, 6595 Riazino, Tel: 0041-79/337 31 44

Contact: Marco Regazzi

Description: Marco Regazzi searches for old fruit varieties in the canton Ticino. The following fruit varieties are represented in his collection: apples (45 entries), pears (43 entries), peaches (14 entries), plums (9 entries), sweet and sour cherries (3 entries), apricots (3 entries), cornelian cherries (2 entries) and medlar (3 entries). Some of the collected varieties are on offer in his nursery.

Type of organisation: private

Size: 1 member of staff

Additional protection of conserved varieties: not available for all varieties

Verein Obstsortensammlung Roggwil

Address: Riedern, 9325 Roggwil, Tel: 0041-71/455 15 68

President/Contact: Heinz Daepf, Sägewiese 8, 9325 Roggwil

Technical director: Urs Heinzelmann

Description: The Verein Obstsortensammlung Roggwil is at present establishing a fruit variety collection on a 4 ha area with Swiss varieties mainly originating from eastern Switzerland and the Lake Constance region. Some of the varieties were formerly also cultivated in the Alpine region. At present, 320 standard trees are cultivated in an arboretum. The delivery of reproduction material is planned. Within the framework of the National Plan of Action, the following project application from the Verein Obstsortensammlung Roggwil has been granted: 'Erhaltung der Sortenvielfalt bei Obst, speziell auch gefährdeter Sorten' (Conservation of Fruit Variety Diversity, particularly for Endangered Varieties) (NAP 3).

The following fruit species are represented in the collection:

- Apples – 125 varieties
- Pears – 78 varieties
- Damsons – 24 varieties
- Cherries – 45 varieties

Type of organisation: private

Active since: 1994

Size: 90 active and 110 passive members

Databank: yes

Additional protection of conserved varieties: no (there is only one tree per variety)

Long-term conservation: yes

Obstverein Surselva

Address: Sut Curtins, 7141 Luven, Tel/Fax: 0041-81/925 33 16,

E-Mail: bapstluven@bluewin.ch

President: Heinz Schäffler

Contact: Lydia Bapst-Jörger

Description: The Obstverein Surselva supports and conserves various different fruit tree species from the environs of Surselva. Scions are taken from overaged fruit trees and then grafted. The conservation of varieties is carried out in a variety garden.

Type of organisation: private

Active since: 1998

Size: approx. 50 members

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: yes

Obstverein Mittelbünden (formerly: Obstbauverein Graubünden)

Address: Hauptstrasse 7, 7413 Fürstenaubruck, Tel/Fax: 0041-81/651 47 10

Contacts: Peter Umiker, G. Zanetti

Description:

The Obstverein Mittelbünden was founded in 1993 by the Verein Talplanung Heinzenberg-Domleschg and is working actively on the conservation of fruit diversity in Mittelbünden. It cooperates with many smaller initiatives. Peter Umiker also procures local varieties from the canton Grisons (particularly from Domleschg) for anyone interested in planting them.

Type of organisation: private

Landschafts- und Obstbauverein Trin

Address: Elisabeth Gilgen, 7014 Trin-Digg, Tel: 0041-81/635 15 92

Description: The association supports standard tree cultivation. Local varieties are supported. In the middle of the 1990s, an inventory was conducted in the environs of Trin.

Type of organisation: private

Obstbauverein Glarnerland

Address: M. Baumgartner, Holderboden, 8762 Sool, Tel: 0041-55/644 25 14

Contact for old varieties: Fredy Kyburz, Tel: 0041-55/643 25 51

Description: The Obstbauverein Glarnerland supports fruit cultivation and offers help in the selection and care of varieties. The cultivation of old varieties is supported directly. The members are able to have varieties defined. A fruit inventory in Glarnerland is planned but the information is not yet available.

Size: 150 members

Type of organisation: private

Schweizerischer Obstverband

Address: Postfach, Baarerstrasse 88, 6302 Zug, Tel: 0041-41/7286868,

Fax: 0041-41/728 68 00

Description: The Schweizerische Obstverband is generally active in the conservation of fruit varieties in Switzerland. There is no variety collection.

Type of organisation: private

FOB Oeschberg

Address: Fachstelle für Obst und Beeren, Kantonale Gartenbauschule Öschberg, Oeschberg,
Tel: 004134/413 77 44

Description: Old berries and fruit varieties are conserved in a variety garden. There are two plants for each variety. These are mainly Swiss local varieties and curiosities from other countries, including some from the Alpine region.

The following fruit species are represented in the variety garden:

- Apples – 117 varieties
- Pears – 12 varieties
- Wall Pears – 27 varieties
- Damsons – 19 varieties
- Half standard damsons – 7 varieties
- Quinces – 2 varieties
- Apricots – 5 varieties
- Peaches – 1 variety
- Nectarines – 1 variety
- Sweet cherries – 36 varieties
- Sour Cherries – 4 varieties

Type of organisation: public institution

Office Cantonal d'Arboriculture

Address: C.P. 338, 1950 Châteauneuf-Sion, Tel: 0041-27/606 76 20,
Fax: 0041-27/606 76 04

Contact: J. Rossier

Description: The estate of the agricultural school has a pear tree collection with more than 100 varieties mainly originating from Switzerland.

Type of organisation: public institution

Repubblica e Cantone Ticino - Ufficio della consulenza agricola

Address: Sezione dell'agricoltura, 6500 Bellinzona, Tel: 0041-91/8143592,
Fax: 0041-91/814' 35 54, E-Mail: dfe-sa@ti.ch

Contact: Dr. E. Piattini

Description: In 1993/1994, the department of agriculture of the cantonal administration of Ticino carried out variety mapping for apples and pears in the communities of Sala Capriasca, Faido and Rossura. 60 apple varieties and 14 pear varieties were found. Only a part of these varieties have been secured in the variety garden of Gudo.

Type of organisation: public institution

Centre de Lullier

Address: 1254 Jussy, Tel: 0041-22/759 18 14, Fax: 0041-22/759 18 87,
E-Mail: charles.moncousin@etat.ge.ch

Director: Dr. Mascherda

Contact: Dr. Moncousin

Description: At the Centre de Lullier, Swiss fruit varieties are conserved *in situ* and *ex situ* (in a gene bank). At present the collection contains 80 apple varieties, 30 pear varieties and 40 *Prunus* varieties. Some of these varieties originate from the Alpine region.

Type of organisation: governmental

Active since: 1973

Databank: no

Additional protection of varieties: yes

Long-term conservation: yes

Conservatoire e Jardin botanique de la Ville de Genève

Address: Case postale, 6, 1292 Chambésy, Tel: 0041-22/418 51 00,

Fax: 0041-22/418 51 01, E-Mail: Raymond.tripod@cjb.ville-ge.ch,

URL: <http://www.ville-ge.ch>

Director: Prof. R. Spichiger

Contact: M. Raymond-Tripod

Description: Description of old fruit varieties from the Lake Geneva surroundings and neighbouring France. The origin of the trees is difficult to determine. Some varieties probably originate from the Alpine region. There are 1-3 trees per variety.

The following species are conserved:

- Apples (6 varieties)
- Pears (5 varieties)
- Damsons (2 varieties)
- Plums (2 varieties)
- Yellow plums (1 variety)
- Sweet cherries (1 variety)
- Sour cherries (2 varieties)
- Peaches (3 varieties)
- Medlar (1 variety)

Type of organisation: governmental

Active since: 1817, foundation year of the botanical garden

Size: 80 members of staff (entire research station)

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: yes

Jardin Botanique de l'Université de Fribourg

Address: Rue Albert Gockel, 3, 1700 Fribourg, Tel: 0041-26/300 88 86, Fax: 0041-26/300 97 40, E-Mail: susanne.bollinger@unifr.ch

Director: Susanne Bollinger

Description: Local fruit varieties from the canton Fribourg are conserved in the botanical garden of Fribourg (Botanischer Garten Freiburg). The varieties are recorded in the Pro Specie Rara register. Conservation is carried out in a tree garden.

The following fruit varieties are conserved:

- Apples (19 varieties, including 2 varieties from the Alpine region)
- Pears (9 varieties, including 1 variety from the Alpine region)

Type of organisation: governmental

Active since: 1984

Size: 6 members of staff

Databank: yes (at Pro Specie Rara)

Long-term conservation: yes

Eidgenössische Forschungsanstalt Wädenswil - FAW

Address: Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 62 42, Fax: 0041-1/783 62 65

Contact: Markus Kellerhals

Description:

During the project on the conservation of sweet cherry biodiversity it was possible to characterise 585 different varieties ('Erhaltung der Biodiversität bei Süsskirschen' (FAW/BUWAL 1995—1998)). More than 50 % of these varieties are considered to be endangered, i.e. they are grafted on less than three trees. It is not financially possible to conserve all these varieties. During the first selection process, 50 endangered species were

selected and given to nurseries for further propagation. Approx. 20 varieties were selected in order to test their suitability for commercial fruit cultivation.

Presently, Fructus is conducting a fruit and berry inventory in Switzerland. The project has been assigned within the framework of the National Plan of Action and some varieties already considered to be lost and some still unknown local varieties could be tracked down.

At the FAW, comprehensive fruit assortments from the whole world (amongst others Switzerland) are kept for variety testing and breeding. A conscious attempt has been made to broaden the genetic basis of fruit. There is no guaranteed long-term conservation.

The Forschungsanstalt Wädenswil cooperates with the Forschungsanstalt Changins and private organisations such as Fructus and Pro Specie Rara in genetic resource conservation.

Type of organisation: governmental

Long-term conservation: not guaranteed

13.1.5. Nurseries specialised on local varieties

The following nurseries have Swiss local varieties in their assortment. Only those nurseries are listed which keep varieties from the entire country in their assortment or which offer varieties specifically from Alpine cantons. For most varieties, it is difficult to determine their area of origin. Most of the varieties were, however, cultivated in the Alpine region.

Information on nurseries offering Swiss local varieties may be obtained from:

- Verband Schweizer Baumschulen, Zürcherstrasse 17, 5200 Windisch,
Tel: 0041-56/441 57 33, URL: <http://www.vsb.ch>
- Pro Specie Rara, Sortenzentrale, Pfrundweg 14, 5000 Aarau,
Tel: 0041-62/823 50 30, Fax: 0041-62/823 50 25, E-Mail: obst@psrara.org

Alois Dober Baumschule (nursery)

Address: 6404 Küsnacht a. Rigi, Tel: 0041-41/850 29 05

Description: The Alois Dober Baumschule offers cherry varieties from central Switzerland and all other fruit varieties.

Baudat Pépinières

Address: 1032 Vernand s/Lausanne, Tel: 0041-21/731 13 66

Description: The Baudat nursery offers in particular local varieties from French-speaking Switzerland.

Baumschule (nursery) F. Walti

Address: Dürrenäsch, Tel/Fax: 0041-62/777 19 80

Contact:

Description: The nursery Walti has in its assortment old cherry varieties and other fruit.

Baumschule (nursery) T. Spreng-Kohler

Address: Haldimoos, 4922 Bützberg, Tel: 0041-62/963 11 32, Fax: 0041-62/963 00 08

Contact:

Description: The nursery Spreng offers grafts of fruit species.

Baumschule (nursery) T. Suter

Address: Langacker 21, 5405 Baden, Baden-Dättwil, Tel: 0041-56/493 12 12

Contact:

Description: Old fruit varieties are available from the assortment of the nursery Suter. There is an especially large offer of old cherry varieties.

Brülhard Marcel Baumschulen (nurseries)

Address: Mariahilf 6, 3186 Düringen FR

Description: Many old Swiss local varieties are found in the assortment of the Brülhard Marcel nurseries.

Haller AG Baumschule (nursery)

Address: Am Tych 20, Aarburg, 4665 Oftringen, Tel: 0041-62/797 07 17, Fax: 0041-62/797 30 49

Description: The nursery Haller specialises, amongst others, in wild fruit (sorb tree, medlar, sweet mountain ash).

13.2. Berries

13.2.1. Background

In the Alpine region, wild berries were often collected but they were also of some importance in house gardens. Especially after the First World War, berry cultivation became more important, particularly red and blackcurrants which grow in the canton Grisons up to an altitude of 2000 m a.s.l.. Gooseberries and raspberries are also suitable for the Alpine region thanks to a relatively late flowering time (cultivation possible up to 1700 m a.s.l.). It is difficult to cultivate strawberries above 1000 m a.s.l.. Blackberries are not suited to cultivation above 700 m because of their high frost sensitivity. There have probably never been varieties specifically bred for Alpine regions. Most varieties cultivated in Switzerland were imported from foreign countries. Berry breeding was carried out at the Eidgenössische Forschungsanstalt (Swiss Research Station) Wädenswil only from the beginning of the 20th century.

Traditionally important berry cultivation areas in the Swiss Alpine region

Appenzell: Berries were sometimes found in house gardens.

Bern: The following species are bred in house gardens: red and blackcurrant, raspberry, strawberry (up to 1000 m a.s.l.) and gooseberry.

Grisons: Red and blackcurrant have been important in Grisons for a long time, gooseberry and raspberry were also important for use in the home.

Obwalden: Blackberries and red and blackcurrants have been cultivated in house gardens since the First World War.

Uri: Red and blackcurrants are sometimes cultivated in house gardens.

Valais: Strawberries have been cultivated in the Rhone valley since the 19th century, raspberries are also of certain importance, red and blackcurrants are of very little importance.

Zug: Mainly red and blackcurrants, gooseberries, blackberries and raspberries are cultivated in house gardens.

Mulberries in Switzerland

The white mulberry was cultivated in Switzerland as food for silkworm breeding. The black mulberry is probably more frost sensitive and was only of slight importance in the Alpine region in suitable sites around Lake Lucerne (environs of Wäggis) and Valais. Nearly all mulberries cultivated in Switzerland originate from foreign countries.

13.2.2. Overview of actors and inventories

Pro Specie Rara is at present the only organisation actively searching for old varieties. Only two other institutions maintain smaller collections. Until quite recently, nobody, apart from a few private collectors, has taken notice of or cared for the conservation of berry diversity. At the genebank Obst (fruit) in Dresden-Pillnitz, Germany and at the Prüfstelle des Bundessortenamtes (testing department of the Federal Variety Certification Office) Hanover in Wurzen in Germany, a considerable stock of old varieties has been conserved which were

also cultivated in Switzerland. It is planned to include these varieties into the Pro Specie Rara collection.

Within the framework of the National Plan of Action, a complete fruit and berry inventory was initiated in Switzerland (NAP 8). It aims to conduct an as complete as possible inventory of variety diversity of all indigenous fruit and berry species within 5 years.

13.2.3. Need for action for berries

There is still a need for action in order to collect and conserve berry fruit diversity in Switzerland. It is, however, presently being covered by PSR and by the Gesamtschweizerische Beereninventarisierung (Overall Berry Inventory) at the Eidgenössischen Forschungsanstalt (Swiss Research Station) Wädenswil.

13.2.4. Need for action for mulberries

White mulberries: Only Marco Regazzi is conserving some mulberry varieties at present. An active search for old varieties should be initiated quickly.

Black mulberries: Martin Frei is also searching for mulberry trees within the framework of the berry project of Pro Specie Rara. The inventory is, however, not yet completed.

13.2.5. Actors

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.),

Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contacts: Kurt Eichenberger

Description: For several years, the Swiss Foundation Pro Specie Rara has been active in collecting old berry varieties from Switzerland. By 1999, 280 origins had been registered in the collection. Varieties which will probably soon be deleted from official catalogues are also conserved. The collection includes, amongst others, the comprehensive gooseberry collection (40 varieties) of the Rafz berry breeder Peter Hauenstein. In the garden Gsell in Riehen (Bale), a comparative Swiss berry collection has been set up. Vanished varieties are searched for using search lists based on historical data.

The following species are in the collection:

- Gooseberry
- Strawberry
- Raspberry (yellow, red and black)
- Blackberry
- Red and blackcurrant (red, rose-coloured, black and white)
- Black elder

Within the framework of the National Plan of Action, PSR has been assigned to conduct the project 'Aufbau einer für die Schweiz repräsentativen Beerenobstsammlung' (Establishment of a Representative Swiss Berry Collection) (NAP 14). Within the framework of the project, varieties are also cleaned of viruses, bacteria and root fungi. The varieties are kept in central variety gardens within the framework of the project and decentrally conserved by mailing cuttings. PSR cooperates with the research station in Wädenswil in the sanitation of berry varieties (FAW, Dr. R. Theiler).

More detailed information on PSR may be taken from the general section on Switzerland.

Type of organisation: private

Marco Regazzi

Address: Vivaio di piante da frutta, Via ai Pontini, 6595 Riazzino,

Tel: 0041-79/337 31 44

Description: Marco Regazzi is searching for old fruit varieties in the canton of Ticino. Amongst others, 3 mulberry varieties are to be found in his collection.
Type of organisation: private
Additional protection of conserved varieties: not existent for all varieties

Kantonale Gartenbauschule (Cantonal School for Horticulture) Öschberg
Address: FOB Oeschberg - Fachstelle für Obst und Beeren, Kantonale Gartenbauschule Öschberg, 3425 Koppigen, Tel: 0041-34/413 77 44
Contact: Jürg Maurer

Description: Old berry and fruit varieties are conserved in a variety garden. Some of the varieties originates from the Alpine region.

The following berry varieties are grown in the garden:

- Raspberries – 7 varieties
- Red and blackcurrants – 7 varieties
- Gooseberries – 4 varieties
- Blackberries – 6 varieties

More detailed information on the horticultural school / Gartenbauschule Öschberg may be taken from the chapter on fruit.

Type of organisation: public institution

Eidgenössische Forschungsanstalt Wädenswil (Swiss Research Station)

Address: FAW, Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 62 42,
Fax: 0041-1/783 62 65

Contact: Robert Theiler

Description: There is a collection of berry varieties at the FAW. Besides more recent and foreign breedings, some old Swiss varieties are conserved in the collection, as are other breedings.

Type of organisation: governmental

Long-term conservation: not guaranteed

Genbank Obst in Dresden-Pillnitz (genebank fruit in Dresden-Pillnitz, Germany)

Address: Institut für Obstforschung, Pillnitzer-Platz, D-01326 Dresden,
Tel: 0049-351/26 16 20

Contact: Prof. Dr. Manfred Fischer

Description: Berry varieties are conserved in the genebank fruit in Dresden-Pillnitz, which were formerly cultivated in Switzerland.

Reproduction material of a part of the assortment has been made available for Pro Specie Rara.

Type of organisation: governmental (Germany)

Prüfstelle des Bundessortenamtes Hannover in Wurzen (Federal Variety Certification Office Hanover, Testing Department Wurzen)

Address: Zentralstelle Hannover, Osterfelddamm 80, D-30627 Hannover,
Tel: 0049-511/9566-5

Description: The Prüfstelle des Bundessortenamtes in Wurzen conserves varieties formerly cultivated in Switzerland. Reproduction material of a part of the assortment has been made available for Pro Specie Rara.

Type of organisation: governmental (Germany)

13.3. Nuts

13.3.1. Background

Walnuts only grow to an altitude of approx. 800 m. At higher altitudes, yields decrease relatively fast. In the Alpine region, walnut cultivation is of some importance mainly in foehn valleys and at especially suitable sites. Western Switzerland and the environs of Lake Lucerne are important sites. As it is difficult to graft nuts, the plants are almost always reared as seedlings. Only outstanding varieties are reproduced vegetatively. It can therefore be assumed that there is enormous walnut diversity in so-called “nut areas” – each tree probably shows a different genome. This means that varieties are often a result of accidental breeding. As trees can become very old, search activities for outstanding seedlings could still be worth while today.

Hazelnuts are mainly collected wild in Switzerland. Some varieties have developed from exceptional seedlings. The hazel thrives very well in higher altitudes of the Alpine region because of its well-developed frost tolerance. Commercial cultivation such as in Italy has never been possible in Switzerland for climatic reasons. Almond cultivation is only of some importance in Ticino and Valais – between 450 and 800 m a.s.l..

Traditional walnut cultivation areas in the Swiss Alpine region are:

Bern: There is a large number of walnut trees, with numbers rapidly decreasing above 800 m a.s.l..

Glarus, Nidwalden: Walnut cultivation is of importance in some regions.

Grisons: The lower regions of Bergell, Misox and Puschlav are especially important walnut regions. Many trees also grow in Domleschg and the Chur Rhine valley.

In the Engadine, there are practically no trees any more – in 1955/56, nearly all walnut trees were destroyed by extreme climatic conditions.

Lucerne: In the canton Lucerne, there are still numerous walnut trees.

Obwalden: There are numerous walnut trees in Obwalden which are used for oil production, oil lamps, as foodstuff and for furniture production. Walnut trees often grow wild at scattered sites in the forests and wild walnuts are often collected.

Schwyz: Diverse field names still hint at the long-standing former importance of walnuts. Oil pressed from the fruit was used for human consumption.

St. Gallen: The St. Gallen Rhine valley was already an important nut centre in Medieval times. For more than 600 years, the nut Tythe had to be paid to churches which always needed large amounts of nut oil.

Ticino: Walnuts are used for oil production. They grow mainly on southern slopes.

Uri: Walnuts were very important, but since the beginning of the 1950s, there has been a sharp decrease.

Vaud: Walnut trees are very important up to an altitude of approx. 800 m.

13.3.2. Overview of actors and inventories

Walnuts:

The only important collection of walnuts in Switzerland is maintained by Fructus. Through the inventories conducted by Fructus and the Ecole d'Ingénieurs de Changins, western Switzerland has been relatively well examined. The Arboretum National d'Aubonne, Rétropomme and Pro Specie Rara, only have smaller collections. The Arboretum National d'Aubonne and Rétropomme only conserve varieties from western Switzerland. In the canton Obwalden, Hansjörg Lüthi and Ruedi Halter actively try to conserve the genetic resources of Obwalden walnuts.

Almonds:

Marco Regazzi from Riazzino (Ticino) conserves a single almond variety.

Hazelnuts:

Hazelnut collections have been set up by Fructus, the Arboretum National d'Aubonne and the research station Wädenswil.

13.3.3. Need for action

Inventories and conservation of walnuts

Only in western Switzerland have inventories reached an advanced state. As has already been described, walnuts are also of great importance in central, eastern and southern Switzerland. In these regions, an overall inventory has never been conducted. Because they are usually reproduced via seedlings, there are no clearly defined varieties in Switzerland and so an inventory would be difficult to conduct. A search for old walnut trees in the above mentioned regions should nevertheless be started in order to conserve exceptional seedlings.

Conservation of the genetic resources of almonds

There is no almond conservation apart from one variety kept in Marco Regazzi's assortment. Almonds have a certain tradition in Valais in Switzerland. A search for old varieties should start there.

Conservation of the genetic resources of hazelnuts

Little attention was given to the conservation of hazelnut varieties. There is an urgent need for a Swiss inventory. Old hazel hedges could possibly house rare varieties. The collection at the research station Wädenswil should be examined. Within this context, the private collection of the Bächli family in Jona (Tel. 0041-55/212 21 27) has to be checked up on again. It has to be verified if the collection has really been integrated into the one at the research station Wädenswil.

It would be desirable to cultivate and maintain existing varieties in a hazel garden or a large hazel hedge.

13.3.4. Actors

Fructus

Address: Vereinigung zur Förderung und Erhaltung alter Obstsorten, Glärnischstrasse 31, 8820 Wädenswil, Tel: 0041-1/780 43 78, E-Mail: fructus@bluewin.ch, URL:

<http://www.fructus.ch>

President: Klaus Gersbach

Contact: Sabine Vögeli

Description: The Association Fructus supports and conserves old nut varieties from the whole of Switzerland. Fructus maintains 22 hazelnut varieties and 47 walnut varieties. There is a working group 'walnuts'. Its main function is the exchange of information and ideas. Within the framework of the National Plan of Action, Fructus has been assigned with setting-up inventories of nut trees in western Switzerland (Inventarisierung der Nussbäume in der Westschweiz (NAP 5)). More detailed information can be found in the chapter on fruit.

Type of organisation: private

Arboretum National d'Aubonne

Address: 18, Rte de Bénex, 1197 Prangins, Tel: 0041-22/361 45 24,

Fax: 0041-22/361 45 24

Contact: Prof. R. Corbaz

President: P.-R. Martin

Description: The Arboretum National d'Aubonne looks after a collection with old local varieties. They originate mainly from French-speaking Switzerland, a large part from the

Alpine region. More detailed information on the Arboretum National d'Aubonne may be found in the chapter on fruit.

The collection contains, amongst others, the following nut varieties.:

- Walnuts (3 varieties)
- Hazelnuts (5 varieties)
- *Juglans intermedia* (1 variety)

Type of organisation: private

Rétropomme

Address: Case postale, 64, 2206 Les Geneveys-sur-Coffrane, Tel/Fax: 0041-32/842 44 10, 0041-32/731 61 93

Contact:

Description: Rétropomme is active in the conservation of fruit genetic resources in French-speaking Switzerland. The collection includes 3 walnut varieties. More detailed information on Rétropomme may be found in the chapter on fruit.

Type of organisation: private

Pro Specie Rara

Address Fruit: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.), Fax: 0041-62/823 50 25, E-Mail: obst@psrara.org, URL: <http://www.psrara.org>

Description: Within the framework of the arboreta project, 2 walnut varieties are conserved. More detailed information on PSR may be taken from the general section on Switzerland.

Type of organisation: private

Marco Regazzi

Address: Vivaio di piante da frutta, Via ai Pontini, 6595 Riazino, Tel: 0041-79/337 31 44

Contact: Marco Regazzi

Description: Marco Regazzi searches for old fruit varieties in the canton Ticino. Amongst others, an old Ticino almond variety is represented in his collection.

Type of organisation: private

Ruedi Halter

Address: Kilchweg, 6074 Giswil, Tel: 0041-41/675 15 31

Description: Ruedi Halter is a farmer and privately active in the cultivation of nut trees from the canton Obwalden. As grafting causes problems, he rears new plants from the seed of exceptional trees. He has reared nut seedlings on behalf of the Kooperation Giswil.

Type of organisation: private

Hansjörg Lüthi

Address: Haldenstrasse 9, 8904 Äsch, Tel: 0041-1/737 20 40

Description: Hansjörg Lüthi is a forester and tries to support reforestation for the timber industry with so-called forest nut trees (walnuts which are relatively long with narrow treetops and which are therefore able to survive in forests). For this he conducts experiments with rare walnut varieties from the canton Obwalden and Asia (India, Pakistan, Bhutan, Kirgistan). The aim is to obtain high-growing trees as only these may hold their own in forests.

Type of organisation: private

Ecole d'Ingénieurs de Changins

Address: 1260 Nyon, Tel: 0041-22/363 40 50, Fax: 0041-22/361 35 88, E-Mail: juglans@bluewin.ch, christian.blaser@eic.vd.ch, URL: <http://www.eichangins.ch>

Contact: C. Blaser, F. Manco

Director: J. Mayer

Description: The Ecole d'Ingénieurs de Changins makes inventories, describes and conserves walnut varieties from French-speaking Switzerland. The collected varieties are also tested with regard to special characteristics such as disease resistance and climate tolerance. They are conserved in a variety garden.

Type of organisation: governmental

Active since: 1999

Databank: yes

Additional protection of conserved varieties: yes, in an additional variety garden.

Long-term conservation: yes

Eidgenössische Forschungsanstalt Wädenswil - FAW

Address: Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 62 42, Fax: 0041-1/783 62 65

Contact: Peter Rusterholzer

Description: The research station Wädenswil tests walnut varieties of different origins and other Swiss seedlings. Some suitable varieties have been introduced onto the market. There is a hazelnut collection which contains plants of Swiss origin – amongst others from the collection of the Bächli family in Jona (Tel: 0041-55/212 21 27). This collection is not presently being maintained and there are uncertainties with regard to the authenticity of varieties.

More detailed information is available in the chapter on fruit.

Type of organisation: governmental

13.4. Chestnuts

13.4.1. Background

European chestnuts (*Castanea sativa*) basically thrive below 1000 m on lime-deprived soils. At suitable sites, they occur, however, at altitudes of 1300 m a.s.l.. The European chestnut has been indigenous in Switzerland since early Medieval times. In former times, it served as basic food for poor people. In contrast to Italy, chestnuts are nearly exclusively cultivated for home use. This has resulted in a considerable variety diversity. Because chestnut wood is so resilient, it is used for building purposes. As the roots have good, soil-stabilizing characteristics, the trees are especially suitable for securing slopes against soil erosion. Chestnut groves (standard tree gardens) need a regular sustainable cultivation for their conservation. As there has been no such care since the Second World War in most cultivation regions, they are seriously threatened by the growth of other forest tree species. Thus many chestnut groves, and with them several local varieties, have disappeared because of lack of interest or care or because of deforestation. The chestnut blight (*Endothia parasitica* – an American fungal disease) caused heavy problems for chestnut stocks in Ticino at the end of the 1940s.

Traditionally important chestnut cultivation areas in the Swiss Alpine region:

Grisons: Chestnuts grow mainly in the southern valleys Puschlav, Misox and Bergell. The most beautiful chestnut groves are said to be in Bergell. Chestnut cultivation and processing has never entirely been given up there and still is of some importance. Chestnuts are an important basic food in these valleys. In Bergell, Pizokel is produced from chestnut flour.

St. Gall: Smaller chestnut stocks are found at Lake Walen.

Ticino: For centuries, chestnuts have been an important basic food stuff in Ticino. In the following areas, their cultivation is especially important: Maggiatal, Levetina, Bleniotal, Bavonatal, Lugano incl. Malcantone and partially Mendrisiotto. Before the Second World War, there were 860,000 chestnut trees in Ticino. In the Valle di Maggia, bread is produced from chestnuts and rye. In the Bavona valley, the so-called Focaccia is produced from chestnut flour. The ‘Ticino National Bread’ consisted traditionally of chestnut flour, beans and foxtail millet, 1 or 2 of these ingredients depending on regional differences.

Vaud: Chestnuts grow in the environs of Bex.

Valais: Smaller stocks are found in the Eyholz, Visp and Mörel.

Central Switzerland: Formerly the chestnut was also used north of the Alps as a basic food. A large number of chestnut trees can be found in the environs of Lake Lucerne and Lake Zug. Central Swiss cantons with chestnuts groves:

- **Uri:** Individual groves.
- **Schwyz:** Chestnuts occur mainly in foehn valleys. Important areas: environs of Brunnen, Küsnacht, from Gersau to Pfäffikon, Immensee at Lake Zug
- **Zug:** Chestnut groves close to Walchwil
- **Lucerne:** Individual groves.

13.4.2. Overview of Organisations and Institutions

Area of activities	Private organisations	Nursery	Public institutions	Governmental institutions
Southern Valleys of Grisons and Ticino	2	1	4	1
Central Switzerland*	2			
Canton Vaud	1	1		
Canton Valais				
No specific region	2		1	1

*Environs of Lake Lucerne and Lake Zug

13.4.3. Need for action in Ticino and the southern valleys of Grisons

Chestnuts in Ticino and the southern valleys of Grisons are relatively well protected. Marco Conedera from the “FNP Sottostazione Sud delle Alpi” has searched there for old varieties. Further activities have been carried out on the conservation of chestnut groves which indirectly support the conservation of old chestnut varieties (chestnut project of the forest services in the Bergell and Puschlav, activities of Misox foresters under the administration of the Malcantone Region, Gruppo di lavoro per il Castagno del Inspektorato Forestale, Amici del Castagno).

13.4.4. Need for action canton Vaud

In the entire canton Vaud, inventories of chestnuts should urgently be taken. Within the framework of this study, only 2 actors could be located in the canton Vaud (Jean Christ und Jean-Luc Debrot). They specifically grow chestnuts in the community of Bex.

13.4.5. Need for action Central Switzerland

The conservation of chestnut varieties and groves in central Switzerland did not take place until the end of the 1990s. An important gap was closed through the foundation of the interest group ‘Pro Kastanie Zentralschweiz’. In cooperation with Pro Specie Rara, 2 chestnut

arboreta were already set up in 2000 in central Switzerland. The inventories have not yet been completed. A variety inventory urgently needs to be drawn up and used as a base for a search of old varieties.

13.4.6. Need for action canton Valais

Until now, the conservation of chestnut varieties and groves in the Valais has been totally neglected. An inventory should be conducted immediately.

13.4.7. General need for action in Switzerland

Product promotion

In agriculture, chestnuts could again become a profitable niche product in the middle or longterm. Product promotion could indirectly contribute to the conservation of chestnuts. At present, direct product promotion is only done by the IG Pro Kastanie Zentralschweiz.

Duplicates

There is an urgent need to duplicate existing collections in order to secure varieties.

13.4.8. Actors

Fructus

Address: Vereinigung zur Förderung und Erhaltung alter Obstsorten, Glärnischstrasse 31, 8820 Wädenswil, Tel: 0041-1/780 43 78, E-Mail: fructus@bluewin.ch, URL:

<http://www.fructus.ch>

President: Klaus Gersbach

Contact: Sabine Vögeli

Description: Amongst others the association Fructus conserves and supports 64 chestnut varieties. Further information on Fructus can be found in the chapter on fruit.

Type of organisation: private

Pro Specie Rara

Contacts:

- 1) Voce del Sud, Casella postale 47, 6504 Bellinzona, Tel: 0041-91/821 52 35,
- 2) Fax: 0041-91/821 52 39, E-Mail: psr-fnp@wsl.ch, URL: <http://www.psrara.org>,
Contact: Sabine Lanfranchi
- 3) Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.),
Fax: 0041-62/823 50 25, E-Mail: obst@psrara.org, URL: <http://www.psrara.org>,

Description: Pro Specie Rara is involved in the Misox foresters project (southern valley of Grisons, compare below). Owners of groves are encouraged to plant rare varieties in the gaps of the groves. PSR propagates these varieties and offers them for free to interested persons. The aim of PSR is to create several variety gardens around Misox thus conserving Misox chestnut diversity. They search for individuals who maintain chestnuts and are able to cultivate old varieties.

Marco Conedera of the FNP (see below) provides advice for Pro Specie Rara on the conservation of chestnut varieties.

PSR also assists the projects of the association 'Pro Kastanie Zentralschweiz'. In autumn 2000, 2 chestnut arboreta could be set up in Central Switzerland.

More detailed information on PSR may be taken from the general section on Switzerland.

Type of organisation: private

Interessengemeinschaft (interest group) Pro Kastanie Zentralschweiz

Address: Dorfstrasse 15, 6404 Greppen

Contact: Herbert Lampart (President)

Description: Pro Kastanie Zentralschweiz wants to set up an ecological experience tourism venture in Central Switzerland around Lake Lucerne and Lake Zug. Activities include the conservation of existing chestnut trees as well as new plantings and grafting. This association links forestry, agriculture, wood processing, nutrition, catering and tourism representatives as well as biology and ecology information. The support of chestnut products is a central topic. Each year in October, a 'Chestene-Chilbi' takes place in Greppen.

This project is accompanied by Pro Specie Rara. On behalf of Pro Kastanie, PSR manages the cultivation and care of the varieties. At present, 10 varieties of Central Swiss chestnut varieties are reproduced in the nursery Dove in Ebikon.

Type of organisation: private

Amici del castagno

Address: Marco Conedera. FNP, PO Box 57, 6504 Bellinzona

Contact: Marco Conedera

Description: The association works actively on the conservation of old chestnut groves and chestnut varieties in Ticino. At present, they are searching for a plot of land on which to plant old chestnut varieties.

Type of organisation: private

Arboretum National d'Aubonne

Address: 18, Rte de Bénex, 1197 Prangins, Tel: 0041-22/361 45 24,

Fax: 0041-22/361 45 24

Contact: Prof. R. Corbaz

President: P.-R. Martin

Description: The Arboretum National d'Aubonne takes care of a chestnut collection including old local varieties which originate mainly from French-speaking Switzerland, a large part comes from the Alpine region. The collection includes, amongst others, 3 chestnut varieties. More detailed information on the Arboretum National d'Aubonne may be taken from the chapter on fruit.

Type of organisation: private

Groupeement Chablaisien des Propriétaires de Châtaigneraies

Address: Case Postale 30, 1872 Troistorrents,

Tel: 0041-24/477 33 63, 0041-79/321 23 65, E-Mail: jean.christe@bluewin.ch

President: Jean Christe – Gare forestier

Description: Jean Christe directs this association which has been planting and supporting European chestnuts in the canton Vaud for some years. Local varieties are directly reproduced and catalogued. The collection includes, amongst others, the varieties Collognes, Dr. Besson, St. Triphon, Mandoline and Tour de Duin from the Alpine region. Inventories of stocks in the Vaud-Rhone region are being made. The Groupeement cooperates with the nursery gardener Jean-Luc Debrot.

Type of organisation: private

Active since: 1995

Size: 110 members

Additional protection of conserved varieties: no

Long-term conservation: yes

Jean-Luc Debrot – Pépinériste

Address: Le Grand Marais, 1880 Bex, Tel: 0041-24/485 37 31, 0041-79/623 45 46

Description: The nursery gardener in the canton Vaud also offers regional chestnut varieties.

Type of organisation: private/nursery

Vivaio Forestale Cantonale Lattecaldo

Address: 6835 Morbio Superiore, Tel: 0041-91/683 18 39, E-Mail: vforestale@tin.ch

Contact: Giuseppe Tettamanti

Description: The nursery, situated in the Valle di Muggio (Ticino), also offers some old chestnut varieties.

Type of organisation: cantonal nursery

Gruppo di lavoro per il Castagno del Inspectorato Forestale

Address: Sezione Forestale Cantonale, 6501 Bellinzona, E-Mail: moretti@ti.ch

Contact: Giorgio Moretti (President)

Description:

The working group works, together with some cultivators, towards the improvement of Ticino chestnut culture. Old chestnut varieties are protected indirectly via the conservation of chestnut groves. The revival of chestnut groves in Malcantone is supported by the Funds Landschaft Switzerland (Thunstrasse 36, 3005 Bern, Tel: 0041-31/351 71 81, Fax: 0041-31/351 71 84).

Type of organisation: public institution

Kantonale Gartenbauschule (cantonal gardening school) Öschberg

Address: Fachstelle für Obst und Beeren, Tel: 0041-34/413 77 44

Contact: Jürg Maurer

Description: In a variety garden, 2 chestnut varieties are amongst those conserved. More detailed information on the gardening school Öschberg may be taken from the chapter on fruit.

Type of organisation: public institution

Chestnut Project of the Forest services in Bergell and Puschlav

Address: rudolf.zuber@afw.gr.ch

Contact: Rudolf Zuber

Description: The forest services in Bergell and Puschlav (southern valleys of Grisons) take care of chestnut groves. Old chestnut varieties are thus indirectly protected.

Type of organisation: public institution

Misox Foresters

Address: rudolf.zuber@afw.gr.ch

Contact: Rudolf Zuber

Description: The project 'Recupero di selve castanili nel Moesana' aims to store the chestnut groves in Misox. In different communities, overaged groves are spruced up. The grove owners involved commit themselves to taking care of their groves for at least 30 years. The idea behind the project is that each community should have at least one renovated grove. The groves are freed from undergrowth, only beautiful individual chestnut trees remain. Thus, space is created for young plants. The project is 70% subsidised by the Federal government.

Type of organisation: Public institution

Administration of Malcantone Region

Address: 6549 Agno, Tel: 0041-91/605 36 49

Contact: Daniele Ryser

Description: Via the administration of Malcantone Region (Ticino), the Fonds Landschaft Schweiz (Thunstrasse 36, 3005 Bern, Tel: 0041-31/351 71 81, Fax: 0041-31/351 71 84)

supports a project on the revitalisation of chestnut groves. Old chestnut varieties are thus indirectly protected.

Type of organisation: public institution

FNP Sottostazione Sud delle Alpi

Address: PO Box 57, 6504 Bellinzona, Tel: 0041-91/821 52 31, Fax: 0041-91/821 52 39, E-

Mail: marco.conedera@wsl.ch

Contact: Marco Conedera

Description: The FNP Sottostazione Sud delle Alpi is a sub-department of the WSL (Amt für Wald, Schnee und Landschaft – Office for Forests, Snow and Landscape). The FNP is active in the conservation of chestnut groves in Ticino and the southern valleys of Grisons. Marco Conedera is responsible for the activities with chestnuts. An active search for old varieties is being conducted. Up to now, specimen of 59 varieties (or variety names) have been collected. In a tree area, approx. 40 varieties are conserved. There is a variety catalogue with 120 names. Within the framework of the National Plan of Action, Marco Conedera was entrusted with project 12: 'Erhaltung der Genressourcen bei Kastaniensorten aus dem Tessin' –

Conservation of the Genetic Resources of Chestnut Varieties from Ticino (NAP 12).

Type of organisation: governmental

Eidgenössische Forschungsanstalt Wädenswil - FAW

Address: Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 62 42, Fax: 0041-1/783 62 65

Contact: Markus Kellerhals

Description: At the research station Wädenswil, some Ticino chestnut varieties were tested. 3 varieties especially suited to cultivation in northern Switzerland were identified. They are available at the nursery Hauenstein in Rafz. More detailed information on the FAW may be taken from the chapter on fruit.

Type of organisation: governmental

13.5. Vines

13.5.1. Background

The criteria early maturity and frost resistance are of particular importance for vine cultivation in the Alpine region. The occurrence of the powdery and downy mildew in the second half of the 19th century has meant that most old vine varieties have disappeared and with them the breeding basis for early maturity and frost resistance. In Medieval times, for example at the time of the Thirty Years' War, a favourable climate for vine cultivation prevailed in Switzerland. Wine was then a popular and widely spread drink. Vines were also cultivated in regions where this would not be possible today, e.g. part of Central Switzerland. The varieties at that time were high-yielding with a low sugar content. It is assumed that there are currently approx. 5000 vines world-wide. Of these, only 50 are widely spread.

Traditional vine cultivation areas in the Swiss Alpine region:

In the Alpine region, vine cultivation has become important mostly in favoured locations.

Only in the canton Valais is vine cultivation also possible in higher altitudes.

Bern: In the Bernese upland, vine cultivation has a certain tradition.

Glarus: Vine cultivation used to be of some importance.

Grisons: Vine cultivation is in general important in the valleys, of special importance are the Chur Rhine valley and the southern valleys (Puschlav, lower Bergell, Domleschg).

Lucerne: The favoured location of Lake Lucerne is popular for vine cultivation.

St. Gall: Vine cultivation is important in the Rhine valley.

Schwyz: Vine cultivation in the canton Schwyz was first mentioned in 1191. Cultivation was later also supported by the Romans. Trellis vines occur everywhere in the canton.

Ticino: Vine cultivation is important in general, but only in the lower parts of the valleys. In the community of Mergoscia for example, each family owns its own small vineyard. Fruit are often used dried. Vegetables, cereals or potatoes are planted between the vines. Trellis vines with Americano grapes are common in all of Ticino, in the Blenio valley, they are used for the production of a special wine.

Unterwalden: Vine has been cultivated since Roman times. Trellis vines are widely spread.

Uri: Vine cultivation has reached a certain importance in the valleys.

Valais: Valais is the largest producer of wines both in the area covered and the amounts produced. With its low mist formation and its summer temperatures lasting till autumn, thanks to the warm Foehn with its favourable impacts, Valais has a real steppe climate. The highest vine cultures of Europe are found in Visperterminen (1100m a.s.l.).

In Valais, 60 vine varieties are still cultivated today – mainly at an altitude of between 450 and 800m a.s.l. (Pinot Noir, Chasselas and Gamay). 3 vine varieties occupy 85 % of the entire vine cultivation area.

The slopes of the Rhone valley are covered by the horizontally planted vine terraces. At present, an area of approx. 5200 ha is cultivated with vines.

Zug: Because of the vine louse, vines disappeared nearly completely at the end of the 19th century. Replacement planting was rarely done. Trellis vines, however, are still widely spread.

13.5.2. Overview

Overview of organisations and institutions active in the conservation of vine varieties. A more detailed description follows.

Private/ active at national level	Private/ small collection	Private/ active at regional level	Nursery with varieties from the Alpine region	Public Institution	Governmental Institution
2	1	3	2	2	3

The SKEK - Schweizerische Kommission zur Erhaltung von Kulturpflanzen (Swiss Commission for the Conservation of Cultivated Plants) is presently developing an overall concept for vine conservation by various actors. Special emphasis is being given to the classification of vine varieties and the setting of a concept for the conservation and protection of all vine varieties in Switzerland. Later on, conservation work will concentrate mainly on Swiss origins. Protection is assumed to be achieved if a registered variety is available with at least 10 vines at different locations.

13.5.3. Need for action

Inventories

Inventories of vines in Switzerland are basically completed. It is unlikely that more unknown varieties will be discovered. In individual regions there are still gaps.

- There is a great need for an active search for Americano vines in Ticino. This task is at present only partially taken care of by Pro Specie Rara. Because of lack of financial support, there is presently no active searching for old varieties.
- The Kantonale Zentralstelle für Weinbau (Cantonal Central Office for Vine Cultivation) in Salez in the canton St. Gall reports a need for inventories and identification of vines .

- It can be assumed - especially for old trellis vines - that old varieties could still be tracked down. They may reach a considerable age and are in most cases not completely eliminated when hit by diseases. An overall Swiss inventory would certainly be worthwhile. Particular attention should be given to trellis vines in Central Switzerland.

Deficiencies in the overall concept for vines

Pro Specie Rara is afraid that many varieties will be lost if conservation work only concentrates on Switzerland. Most vine varieties do not originate from Switzerland. Many were imported from foreign countries and have been successfully cultivated in Switzerland for centuries. Some do not exist any more in their area of origin or their origin has been lost in the annals of history.

Indirect promotion by niche products

The conservation of Americano vines in Ticino could, for example, be supported through special products (example: wine from Americano vines in the Blenio valley).

13.5.4. Actors

Dr. Marcel Aeberhard

Address: Reichenbachstrasse 108, 3004 Bern, Tel: 0041-31/301 93 64

Description: Marcel Aeberhard has collected vine varieties in Switzerland and other countries since the beginning of the 1960s. His private variety garden consists of approx. 250 varieties (one to two vines, respectively) and is one of the largest collections in Switzerland. It presently includes 73 Swiss varieties, out of these 12 Valais varieties, 4 varieties from Ticino and 3 from Grisons. Because of his age, Marcel Aeberhard allowed PSR to take over his collection at the beginning of the 1990s.

Type of organisation: private

Active since: beginning of the 1960s

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.),

Fax: 0041-62/823 50 25, E-Mail: sekretariat@psrara.org, URL: <http://www.psrara.org>

Contact: Bela Bartha

Address Italian Switzerland: Voce del Sud, Casella postale 47, 6504 Bellinzona,

Tel: 0041-91/821 52 35, Fax: 0041-91/821 52 39, E-Mail: psr-fnp@wsl.ch,

Contact: Sabine Lanfranchi

Description: At the beginning of the 1990s, Pro Specie Rara was allowed to take over the vine collection of Marcel Aeberhard. The varieties are still maintained and distributed by PSR. In 1998, Marcel Aeberhard helped to conduct an inventory of old vine varieties in the canton Ticino. Discovered varieties are being reproduced by the winegrower Stefan Haldenmann in Minusio.

PSR provides plant material for variety gardens. The vine project has presently been put on ice, because the financial background needed to invest in the project on a larger scale is missing. Collection efforts are at present only made in Ticino.

More detailed information on PSR may be taken from the general part on Switzerland.

Type of organisation: private

Rétropomme

Address: Case postale, 64, 2206 Les Geneveys-sur-Coffrane,

Tel/Fax: 0041-32/842 44 10, 0041-32/731 61 93

Description: Rétropomme conserves fruit genetic resources from French-speaking Switzerland. The collection includes 3 vine varieties from Switzerland. More detailed information on Rétropomme may be taken from the chapter on fruit.

Type of organisation: private

Reb- und Weinbauverein Domleschg

Address: c/o Rudolf Küntzel, 7417 Paspels, Tel: 0041-91/655 19 50,

E-Mail: rudolf.kuentzel@bluewin.ch

Description: The Reb- und Weinbauverein Domleschg has been conserving both new and old local vine varieties since the 1980s. Rudolf Künzler (0041-81/651 20 19) takes care of 3 old Domleschg varieties in his vineyard (amongst others Weisser Heunisch and Weisser Traminer).

Type of organisation: private

E. Frey

Address: Casa al Poggio, Via Corafora, 6622 Ronco sopra Ascona, Tel: 0041-91/791 55 82

Description: E. Frey maintains a private collection of Ticino vine varieties. The collection consists mainly of Americano vines.

Type of organisation: private

M. Klurfeld

Address: Lissol, 6647 Mergoscia, Tel: 0041-91/745 27 54

Description: M. Klurfeld maintains a private collection of Ticino vine varieties.

Type of organisation: private

Vine nursery A. Meier

Address: Rebschulweg 2, 5303 Würenlingen, Tel: 0041-56/297 10 00,

Fax: 0041-56/297 10 01, E-Mail: office@rebschule-meier.ch, URL: <http://www.reben.ch>

Contact: Heinz Simmler

Director: Andreas Meier

Description: For many years A. Meier has been carrying out conservation breeding in his nursery. Approx. 65 varieties are included in its vine variety record. They originate from the whole of Switzerland, many of these from the Alpine region. These varieties are all planted and conserved in a variety garden.

Type of organisation: private/vine nursery

Active since: 1921

Size: 10 members of staff

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: yes

Zentralstellen für Weinbau der Kantone St. Gallen, Graubünden, Thurgau, Schaffhausen, Zürich und Aargau

Address: Rheinhof, 9465 Salez, Tel: 0041-81/758 13 28, Fax: 0041-81/758 13 01,

E-Mail: markus.hardegger@lsrheinhof.ch

Contact: Markus Hardegger

Description: At the Zentralstelle für Weinbau (Central Office for Vine Growing) in Salez, 100 Swiss vine varieties are conserved in a variety garden (Rebberg Frümsen). Some of the varieties originate from the Alpine region. Markus Hardegger is a representative of the Zentralstellen für Weinbau (Central Offices for Vine Growing) of the canton St. Gall, Grisons, Thurgau, Schaffhausen, Zurich and Aargau.

Type of organisation: public institution

Size: 2 members of staff
Databank: yes
Additional protection of conserved varieties: no
Long-term conservation: yes

Kantonale Gartenbauschule Öschberg

Address: Fachstelle für Obst und Beeren, Tel: 0041-34/413 77 44

Contact: Jürg Maurer

Description: Amongst others, 6 table grape variety are conserved in a variety garden. Some of the conserved varieties originate from the Alpine region.

More detailed information on the horticultural school/Gartenbauschule Öschberg may be taken from the chapter on fruit.

Type of organisation: public institution

HSW - Hochschule Wädenswil für Obst-, Wein- und Gartenbau (University for Fruit Culture, Viniculture and Horticulture)

Address: Grüental 14, 8820 Wädenswil

Contact: J. Galli

Description: At the University of Wädenswil, old traditional vine varieties from Switzerland are cultivated in the historical vineyard of the wine museum and the vineyard of the peninsula Au. Some of the varieties originate from the Alpine region. Conservation is done in a variety garden.

Type of organisation: governmental

Size: ca. 250 members of staff

Databank: no

Additional protection of conserved varieties: no

Long-term conservation: yes

Conservatoire et Jardin botanique de la Ville de Genève

Address: Case postale, 6, 1292 Chambésy, Tel: 0041-22/418 51 00, Fax: 0041-22/418 51 01, E-Mail: Raymond.tripod@cjb.ville-ge.ch, URL: <http://www.ville-ge.ch>

Contact: M. Raymond-Tripod

Director: Prof. R. Spichiger

Description: Conservation of old varieties from the environs of Lake Geneva and neighbouring France. Some varieties were also cultivated in the Alpine region. Besides several fruit species, 16 vine varieties are being cultivated. There are 2 vines per variety.

More detailed information on the Botanical Garden of Geneva may be taken from the chapter on fruit.

Type of organisation: governmental

Eidgenössische Forschungsanstalt Changins - Centre viticole du Caudoz

Address Pully: Av. de Rochettaz, 21, 1009 Pully, Tel: 0041-21/721 15 60, Fax: 0041-21/728 96 29, Contact: Monsieur D. Maigre

Address Ticino: Centro Cugnasco, Zweigstelle Tessin, 6516 Cugnasco, Tel: 0041-91/850 20 33, Contact: Mirto Feretti

Description: At the Zentrum für Weinbau (Centre for Vine Growing) of the Eidgenössischen Forschungsanstalt (Swiss Research Station) Changins in Pully, a public collection of vine varieties is conserved with varieties from Switzerland (also from the Alpine region), Italy and France. The sub-department in Cugnasco conserves old varieties from Ticino. The collection with Ticino varieties is presently being reorganized and will only be maintained on a smaller scale in the future.

More detailed information on the research station Changins may be taken from the chapter on cereals.

Type of organisation: governmental

13.6. Vegetables (excl. potatoes, legumes)

13.6.1. Background

There are neither important breeding nor large-scale seed production for vegetables in the Alpine region. Seed was and still is imported from foreign countries. Most of the vegetables cultivated in the Alpine region were also used in other Swiss regions. Through private seed propagation, however, some adapted local varieties have developed.

Traditional vegetable cultivation in the Swiss Alpine region

Listed below are vegetables for various Alpine regions which, according to investigations, already played an important role in some regions in the first half of the 20th century. It has to be assumed that their diversity was relatively large and that therefore conservation strategies are particularly important.

Appenzell: House gardens in general were of lesser importance in the canton Appenzell. The women needed beautiful hands for their embroideries – as the saying goes: Women and sows maintain the land – women with their embroidery, sows with their lard.

Bern: Particularly important species: turnips and crucifers.

Fribourg: Particularly important species: parsnips, nutmeg flower and rhubarb.

Grisons: Particularly important species: chard, white cabbage, *Herbstrüben* (*Brassica rapa ssp. rapa* L.) (frequent in Val Medel, savoy cabbage for soups, carrots, onions, cauliflower and beetroots.

Particularly important species:

Felsberg and Unterval were particularly important vegetable production areas, not only for home use but also for sale at the market in Chur. In the Prättigau, seed were marketed at the beginning of the 20th century by the so-called ‘Samä-Wiibli’ (seed woman). Each spring, she took to the road with a ‘Chrätte’ (a sort of container) and sold seed of the gardening enterprise Küderli. Many of the adapted local varieties in the canton Grisons have disappeared because the handing of seed from generation to generation is no longer important.

Obwalden: Particularly important species: parsnips, carrots, beetroots and cabbage for sauerkraut.

Schwyz: Particularly important species: cabbage for sauerkraut production, allgood and *Bocksart* (Synonym: *Habermark*) *Tragopogon pratensis*.

St. Gall: Almost no vegetable cultivation takes place in the higher regions of the canton St. Gall, nearly all vegetable originates from the St. Gall Rhine valley.

Ticino: Particularly important species: winter chicory, chicory (in Mergoscia risotto was cooked with chicory stalks), root crops, onions, beetroots and pumpkins.

Uri, Glarus, Zug:

Cabbage was very important.

Vaud:

Particularly important species: leek, rhubarb and carrots. Particularly favourable conditions prevail in the lower Rhine valley as well as in Valais.

Valais: Particularly important species in the Rhone valley: asparagus, cauliflower, spinach, cucumber, leek, onions and tomatoes. In the higher altitudes of the canton Valais, fodder beet, black salsify, garden orache, carrots and corky-fruit water dropwort play a central role. The relatively warm Rhone valley, with only few frosts, offers unusually good conditions for an Alpine valley.

Entire Alpine region:

In the Alpine region, the following species are generally of particular importance: cabbage, parsnips, carrots, little radish, kohlrabi, radish, onions *Herbstrübe* (*Brassica rapa ssp. rapa*), savoy cabbage, Swiss chard, beet roots, cos lettuce

13.6.2. Overview of organisations and institutions

Pro Specie Rara is of special importance for on-farm conservation of vegetables. It covers the entire country and most vegetable species with its conservation activities. An important gap has been closed by setting up a databank on historically-used varieties of cultivated plants (Monitoring Institute). At present, the working group “vegetables” of the SKEK - Schweizerische Kommission zur Erhaltung von Kulturpflanzen- (Swiss Commission for the Conservation of Cultivated Plants) is implementing an overall project on the 'Entwicklung von Konzepten, Methoden und eines Kontrollsystems für die Erhaltung von genetischen Ressourcen bei Gemüse-, Acker- und Industriepflanzen' (Development of Concepts, Methods and a Control System for the Conservation of the Genetic Resources of Vegetables, Field Crops and Industrial Plants)(NAP 30) within the framework of the National Plan of Action. Within the framework of this project, a national database has also been set-up.

13.6.3. Need for action

Search activities in southern Switzerland

In southern Switzerland, there is a need to search for rare vegetable varieties. Well-directed search tours have to be conducted using lists of formerly cultivated varieties. The Alpine transit valleys and valleys which were secluded for a long time should be particularly interesting.

Search in foreign genebanks

Foreign genebanks with historical variety lists should be searched. Some varieties could be tracked down there (e.g. in the genebanks of Gatersleben and Braunschweig).

Variety garden for vegetables (incl. potatoes and legumes) in the Alpine region

There are several variety gardens in the Alpine region. However, they all specialise in cereals. The implementation of a variety garden with a specific emphasis on vegetables in the Alpine region would be desirable.

13.6.4. Actors

Pro Specie Rara

Address for garden plants: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.), Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contacts: Kurt Eichenberger

Description: The project ‘Garden and Field Plants’(includes vegetables, legumes, potatoes, berries, cereals and herbs) started in 1985. At present, there are more than 800 entries for garden and field plants. Out of these, approx. 600 are conserved on-farm. Some of the varieties are cultivated in the Alpine region. There are approx. 30 varieties of leaf vegetables. The following vegetable species are conserved on-farm:

- 3) Tomato, artichoke, fennel, carrots, garlic, cabbage, lettuce, cress, lambs’ lettuce, parsnip, Levant garlic, beetroot, radish, rhubarb, shallot, foliage beet, Swiss chard, celery, spinach, Jerusalem artichoke, welsh onion, savoy

The following rare vegetable species are conserved on-farm:

- Teasel, angelica, corky-fruit water dropwort, earth almond, edible burdock, edible vetchling, smaranth, sorrel, allgood, cress, seed hempnettle, skirret, salsify, garden oracle, *Hirschhornsalat* (*Plantago coronopus*), tuberous chervil, sea kale, purslane, rampion, opium poppy, Chinese chive, aparagus pea, anis chevril, evening primrose

An important part of the conservation work of PSR is the conservation of old varieties via variety caretakers. Seed in small amounts is handed over to them. They then cultivate the respective variety and send annually at least one portion of seed back to PSR. The seed is then handed over to new variety caretakers. The seed available is listed in the half-yearly publication 'Sortenfinder'. The seed is partially directly distributed by variety caretakers (private seller).

The variety experts' groups "variety gardens and professional seed reproduction" play an increasingly important role in the garden and field plants project. It cooperates with the research station in Wädenswil on the comparative cultivation of Jerusalem artichoke and salsify. At the Schweizerischen Hochschule für Landwirtschaft Zollikhofen (SHL) (Swiss University for Agriculture Zollikhofen), garden oracle, Japanese artichoke and parsnip are being tested.

More detailed information on PSR may be taken from the general part on Switzerland.

Type of organisation: private

Monitoring Institut

Address: Schneebergstrasse 17, 9000 St. Gallen, Tel: 0041-71/222 74 10, Fax: 0041-71/222 74 40, E-Mail: monitoring@swissonline.ch, URL: <http://www.monitoring-inst.de>

Contact: Hans-Peter Grunenfelder

Description: The 'Monitoring Institute for Rare Breeds and Seeds in Europe' acts as service centre for all governmental and private bodies interested in the living conservation of livestock breeds and cultivated plants. It acquires scientific basic data on the protection and long-term conservation of genetic resources in European agriculture. Within the framework of the National Plan of Action, the Monitoring Institute was assigned the task of setting up a databank including all historically utilised varieties of cultivated plants in Switzerland (project NAP 32). This would make it possible to search specifically for old varieties in search lists.

Type of organisation: private

Active since: 1995

Databank: available

Sortengarten (variety garden) Erschmatt

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19,

E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: Some vegetable varieties are also conserved in the variety garden. The plants can be found in the Alpine region, but only some originate from Valais. More detailed information on the variety garden Erschmatt may be taken from the chapter on cereals.

The following vegetable species are conserved:

- Wild forms of leech
- Garden orange – 1 variety
- Hoary alison – 1 variety
- Corky-fruit water dropwort – 1 local variety
- Bunias/corn rocket (wild form)
- Seed hempnettle – 1 variety
- Tomato – 3 varieties (also conserved by Pro Specie Rara)
- Wild field salad

- Lambs' lettuce – 1 variety
- Skirret – 1 variety
- Poppy – 4 varieties (origin Austria)

Type of organisation: private

RAC - Station fédérale de recherches en production végétale de Changins

Address: Case postale 254, Rte du Duillier, 1260 Nyon, Tel: 0041-22/363 47 22,

Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

Contact: Dr. G. Kleijer

Description: 400 entries of vegetable plants are contained amongst others in the genebank at the RAC. Some of these varieties were also originally cultivated in the Alpine region. More detailed information on RAC may be taken from the chapter on cereals.

Type of organisation: governmental

Eidgenössische Forschungsanstalt Wädenswil (Swiss research station)

Address: FAW, Postfach 185, 8820 Wädenswil, Tel: 0041-1/783 62 42, Fax: 0041-1/783 62 65

Contact: Robert Theiler

Description: At the FAW, there is a collection with 28 rhubarb varieties. Some of these were also cultivated in Switzerland. It can be assumed that rhubarb was also cultivated at more favourable sites of the Alps. The FAW additionally owns a collection of old vegetable varieties (mainly old breedings of the FAW) which had been developed or which were used for breeding purposes. They probably have no direct connection with the Alps.

Type of organisation: governmental

Long-term conservation: not guaranteed

13.6.5. Seed traders specialised on local varieties

Biosem

Address: Susanne Jossi Jutzet und Adrian Jutzet, 2202 Chambrelieu NE,

Tel: 0041-32/855 10 58, Fax: 0041-32/855 17 18, E-Mail: biosem@bluewin.ch

Description: Biosem also offers old Swiss varieties in its catalogue. Long-term inclusion of all old varieties in the assortment is planned. The division into varieties originating from the Alpine region and other varieties is often not possible. In the assortment, however, varieties are found which are often cultivated in the Alpine region (amongst others a parsnip variety).

Sativa

Address: Sativa Rheinau GmbH, Amadeus Zschunke, Klosterplatz, 8462 Rheinau,

Tel: 0041-52/304 91 60, Fax: 0041-52/304 91 61

Contact: Amadeus Zschunke

Description: Sativa mainly produces seed of Demeter quality. Seed of old varieties are also available in its assortment. It can be assumed that certain varieties of the following species originate from the Alpine region:

Kohlrabi, *Herbstriibe*, savoy cabbage, Swiss chard, parsnip, small radish, radish, iceberg lettuce, cos lettuce, lambs' lettuce, curled lettuce, maize and onions.

Within the framework of the possibilities of a seed producing company, Sativa tries to conserve old varieties and especially varieties from the Alpine region. The company cooperates with the gardening enterprise Ekkarthof(8574 Lengwil). There will be more old varieties on offer in the next few years, due to a cooperation with PSR. At present, approx. 40 different reproduction companies work for Sativa, some of these in the Alpine region.

Long-term conservation:

Varieties remain in the assortment as long as is justified by the demand. An effort is made to keep up a minimum care and minimum seed production for varieties which are no longer kept

in the assortment. The necessary support from the governmental side, however, is missing at present.

Zollinger – Biologische Samen (biological seed)

Address: R. und Chr. Zollinger, 1891 Evouettes, Tel/Fax: 0041-24/481 40 35

E-mail: zollinger-samen@bluewin.ch

Description: Since 1983 the Zollinger family has been dealing with the production of bio-dynamic vegetable, herb and flower seed. They also have old varieties in their assortment and tries to introduce trading in open flowering varieties. Some of the varieties on offer were cultivated in the Alps.

Lecerf

Address: Andreas Mock, Graines Lecerf, 6, Rue Tour-Maitresse, 1204 Genève,

Tel: 0041-22/310 16 73

Description: The traditional seed trader keeps old varieties from the canton Vaud in its assortment.

13.7. Potatoes

13.7.1. Background

Potato cultivation was of major importance in the entire Alpine region. In the cantons of Appenzell and Uri, potato fields were mentioned during the cultivation battle of the Second World War.

In the following cantons, potatoes are of particular importance:

Bern, Obwalden, Zug, Glarus:

Potatoes are very important in house gardens.

It was through the potato that famines could be avoided in Grisons. Potato field cropping played a vital role at the beginning of the 20th century. All suitable areas were used for the cultivation of the field crop. Steep slopes were terraced at high expense. Alternative products in the village shops and attractive subsidies for cattle breeding and dairy farming have meant that labour intensive field cropping has increasingly lost its importance. On areas suitable for field cropping, forage cereals have replaced potatoes. Smaller farm enterprises have given up intensive field cropping on the small terraces because of the lack of mechanisation possibilities and increasing migration. Today, the formerly numerous fields are missing in the landscape.

Schwyz: Potato fields were often set up on drained upland moor plains. Every 2 meters, a discharge ditch was dug, therefore potato fields were very narrow and relatively long.

Ticino: Potato cultivation has been important since the introduction of the railroad in the 19th century.

Valais: New varieties originated in the upper Valais as a result of crossbreeding. The very simple possibility of propagating these varieties vegetatively led to the development of a vast 'army of varieties' around the turn of the last century. Some of these varieties were named and commercially propagated. At the end of the 1940s and beginning of the 1950s, these local varieties were gradually replaced by modern breeding varieties. As potato seed can only be stored in short term, many local varieties were finally lost because they could not regularly be cultivated anymore.

13.7.2. Overview of organisations and institutions

Pro Specie Rara and the FAL Reckenholz are the only institutions in Switzerland which maintain larger collections of old potato varieties. In cooperation with both institutions, the

SKEK - Schweizerische Kommission zur Erhaltung von Kulturpflanzen (Swiss Commission for the Conservation of Cultivated Plants) is drawing up an overall concept for the conservation of potato varieties in Switzerland. Within this framework, a variety garden in the Alpine region is planned.

13.7.3. Need for action

Most of the required action is at present done by PSR and the FAL Reckenholz. Because potato seed can only be stored short term, many local varieties have disappeared.

Need for Action:

- **Variety garden in the Alpine region:** The need here is the same as that for vegetables (compare the chapter on vegetables).
- **Search in foreign genebanks:** The need here is the same as that for vegetables (compare the chapter on vegetables).
- **Search activities in remote valleys:** The search for old varieties using search lists based on historical data is particularly important in valleys where potatoes were of major importance.

13.7.4. Actors

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.),

Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contact: Kurt Eichenberger

Description: Potatoes are also conserved within the framework of the 'Garden and Field Plants' (more detailed information is in the chapter on vegetables).

The potato collection of PSR consists of 54 potato varieties (status: 1999). There is an expert group for potatoes. Potatoes have been an important field crop in the Alpine region for a long time. Pro Specie Rara also keeps varieties from the Alpine region in its collection; the 'Acht-Wochen-Nüdeli' is an example.

Within the framework of the National Plan of Action, PSR is entrusted with the project 'Sanierung, Beschreibung und nachhaltige Lebenderhaltung alter Kartoffelsorten' (Restauration, Description and Long-term Conservation of Old Potato Varieties) (NAP 39).

Here, PSR cooperates with the Eidgenössischen Forschungsanstalt für Pflanzenbau (Swiss Research Station for Plant Production) in Changins (Tel: 0041-22/363 44 44), der Eidgenössischen Forschungsanstalt für Agrarökologie und Landbau (Swiss Research Station for Agroecology and Agriculture) Reckenholz (Tel: 0041-1/377 72 16), Delley Samen und Pflanzen AG (Tel: 0041-26/677 90 20) and the Landwirtschaftliche Schule (Agricultural School) Flawil (Tel: 0041-71/394 53 29).

PSR is planning to carry out in vitro protection for the long-term conservation of potato varieties in the Changins genebank.

More detailed information on PSR is given in the general section on Switzerland.

Type of organisation: private

Sortengarten Erschmatt (Variety garden)

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19,

E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: In the variety garden Erschmatt it is mainly local varieties from Valais which are conserved in cooperation with farmers. Amongst others, 3 potato varieties are conserved.

More detailed information on the variety garden Erschmatt may be taken from the chapter on cereals.

Type of organisation: private

FAL - Eidgenössischen Forschungsanstalt für Agrarökologie und Landbau Reckenholz
Address: Reckenholzstrasse 191-121, 8046 Reckenholz, Tel: 0041-1/377 71 11,
Fax: 0041-1/377 72 01

Description: The FAL takes care of 40 old potato varieties, some of which are rare, in Maran/Arosa, in Oberwallenstalden in Emmental as well as in the trial field at Reckenholz.
Type of organisation: governmental

13.8. Legumes

Background

In the Swiss Alpine region, the following legume species are important: pea, field bean, garden bean, chick pea and vetchling. Because of their hardiness and frost tolerance, pea and field bean are cultivated at higher altitudes and thus have a particular importance in the Alpine region. Garden beans which were introduced from the New World in the 16th century, have replaced field beans in large parts of Switzerland. They are, however, only cultivated at sites below 1000 m as they are more sensitive to cold, especially runner beans. Bush beans are also successfully grown in higher altitudes thanks to their shorter vegetation cycle. Their cultivation started later once large-scale utilisation became possible following the development of suitable harvest machines. It has to be assumed that the garden bean was established in the Alps in the 19th century. The cultivation of chickpeas and vetchlings is of subordinate importance.

Traditionally particularly important regions:

Grisons: Legumes are mainly important for self supply to reduce deficiency symptoms. Runner beans are sometimes cultivated on house walls, bush beans only became important in the second half of the 20th century. Field beans are also cultivated on a larger scale.

St. Gallen: Peas and the ‘Schwefleren’ – a yellow shell bean – are important in the Rhine valley.

Ticino: Beans have been one of the most important basic foods for centuries, bean flour is also mixed into the bread.

Valais: Legumes are generally important, particularly peas and the runner bean. At the beginning of the 20th century the field bean was already being cultivated. Each family cultivated one to two small fields with field beans. Well-known local varieties are the Törbjör Grossbohne (large bean) and the Lötschentaler Ackerbohne (field bean). Cultivation areas are still found at an altitude of more than 1700m a.s.l..

13.8.1 Overview of actors and need for action

PSR is the only institution in Switzerland maintaining a larger collection of beans. The entire Alpine region and all important species are included in its conservation activities. At present, the exceptionally good legume conservation work of PSR is poorly supported by the National Plan of Action.

The need for action for legumes is similar to that for vegetables – more detailed information may be found in the chapter on vegetables.

- **Variety garden in the Alpine region:** more detailed information can be found in the chapter on vegetables.

Search in foreign genebanks: more detailed information may be taken from the chapter on vegetables.

- **Search activities in remote valleys:** The search for old varieties using historical lists would be worthwhile for the whole of the Alpine region.

13.8.2. Actors

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.), Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contact: Kurt Eichenberger

Description: Legumes are also conserved within the framework of the project 'Garden and Field Crops' (more detailed information in the chapter on vegetables).

The legume collection of PSR consists of 64 varieties of runner beans, 12 bush beans, 7 fire beans, 7 broad beans, and 15 peas and sugar peas as well as some lentils, chick peas, field beans, lima beans and asparagus peas (Status: 1999). Since 1999, a part of the collected garden bean varieties have been assessed in a comparative culture in cooperation with the Forschungsanstalt (Research Station) Wädenswil (FAW, Hans-Peter Buser, 8820 Wädenswil). The assessment was carried out for the variety description and seed production. A project for the improvement of seed (elimination of viruses and bacteria) and a comprehensive comparative cultivation (evaluation of degenerative symptoms and evaluation of synonyms) as well as variety descriptions are planned. An experts' group for legumes is being initiated.

Legumes are important in the Alpine region. PSR also has varieties from the Alpine cantons in its collection. The Lötschental bean from Valais is a typical representative of mountain varieties. The Gomm pea is also a classic example of an Alpine cultivated plant which is well adapted to short vegetation periods.

More detailed information on PSR may be taken from the general section on Switzerland.

Type of organisation: private

Sortengarten Erschmatt (Variety garden)

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19,

E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: In the variety garden Erschmatt it is mainly local varieties from Valais which are being conserved in cooperation with farmers. More detailed information on the variety garden Erschmatt is given in the chapter on cereals.

The following legume species are included in the assortment:

- Runner bean – 2 varieties
- Chick pea – 3 varieties
- Vetchling – 2 varieties
- Pea – 6 varieties
- Field bean (*Vicia faba*) – 11 varieties

Type of organisation: private

Sativa

Address: Sativa Rheinau GmbH, Amadeus Zschunke, Klosterplatz, 8462 Rheinau,

Tel: 0041-52/304 91 60, Fax: 0041-52/304 91 61

Contact: Andreas Zschunke

Description: Sativa produces Demeter seed. Its assortment includes seed of old legume varieties. More detailed information on Sativa is given in the chapter on vegetables.

From the Alpine region, varieties of runner bean, sugar pea and field bean are available (the origin is often not clear).

Type of organisation: private/seed trader

Biosem

Address: Susanne Jossi Jutzet und Adrian Jutzet, 2202 Chambrelieu NE,

Tel: 0041-32/855 10 58, Fax: 0041-32/855 17 18, E-Mail: biosem@bluewin.ch

Description: Biosem also offers old Swiss varieties in its catalogue. In the long term all varieties will be included in the assortment. The runner bean variety Meuch has also been cultivated in the Alpine region.

Type of organisation: private/seed trader

13.9. Cereals

13.9.1. Background

Cereals cultivation dates back thousands of years and has made the Alpine region a secondary gene centre (Vavilov). Cereals belong to the few cultivated Swiss plants which have been subject to intensive breeding. The development of the railways in Switzerland at the end of the 19th century allowed the import of cheap cereals, particularly from the USA. This meant that most of the existing cereal diversity disappeared, first in the valleys, then, until the 1920s, in the mountain regions, too. The introduction of high-yielding varieties such as Probus wheat in the 1940s finally sealed the fate of the old varieties. Pressure on cereal production in mountain areas was high as mechanisation proved to be difficult, self supply was given up, and varieties adapted to higher altitudes were neither bred nor available.

Remaining local varieties were collected in the 1940s and 1950s by the Swiss research stations and have since then been maintained and stored there. Reproduction is generally done every ten years on small plots, threatened by all risks caused by mixing and genetic drift. The genebanks contain several thousands of cereal varieties, a good thousand alone from Switzerland. Most of the varieties are tested for resistance and are well documented.

In the Central Swiss cantons Uri, Glarus, Unterwalden, Appenzell and Zug, cereal production was not very important. The climatic conditions were unfavourable and animal husbandry prevailed. Cereals were only cultivated during the Second World War.

Traditional cereal cultivation in the Swiss Alpine region

Bern: Dinkel and barley were cultivated for home use on terraces.

Grisons: Until 1880, a lot of cereals were cultivated in the canton Grisons, the lower Engadine had an outstanding role in cereal cultivation. Steep slopes are terraced at high expense. Around the turn of the century there was an enormous diversity of cereal varieties in the canton of Grisons. Seed was collected from the best fields, the best ears were selected and of these the best and largest grains. This meant that local varieties were bred with relatively high yields. The old varieties had long straw which was given to the cattle as a feed supplement to hay or as bedding. Rye straw was also used to stuff mattresses. The long-stalked varieties meant, however, a more difficult harvest and a larger susceptibility to decay. In the 1930s and 1940s, the first modern varieties replaced the local varieties. The diversity of Grisons cereals was threatened by extinction in the 1950s and 1960s. The performance ability of the local breeds was obviously too low to stand up to the competition from new breeds. Today, the formerly numerous small fields are no longer to be found. Since the 20th century, animal husbandry has become more important.

Important cereal species in Grisons

- Rye (daily use) and wheat (for special occasions) were the most important bread cereals, both requiring a drier environment and thus well suited for Grisons. Rye thrives particularly in marginal locations (up to higher altitudes) where rye cultivation is no longer possible. Wheat is the basis for the speciality 'Pizokel'.
- Spring barley was cultivated after the Second World War up to an altitude of 1700 m a.s.l., most fields were, however, replaced later on by the less expensive grass cultivation. Barley was mainly used as a cooked food.

- Buckwheat was traditionally cultivated in Puschlav and Misox. The Puschlav Pizzoccheri were also produced from wheat and buckwheat flour. The Puschlav ring bread also contains buckwheat flour. For centuries, buckwheat was the most important food in the Valle di Boschiavo. Buckwheat was also important in the Grisons Rhine valley. After the Second World War, buckwheat cultivation almost entirely disappeared. Attempts at resuscitation failed.
- Further important species: oats, common millet (for mash), maize (polenta was the main foodstuff in Bergell and in Misox).
- Dinkel and emmer were of no importance in Grisons, the climate is too dry.

Schwyz: In the canton Schwyz, cereal cultivation was very important around the turn of the 20th century. Mainly mash cereals – e.g. oats and barley – were cultivated. Some dinkel was cultivated for bread production. Because of the relatively wet conditions, dinkel grows much better in Central Switzerland than in the canton Grisons. The so-called Linth maize was also of considerable importance – it is today again produced as niche product. Important cereal cultivation areas were the environs of Küstnacht and the district of March.

St. Gallen: At higher altitudes, the climate is too humid for cereal cultivation. In the Rhein valley, Ribel maize was of considerable importance for human nutrition.

Ticino:

Important cereal species in the canton Ticino:

- Maize played an outstanding role in the canton Ticino. It was one of the most important foodstuffs for centuries. The crop had already been introduced in the 16th century to the Mendrisotto. Till the end of the 17th century, polenta was only cooked from millet, then from a mixture of millet and maize. Only since the 19th century has the dish been made entirely of maize. In Sopraceneri, maize only appeared in the 19th century (with the introduction of the railroad).
- Barley, millet, rye, oats: they were cultivated for centuries in the Alpine part and in the whole of Locarnese (incl. valleys and the shores of the Lago Maggiore)
- Wheat, foxtail millet: cultivation mainly in the Mendrisiotto
- Buckwheat: the so-called polenta negra consisted of buckwheat. Buckwheat was called ‘fraina’ or ‘fromentign’ in Ticino.
- Foxtail millet was one of the most important basic foods. Common millet was of some importance, too.

Valais:

Since primeval times cereals have been an essential part of the food in Valais. In particular rye, wheat and barley have been cultivated for thousands of years in upper Valley. Maize and oats were of less importance. Rye, adapted to the more continental climate and sandier soils, was most important. In Upper Valais, rye is also called corn. The upper Valais local varieties, adapted to the local conditions through natural selection, show good tolerance against draughts and snow mould. Until the beginning of the 20th century, each village was self-sufficient and owned one or more field cropping zones which had, since the Bronze Age, been mainly cultivated in terraces. Fields were mainly located in dry areas. Since the 1960s, cereal production has decreased considerably in the Upper Valais mountain area. Most of the fields were turned into meadows or pastures and no longer used at all or left to shrub.

Fribourg:

In the Greyerzerland, wheat was of special importance. A very old variety is the Rouge de Gruyere.

13.9.2 Overview of organisations and institutions

Diverse cereals

The search for old varieties of wheat, rye, barley, dinkel and emmer may be regarded as completed. *Ex situ* conservation is guaranteed in the Swiss research stations. The last remains

of local varieties were collected in the 1940s and 1950s by the Swiss research stations and have since then been maintained and stored there. At the Swiss research station Changins, there is a very large collection. Conservation breeding is taken care of by Delley Seed. Smaller collections (*in situ*) of old varieties are also maintained by Pro Specie Rara and the variety garden Erschmatt. Varieties stored in genebanks are increasingly cultivated in the planned variety gardens in Grisons (compare Peer Schilperoord) and the variety garden Erschmatt in the Valais. Thus, an adaptation to changing environmental conditions is guaranteed. The associations Gran Alpin, Schweizerische Bergheimat (Swiss Mountain Home) and Schweizerische Stiftung für Strohverarbeitung (Swiss Foundation for Straw Processing), also support the cultivation of old varieties on a large scale. The VfaK – Association for Alpine Cultivated Plants – (more detailed information in the general report) wants to take out Alpine cereal varieties from genebanks and variety gardens and increasingly cultivate them. Parallel to that, they plan to set up suitable marketing for their products.

Buckwheat, foxtail millet and common millet

Buckwheat is mainly important in the cantons Ticino and Grisons. Collections are only mentioned by Pro Specie Rara and by the variety garden Erschmatt.

Maize

Maize is mainly cultivated in Ticino, Grisons (Bergell and Misox), Schwyz (Linth maize), Ticino and partially in Valais. Collections are maintained by Pro Specie Rara, variety garden Erschmatt, Verein Rheintaler Ribelmais, Changin and FAL Reckenholz.

13.9.3. Need for action

Variety gardens in the Alpine region

In Valais and Grisons, there are some variety gardens or they are being planned. This type of *in situ* cultivation should also be carried out in other cantons where cereal cultivation is important. This is especially true for Ticino and the Central Swiss cantons.

Dinkel

Switzerland might miss the boat as far as dinkel is concerned! The importance of dinkel is low with regard to the area cultivated, but the cultivation of the plant has a long tradition in individual areas. Furthermore, the interest of consumers is relatively large. Nevertheless, the dinkel programs of the governmental bodies (Eidgenössische Forschungsanstalt Reckenholz, Delley Samen, IPW Lindau) have been discontinued. The small amount produced by the varieties still cultivated in Switzerland and in foreign countries is not able to cover the costs caused by conservation activities. The example of dinkel shows that without governmental support conservation breeding and thus the conservation of the genetic variability of so-called unimportant species is scarcely possible for private companies.

Large-Scale cultivation of local varieties and creation of marketing possibilities

Protection of cereals in genebanks and variety gardens is to a large extent guaranteed. Efforts are, however, missing to take these varieties out of the genebanks and variety gardens and to increase their cultivation. The support of niche products is of central importance for the marketing of the cereals produced. Only the VfaK - Verein für alpine Kulturpflanzen (Association for Cultivated Alpine Plants) –aims to take care of these issues.

Varieties for higher altitudes

Efforts are also necessary to make early maturing varieties available for cultivation above 1200 m. For this purpose, old early maturing varieties from the genebanks should be tested with regard to their suitability for cultivation in mountain regions and stored mountain varieties should be tested with regard to their characteristics for breeding purposes.

Buckwheat, Foxtail millet- and Common millet

The search for buckwheat, foxtail millet and common millet could be worthwhile in the cantons Ticino and Grisons (Puschlav and Misox). The support of these cereals via product promotion and revival of specialties could be worth the effort.

13.9.4. Actors

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.), Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contact: Kurt Eichenberger

Description: The following cereal species are conserved on-farm through the project 'Garden and Field Plants' (more detailed information may be taken from the chapter on vegetables):

- Club wheat – 3 varieties
- Buckwheat – 3 varieties
- One-grained wheat – 1 variety
- Emmer – 3 varieties
- Barley – 7 varieties
- Oats – 3 varieties
- Dinkel– 4 varieties
- Rye – 6 varieties
- Wheat – 5 varieties
- *Welscher Weizen (Triticum turgidum)* – 1 variety
- Foxtail millet – 1 variety
- Common millet – 2 varieties
- Maize – 5 varieties

A comparative cultivation trial was conducted with different varieties of one-grained wheat at the end of the 1990s. Many of the varieties conserved by PSR originate from the Alpine region. Walser barley, for example, is especially well adapted to the Valais mountains, being able to mature at altitudes of more than 2000 m.

More detailed information on PSR is included in the general section on Switzerland.

Type of organisation: private

Sortengarten Erschmatt (Variety garden)

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19, E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: In the variety garden Erschmatt, it is mainly local varieties from Valais which are conserved on-farm in cooperation with farmers. Primarily it is varieties from the Alpine region which are supported and reproduction material is available on request.

A project was granted within the framework of the National Plan of Action (NAP 2) for the conservation of the biological diversity of cereals and of field accompanying flora. An *in situ* cultivation project of local varieties by mountain farmers is planned.

There are cooperation agreements between Pro Specie Rara, Schweizerische Bergheimat (Swiss Mountain Home) and Bundesamt für Landwirtschaft (Federal Office for Agriculture). The variety garden Erschmatt developed from the 'Aktion Getreide-Saatgut' (Campaign

Cereals-Seed) of the Vereinigung Schweizer Bergheimat (Association Swiss Mountain Home). The variety garden is supported by the Fonds Landschaft Schweiz (Thunstrasse 36, 3005 Bern, Tel: 0041-31/351 71 81, Fax: 0041-31/351 71 84).

The following varieties are conserved:

- Naked oats (*Avena nuda*) – 1 variety
- Common oats (*Avena sativa*) – 14 varieties
- Barley – 57 varieties
- Rye – 26 varieties
- Common wheat (*Triticum aestivum*) – 80 varieties
- Hard wheat (*Triticum durum*) – 2 varieties
- Club wheat (*Triticum compactum*) – 6 varieties
- Polish wheat (*Triticum polonicum*) – 1 variety
- Emmer – 3 varieties
- One-grained wheat – 3 varieties
- Triticale – 1 variety
- Dinkel – 12 varieties
- Buckwheat – 9 varieties
- Maize – 8 varieties (some varieties are from Ticino)
- Common millet – 4 varieties
- Sorghum – 1 variety
- Foxtail Millet – 3 varieties
- Hemp – 1 variety
- Amaranth - 1 variety
- Eragrostis – 2 varieties

Type of organisation: private

Active since: 1983

Size: 1 member of staff

Databank: yes

Additional protection of conserved varieties: approx. 80%

Long-term conservation: yes

Peer Schilperoord

Address: Unter der Kirche 24, 7492 Alvaneu Dort, Tel: 0041-81/404 22 29,

Fax: 0041-81/404 22 29, E-Mail: schilperoord@bluewin.ch

Description: Peer Schilperoord conserves and develops cereals from the canton Grisons – with an emphasis on rye, wheat, barley and some oats. Varieties from higher altitudes are tested with regard to their processing qualities. There is a special conservation program for Cadi rye. Most of the varieties originate from the mountain region. Conservation is carried out in variety gardens.

Within the framework of the National Plan of Action, Peer Schilperoord is entrusted with the project 'Variety gardens in Grisons' (NAP 27). The *in situ* conservation of approx. 400 different wheat and barley varieties or from Grisons or lines from the genebank Changins is thus guaranteed. Within the framework of this project, variety gardens have been set up in the following areas: Lower Engadine, Albula valley, Domleschg, Shams, Surselva and Cadi. The main aim of the project is the reintroduction of old varieties to their areas of origin. Within the framework of Interred II, there is a program for testing different spring barley lines. In cooperation with the seed company Delley Seed, spring wheat lines are being tested.

Cereal breeding in the mountain area is supported by the Fonds Landschaft Schweiz (Fund landscape Switzerland) (Thunstrasse 36, 3005 Bern, Tel: 0041-31/351 71 81, Fax: 0041-31/351 71 84).

Type of organisation: private

Active since: 1982
Size: 1 person
Databank: planned
Additional protection of conserved varieties: yes
Long-term conservation: yes

Verein Rheintaler Ribelmais

Address: Landwirtschaftliche Schule Rheinhof, 9465 Salez, Tel: 0041-81/758 13 21, Fax: 0041-81/758 13 01, E-Mail: rolf.kuenzler@lsrheinhof.ch

Business manager: Hans Oppliger

Description: The Verein Rheintaler Ribelmais (Association Rheintaler Ribelmais) works for the *in situ* and *ex situ* conservation of Rheintal Ribelmaize varieties. A concept for long-term conservation is at present being drawn up. The active search for old varieties in the St Gall Rhine valley and the Grisons Rhine valley as well as in the principality of Liechtenstein has only just been started. It is expected to track down 30-40 varieties. For the conservation and description of Rheintal Ribelmaize varieties, a project (NAP 31) was granted within the framework of the National Plan of Action.

The association is also politically active and does PR-work. In August 2000, the maize semolina speciality 'Rheintaler Ribel' was registered as PDO (Protected Designation of Origin) in Switzerland. Propagation material is available on request. The association cooperates with two mills: the Strickermühle AG (PLC) Grabs and Meiermann Hotz AG (PLC) in Rheineck. There are also contacts with producers from the principality of Liechtenstein. A working group with the topic 'Ribelmaize' is also planned.

Type of organisation: private

Active since: 1998

Size: 3 part-time members, 8 members

Databank: yes

Additional protection of conserved varieties: yes (in the genebank Changins)

Long-term conservation: yes

Genossenschaft (Cooperative) Gran Alpin

Address: Aurora, 7450 Tiefencastel

Contact: Hans Casper Trepp

Description: The cooperative Gran Alpin supports cereal cultivation at higher altitudes. In cooperation with the Verein für alpine Kulturpflanzen (Association for Alpine Cultivated Plants), they are attempting to increase the cultivation of old varieties.

Size: 70 members

Schweizerische Bergheimat

Address: Postfach, 8320 Fehraltendorf, 0041-81/302 15 05

Contacts: Kurt und Marlis Utzinger

Description: The organisation 'Schweizerische Bergheimat' supports mountain farmers in an environmentally friendly cultivation of their lands. In its campaign 'Cereal Seed', its objective is to conserve old indigenous cereal varieties and to recultivate them. Amongst others, Walser barley and winter rye from Valais are supported.

Type of organisation: private (non-profit society)

Active since: 1973

Additional protection of conserved varieties: storage of seed at different producers.

Delley Seed

Address: Delley Semences et Plantes SA, Domaine de Delley, Case postale 16,

1567 Delley, Tel: 0041-26/677 90 23, Fax: 0041-26/677 17 55.

E-Mail: winzeler.dsp@bluewin.ch

Contact: Dr. Winzeler

Description: Delley Seed (former name: Swiss Association for the Production of Indigenous Vegetable Seed – ASPI) is responsible for the conservation breeding of varieties which have been bred by Swiss research stations. Conservation breeding includes the following tasks: keeping varieties pure, the supply of seed for the introduction of varieties and the supply of basic seed for the market. At present, intensive conservation breeding is carried out with spring wheat varieties. Conservation breeding of dinkel had to be given up because of the lack of financial support. The DSP has decided, however, to continue material storage in the medium term, hoping that it is possible to continue the breeding program on a private basis. However, the breeding material is threatened as storage and long-term conservation cause costs which are too high. A large genetic variability would then be lost!

Type of organisation: private

Peter Kunz Getreidezüchtung

Address: Hof Breitenen, 8634 Hombrechtikon, Tel: 0041-55/264 17 87,

E-Mail: getreidezuechtung@peter-kunz.ch

Contact: Peter Kunz

Description: For the last 15 years, Peter Kunz has been working on the breeding of wheat and dinkel varieties which are particularly suited for organic farming (amongst others for the mountain region) and which are able to comply with modern breeding criteria. Old varieties are not specifically maintained, but as old varieties are used for breeding purposes, a contribution to their conservation is indirectly being made.

Type of organisation: private

Schweizerische Stiftung Strohverarbeitung

Address: Postfach 151, 1707 Freiburg, Tel: 0041-26/481 47 86, Fax: 0041-26/481 52 50

Contact: Hubert Boschung

Description: The Schweizerische Stiftung Strohverarbeitung (Swiss Foundation for Straw Processing) supports the cultivation of straw varieties which are well suited for processing. The straw industry was one of the large Swiss export industries. In the middle of the 19th century, approx. 50,000 people were employed there.

Supported varieties originate from Switzerland. The suitability of old varieties for processing is also tested and if suitable, they are included into the assortment. For this purpose the foundation cooperates with the genebank at Changins. On request, reproduction material is available.

Type of organisation: private

Databank: no

Additional protection of conserved varieties: yes (in Changins)

Long-term conservation: yes

RAC - Station fédérale de recherches en production végétale de Changins

Address: Case postale 254, Rte du Duillier, 1260 Nyon, Tel: 0041-22/363 47 22,

Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

Director: Dr. A. Stäubli

Contact: Dr. G. Kleijer

Description: Many of the varieties originate from the Alpine region. This collection is of world-wide importance, particularly with regard to formerly widely spread dinkel varieties. Reproduction material is available on request. The RAC also keeps the Triticale databank of the ECP/Gris. It contains data from 17 institutes from 15 different countries. At these

institutes, there are altogether 11,912 entries. At the RAC, the following cereal species are conserved in a genebank:

Wheat – 4350 local varieties, breeding lines or bred varieties

Dinkel – 2000 entries

Barley – 800 local breeds, breeding lines or bred varieties

Rye – approx. 60 local varieties, breeding lines or bred varieties

Maize – 149 entries

Type of organisation: governmental

Active since: 1900

Size: 180 members of staff

Databank: yes

Additional protection of conserved varieties: A part of the collection is secured in other genebanks.

Long-term conservation: yes

FAL - Eidgenössischen Forschungsanstalt für Agrarökologie und Landbau Reckenholz

Address: Reckenholzstrasse 191-121, 8046 Reckenholz, Tel: 0041-1/377 71 11,

Fax: 0041-1/377 72 01

Description: The dinkel breeding program of the research station Reckenholz has been dropped. Within the framework of the National Plan of Action, the conservation of dinkel breeding lines of the research station Reckenholz has been secured through a transfer to the genebank Changins (NAP 29). Since the middle of the 20th century, approx. 148 maize lines from Switzerland (mainly St. Gall Rhine valley and other climatically favoured regions) have been conserved. The maize collection is regarded to be useless as the formerly cultivated varieties showed little tolerance against frost or other negative features.

Type of organisation: governmental

Versuchsstation (research station) IPW Lindau

Address: Institut für Pflanzenwissenschaften, ETH Zürich, Eschikon 33, 8315 Lindau, Tel: 0041-52/354 91 21, Fax: 0041-52/354 91 19, E-Mail: juerg.schmid@ipw.agrl.ethz.ch

Contact: Jürg Schmid

Description: The research station of the ETH Zürich is, amongst others, active in research into Plant Genetic Resources (cereals).

For the following cereal species, projects were or still are being carried out:

- Dinkel: Participation in the EU-programmes for dinkel research SESA and COST 814. Both programs are nearly completed. New projects are planned, their implementation is, however, not yet guaranteed. The IPW basically considers efforts in dinkel breeding to be very important. Financial support, however, is missing at present. The IPW Lindau is trying to save its competence in this area at present.
- Faba-beans (no trials at present)
- Spring wheat: 10 years research in the Alpine region (no project exists at present).

Type of organisation: governmental

Active since: 1930

Databank: data on old varieties are administered by RAC.

Additional protection of conserved varieties: yes

Long-term conservation: yes, at RAC (A contribution is planned for varieties which are not conserved in the Changins genebank).

13.10. Forage plants

13.10.1. Background and need for action

Forage plants were and still are very important in the Alpine region. A large variety of forage plants has developed because of the enormous diversity of the Swiss landscape and the varying climatic conditions.

At the FAL and RAC, only a few varieties are conserved. The Eric Schweizer Samen AG is responsible for the conservation of 'Mattenklee'. The conservation of the diversity of forage plants is supported indirectly by payments from the BLW (Bundesamt für Landwirtschaft – Federal Office for Agriculture) for the establishment of ecological compensation areas.

Altogether, only a small part of this diversity has been checked. Forage plants definitely need more attention. Description and assessment is often a problem because the plants are cross-pollinated. Suitable measures for *in situ* conservation are urgently required. Extensive and meagre meadows have been supported for some time. This type of support, however, does not sufficiently promote the conservation of forage plants.

13.10.2. Actors

Eric Schweizer Samen AG

Address: Postfach 150, 3602 Thun, Tel: 0041-33/227 57 7, Fax: 0041-33/227 57 58,

E-Mail: info@schweizerseeds.ch, URL: <http://www.schweizerseeds.ch>

Contact: Dr. F.-J. Stadelmann

Description: Swiss varieties are available from the assortment of the Eric Schweizer Samen AG,. These have, however, been bred only recently at Swiss research institutes.

A special position is taken by the 'Mattenklee'. This form of red clover has only been bred in Switzerland. Production of clover seed took place on many farms and in many places, selection resulted from seed reproduction. The production lasted until the 1960s and led to the development of numerous adapted varieties, the so-called farm varieties. The varieties offered by Eric Schweizer Samen AG have been selected from these farm varieties. The Eric Schweizer Samen AG was entrusted with the scientific direction of the project 'Erhaltung und Beschreibung von schweizerischen Hofsorten von (Conservation and Description of Swiss Farm Varieties of Mattenklee) (*Trifolium pratense* L.)'.

Type of organisation: private

Delley Seed

Address: Delley Semences et Plantes SA, Domaine de Delley, Case postale 16, 1567 Delley, Tel: 0041-26/677 90 20, Fax: 0041-26/677 17 55.

E-Mail: winzeler.dsp@bluewin.ch

Contact: Dr. W. Wicky

Description: Delley Seed is responsible for the conservation breeding of varieties which were bred at Swiss research stations. The breeding enterprise of Delley conserves amongst others forage plants (fescue, raygrass and foxtail grass).

More detailed information on Delley Samen may be found in the chapter on cereals.

Type of organisation: private

RAC - Station fédérale de recherches en production végétale de Changins

Address: Case postale 254, Rte du Duillier, 1260 Nyon, Tel: 0041-22/363 47 22,

Fax: 0041-22/361 54 69, E-Mail: geert.kleijer@rac.admin.ch

Contact: Dr. G. Kleijer

Description: Varieties of different forage plant species (*Dactylis glomerata*, *Festuca arundinacea*, *Festuca pratensis*, *Onobrychis sativa* and *Poa pratensis*) are conserved amongst others in the genebank of the RAC.

More detailed information on RAC may be taken from the chapter on cereals.

Type of organisation: governmental

FAL - Eidgenössischen Forschungsanstalt für Agrarökologie und Landbau (Swiss Research Station for Agroecology and Agriculture) Reckenholz

Address: Reckenholzstrasse 191-121, 8046 Reckenholz, Tel: 0041-1/377 71 11,

Fax: 0041-1/377 72 01

Description: The research station Reckenholz conserves, amongst others, different varieties of red clover (*Trifolium pratense*) and aims to ensure the long-term conservation of genetic resources.

Type of organisation: governmental

13.11. Olives

13.11.1. Background and need for action

Ticino is the only region in the Swiss Alps where olive cultivation is of some importance. In the environs of Gandria, there are olive trees some of which are more than 100 years old.

There are probably 6 –7 different varieties. Efforts are being made to revive olive culture there. However, only modern high-yielding Italian varieties are used for that purpose. It can be assumed that old varieties still exist in old cloisters and on old farms.

There is an urgent need to look for olive varieties in Ticino, and to conserve these in so-called olivettos. Pro Specie Rara has already drawn up plans for this which could however not yet be implemented. An additional problem is that varieties are difficult to differentiate.

13.11.2. Actors

Pro Specie Rara

Address: Voce del Sud, Casella postale 47, 6504 Bellinzona, Tel: 0041-91/821 52 35, Fax: 0041-91/821 52 39, E-Mail: psr-fnp@wsl.ch, URL: <http://www.psrara.org>,

Contact: Sabine Lanfranchi

Description: In 1999, Pro Specie Rara started to take an inventory of Ticino olive varieties. Until now, the area around Gandria has been searched as well as some cloisters in Mendrisotto and around Locarno. The establishment of an olive garden (olivetto) and the propagation of old varieties is planned.

More detailed information on PSR is given in the general part on Switzerland.

Type of organisation: private

13.12. Medicinal plants & spice plants

18.12.1. Background and need for action

Awareness about herb varieties is much younger than that for other cultivated plants. An understanding of varieties is only just developing. The tradition of cultivating herbs and spices is sometimes centuries old in the mountain region. Only the mountain regions supply the high quality which is required for niche survival. In Grisons, for example, the dish Capuns is spiced with the so-called 'Krauseminze'. In the canton Schwyz, the cultivation of blue-white trigonella has a long tradition. Blue-white trigonella is used as spice for the 'Glarner Schabziger' (cheese). The secret of blue-white trigonella cultivation is strictly guarded and still kept in the hands of a single producers' association. There is another speciality in Valais. Since the end of the 14th century, saffron has been cultivated there.

Overview of organisations and institutions

Mediplant and Vita plant play an important role in the cultivation of wild herbs and their further breeding. The associations ArGe Bergkräuter and Schweizer Bio Bergkräuter (Swiss Organic Mountain Herbs) are responsible for promotion of the cultivation of Swiss herbs. Some actors (Pro Specie Rara, variety garden Erschmatt, Saffron breeder Mund, blue-white trigonella producers and Zollinger Samen) maintain collections.

Need for action

There is no comprehensive collection of herbs of Swiss origin. Médiplant and Vitaplan unfortunately do not have the capacity to conserve all available varieties. Only herbs suitable for the market are conserved. The need for action is partially covered by the project 'Erhaltung der genetischen Ressourcen der Medizinal- und Gewürzpflanzen aus den Sammlungen von Médiplant und der Genbank Changins (Conservation of the Genetic Resources of Medicinal and Spice Plants from the Collections of Mediplant and the Genebank Changins) – NAP 28' within the framework of the National Plan of Action. However, not all the varieties are protected.

13.12.2. Actors

ArGe Bergkräuter

Address: Habergrüti, 4953 Schwarzenbach, Tel: 0041-62/916 01 91,

E-Mail: bergkraeuter@mail.ch

Contact: Herr Gameter

Description: ArGe Bergkräuter is the umbrella organisation of the Swiss herb producers organisations. It is responsible for the coordination of herb production in the mountain area, for the management of the quality and quantity and for contract settlements with the customers. The ArGe supports the cultivation of approx. 50 different herbs. These originate from wild or bred collections from the cantons Valais, Puschlav, Lucerne and Burmese upland. Some of these herbs are cultivated by Mediplant. Seed is obtained from seed suppliers (Fenace and Delley Samen).

Type of organisation: private

Schweizer Bio Bergkräuter (Swiss Organic Mountain Herbs)

Address: Markus Gerber, Rechenhüttli, 3553 Gohl, Tel: 0041-34/402 41 75

Description: Schweizer Bio Bergkräuter is the association for organic herb cultivation in the Swiss mountain region. It is a member of the ArGe Bergkräuter. Cultivation is done mainly on a small scale and products are marketed directly. It is mainly Swiss mountain herbs from wild collections which are cultivated.

Type of organisation: private

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (a.m.),

Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL: <http://www.psrara.org>

Contacts: Bela Bartha, Kurt Eichenberger

Description: Pro Specie Rara only deals marginally with herbs and medicinal plants.

The following entries are included in the collection:

- Blue-white trigonella– 1 variety
- Safflower – 1 variety
- Peppermint – 1 variety
- Ornithogale – 5 varieties

More detailed information on PSR may be taken from the general part on Switzerland.

Type of organisation: private

Safranzüchter Mund (Saffron breeders' guild)

Address: Tähischinu, 3902 Mund, Tel: 0041-27/923 87 16,

E-Mail: franzhutter@bluewin.ch

Contact: Franz Hutter

Description: The guild of saffron breeders in Mund is concerned with the conservation of the traditional cultivation of Mund saffron. On fields (14,000 m²) which belong to private owners, crocus plants (*Crocus sativus*) are cultivated and the filaments are harvested in intensive manual work. The yield per year is at 2 - 4 kg. Mund Saffron is mainly used for private consumption. The owners of the saffron fields are members of the saffron guild. Saffron has been cultivated in Mund since the end of the 14th century. As the area increases from year to year, bulbs are imported from Kashmir and Turkey via a wholesaler in Germany. Mund saffron is not actually a variety, but denotes the origin of the product.

Type of organisation: private (guild)

Active since: 1979

Size: 190 members

Long-term conservation: yes

Sortengarten Erschmatt (Variety garden)

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19,

E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: In cooperation with farmers mainly local varieties are conserved in the variety garden Erschmatt. Amongst others, 2 nutmeg flower varieties from Valais are conserved. In order to grow Nutmeg flowers there's need of winter cereals which are not too densely planted. Seed may be used for spicing or medicinally. More detailed information on the variety garden Erschmatt may be taken from the chapter on cereals.

Type of organisation: private

Zigerkraut-Produzenten-Verband Lachen (Producers of Blue-White Trigonella)

Address: Heizenstrasse 8, 8854 Galgenen, Tel: 0041-55/440 46 56,

Fax: 0041-55/460 24 17

Contact: K. Kuriger

Description: The members of this producers' association only plant blue-white trigonella for the production of 'Glarner Schabziger'. It's taste comes exclusively from the addition of blue-white trigonella (*Trigonella coerula*). The plant thrives at higher altitudes, too. Seed for breeding is made available by the association. According to K. Kuriger, there are different varieties. Only one, however, meets the demands on spice factors for cheese production. The only customer of blue-white trigonella is the Geska – Gesellschaft Schweizer Kräuterkäsefabrikanten (Association of Swiss Herb Cheese Producers)(Ygrubenstrasse 9, 8750 Glarus, Tel: 0041-55/640 17 34, Fax: 0041-55/640 75 19).

Blue-white trigonella has been cultivated in the cantons Schwyz and Glarus for many centuries as a spice for the herb cheese 'Schabziger'. Its cultivation brought higher profits than the best vineyard. Therefore, the handing over of seed was and still is forbidden, trade and production are practically monopolised.

Type of organisation: private

Active since: 1997

Size: 4 members

Databank: no

Additional protection of conserved varieties: non-existent

Vitaplant AG

Address: Benkenstrasse 254, 4108 Witterswill, URL: <http://www.vitaplant.ch>

Contact: Karin Berger

Description: Vitaplant AG developed from the Institute for Pharmaceutical Biology at the University of Bale. Its aim is to develop wild plants in a way which allows the selection of a variety containing the least possible amount of unwanted substances and the greatest possible amount of active substances. Only varieties suitable for the market are conserved.

Type of organisation: private

Zollinger – Biologische Samen (Biological Seed)

Address: R. und Chr. Zollinger, 1891 Evouettes, Tel/Fax: 0041-24/481 40 35

E-mail: zollinger-samen@bluewin.ch

Description: The family Zollinger also keeps seed from medicinal plants and spices in its assortment.

Type of organisation: private/seed trader

Médiplant – Eidgenössische Forschungsanstalt Changins – Zentrum Les Fougères

Address: Centre de Recherches sur les Plantes Médicinales e Aromatiques, Centre de Fougères, 1964 Conthey, Tel: 0041-27/345 35 11, Fax: 0041-27/346 30 17,

E-Mail: mediplant@rac.admin.ch, URL: <http://www.mediplant.ch>

Contact: Herr Simonet

Description: Médiplant collects, cultivates and improves medicinal plants and spice plants. All varieties originate from the Alpine region. Only those plants suitable for the market are conserved. Some of the herbs being bred are of indigenous origin. Foreign varieties are tested with regard to their suitability. A project on the conservation of the biological diversity of spices and medicinal plants was granted within the framework of the National Plan of Action (NAP 28): 'Erhaltung der genetischen Ressourcen der Medizinal- und Gewürzpflanzen aus den Sammlungen von Médiplant und der Genbank Changins' (Conservation of the Genetic Resources of Medicinal Plants and Spices from the Collections of Mediplant and the Changins Genebank). The following species are included in the project:

- *Aliceville xanthochlora*
- *Hippophae rhamnoides*
- *Artemisia annua* und *A. umbelliformis*
- *Arnica montana*
- *Echinaceae purpurea*, *E. pallida* and *E. angustifolia*
- *Leontopodium alpinum*
- *Epilobium parviflorum*
- *Althaea officinalis*
- *Hyssopus officinalis*
- *Melissa officinalis*
- *Achillea collina*
- *Hypericum perforatum*
- *Plantago lanceolata*
- *Primula veris*
- *Rosmarinus officinalis*
- *Rosa* sp. (12 species)
- *Salvia officinalis*
- *Thymus vulgaris* and *T. serpyllum*

Type of organisation: governmental

Active since: 1989

Size: 5 members of staff

Databank: in the set-up phase

Additional protection of conserved varieties: no

Long-term conservation: yes

13.13. Willows

13.13.1. Background and need for action

Background

Willows were harvested in the whole of Switzerland, also in the Alpine region. They can thrive up to high altitudes, in all locations with sufficient light. Previously there were an enormous number of varieties. According to furniture or basket type, different varieties were used. Even for different stages of the work, different willows were harvested. Willows were also used in the Alpine region to stabilize avalanche slopes. In some areas, willow weaving was a profession which could be learned. A large part of the training consisted of learning how to use the different varieties. In Ticino, it is mainly older people who are responsible for willow weaving – as for example in Caverno in the Bavona valley.

Overview of organisations and institutions

The only larger collection of willows is at the willow grove Oberli. Pavel Beco has planted different willows on his farm according to traditional methods and in the open air museum Ballenberg, the old tradition of willow processing has continued and some willows are also planted. It has become fashionable to weave and stick willows and training courses are occasionally offered. Nobody, however, conserves old varieties.

Need for action

The cultural asset of willow weaving is conserved by different parties. Most of the detailed knowledge on the use of different willows for the various weaving techniques and products has probably disappeared. Still, the existing knowledge should be collected and a willow garden should be set up specifically with willows used for weaving and the respective ethnobotanical information on the subject collected. In the existing collections, this knowledge is insufficient or only partially recorded.

13.13.2. Actors

Weidenhalde Heinrich Oberli/Salicetum Oberli

Address: Höhenweg 9, 9630 Wattwil, Tel: 0041-71/988 17 08

Manageress: Getrud Oberli

Description: In the Salicetum Oberli and in the house garden of Mrs. Oberli, there is a collection of 97 different *Salix* varieties. Many of these were originally used for basket weaving. The willows originate from different areas in Europe, America and Asia. Some varieties originate from the Alpine region, too. There are several varieties and origins of the various species. On request, reproduction material is available.

There are only very few collections with the same standard as the Salicetum Oberli in Europe. Most of them are also private and thus not secured in the long term.

The following collections in Europe also contain willow species (with varying species inventories):

- Forest Botanical Garden of the University for Applied Sciences Eberswalde, Germany
- Collection Meusel, Arctic-Alpine, Chemnitz, Germany
- Collection Batke, Braunschweig, Germany
- Collection Mang Thiensen, Ellerhoop and Hamburg-Harburg, Germany
- Collection Christensen, Glansbjerg, Denmark
- Collection Newsholme, Devon, England
- Collection Chmelar, Arboretum Brno, Czech Republic

- Collection Neumann, Bundesversuchsanstalt Tulln, Schönbrunn, Austria (only part of this collection remains)

Type of organisation: private

Size: 2 gardeners

Pavel Beco

Address: Albisboden, 9115 Dicken, Tel/Fax: 0041-71/377 19 24,

E-Mail: pavel.beco@bluewin.ch

Description: Pavel Beco owns a collection of varieties on his farm.

Type of organisation: private

Freilichtmuseum Ballenberg (Open-air museum)

Address: 3855 Briez, Tel: 0041-33/952 10 30

Description: In the open air museum Ballenberg, the cultural asset of willow weaving is being kept alive. Willows have been planted for own consumption.

Type of organisation: museum/paragovernmental

13.14. Flax and Hemp

13.14.1. Need for action

Background

Before cotton was available, many garments were produced from flax (*Linum usitatissimum*) or hemp (*Cannabis sativa*).

Hemp: Hemp was mainly used for the production of cords, ropes and coarse tissues (e.g. for bags). It supplies coarser fibres than flax. There was probably a great variety in Switzerland. Fibre hemp has almost completely disappeared today. Hemp as a sedative has, however, reached new importance. Accordingly, seed of varying origin are available, but few of the varieties are suitable for fibre production and the seed is mainly of foreign origin. Article 4 of the Federal Law on Narcotics from the third October 1951 states that the cultivation of plant containing alkaloids for the production of narcotics is subject to permission. Furthermore, the cultivation of hemp for the production of narcotics is, based on article 8 BG, strictly forbidden and, in accordance with article 19 BG item 1, a punishable offence. If these plants are grown for a different purpose (e.g. the production of oil seed and fibres), permission is not necessary.

Flax: Flax has almost completely disappeared today. There are different forms and varieties, amongst others biennial ones. The plant is extremely adaptable. It thrives in hot zones as well as in Northern Europe, at sea level as well as up to 1800 m a.s.l.. For centuries, or even millennia, 2 forms have developed through continuous selection and varying utilisation: flax for fibre production and linseed (or seed flax). In the Alpine region, it is mainly fibre flax which is important. The form cultivated for fibre production is higher, less branched and produces only weak seed bearers. Linseed has a bad fibre quality. For this reason, common flax seed, presently traded for dietetic purposes, is not suited for fibre production. Until recently, varieties were divided up according to flower colour into a white and a blue flowering one. The one with blue flowers was considered to have the better fibre quality. The modern varieties are mainly developed in flax producing countries. In former times, flax seed was produced from its own plants.

Cultivation in the Swiss Alpine region

Flax and hemp have a long tradition in the Alpine region. Within the framework of this study indications were found that flax and hemp were very important particularly for the cantons

Grisons, Ticino, Obwalden and Valais. In the Bavona valley (Ticino), dried hemp stalks were, for example, used at the beginning of the 20th century for the production of tallow candles. Cultivation in Switzerland ceased after the Second World War.

Overview on actors and need for action

Only Pro Specie Rara has conserved some old hemp and flax varieties. Cultivation and processing is carried out mostly by small local associations. Nobody cares comprehensively for the conservation of old hemp and flax varieties. The search for wild plants in valleys where their cultivation was important would probably be worthwhile. As seed remains active for a long time, some of it may perhaps be found in the Upper Rhine valley.

Within the framework of this study, the genebanks did not report the existence of old varieties in their collections. There is an urgent need for investigations in the genebanks of Swiss research stations. If found, these indigenous varieties should be reactivated. These special crops could generate an additional source of income for mountain regions in the future.

13.14.2. Actors

Aargauische Vereinigung Flachs und Hanf (Aargau Association Flax and Hemp)

Address: Hohlbrunnacherweg 8, 5723 Teufenthal, Tel: 0041-62/776 16 65

President: H. J. Peter

Description: The Association Flax and Hemp offers field trips and courses on the topic, amongst others on the cultivation and processing of flax, which is cultivated in its own training garden. Conservation work for these cultivated plants is done only indirectly via the conservation of flax processing as a cultural asset.

Type of organisation: private

Active since: 1948

Size: 130 members

Pro Specie Rara

Address: Sortenzentrale, Pfrundweg 14, 5000 Aarau, Tel: 0041-62/823 50 30 (in the morning), Fax: 0041-62/823 50 25, E-Mail: gartenacker@psrara.org, URL:

<http://www.psrara.org>

Contact: Bela Bartha, Kurt Eichenberger

Description: Within the framework of the garden and field plants project, the following species are maintained:

Flax – 3 varieties

Hemp – 2 varieties

Oil flax– 2 varieties

More detailed information on PSR may be taken from the general part on Switzerland.

Type of organisation: private

13.15. Field accompanying flora

Different varieties of field accompanying flora are presently threatened in Switzerland. They are protected by the law on environmental protection and registered in the Red List. The Red List was published by the BUWAL (Bundesamt für Landwirtschaft – Federal Office for Agriculture) in 1982, and revised in 1992. A new edition is planned for 2001. The variety garden of Erschmatt has both, rare field accompanying plants and cereals.

Sortengarten Erschmatt (Variety garden)

Address: Untergütschstrasse 11, 6003 Luzern, Tel: 0041-27/932 15 19,

E-Mail: sortengarten@rat.ch, URL: <http://www.sortengarten.rat.ch>

Contact: Roni Vonmoos

Description: Local varieties from Valais are conserved in cooperation with farmers in the variety garden Erschmatt. Amongst others, rare field accompanying flora is also conserved. A project was granted on the conservation of biological diversity, within the framework of the National Plan of Action (NAP 2). More detailed information on the variety garden Erschmatt may be taken from the chapter on cereals.

Type of organisation: private

14. General report on livestock in the Swiss Alpine region

14.1. National and regional laws in Switzerland for the protection of endangered livestock breeds in the Alpine region

The new agricultural legislation provides the legal basis for the implementation of the commitment to conservation and sustainable use of biological diversity (Art. 141 of the federal law on agriculture from the 28th of April 1998). Regional regulations do not exist.

14.2. Private conservation efforts

Associations supporting individual breeds are listed in the respective portraits of the breeds.

14.2.1. Pro Specie Rara

Since 1982, the private foundation Pro Specie Rara pursues the aim to conserve endangered breeds of livestock. In 1996, the breeders' association PSR was founded. The federation is at present the umbrella organisation for 9 breeders' associations which each represent one endangered species of heavy livestock or small animal. In 1998, the breeders' association PSR with all linked breeds was officially recognised by the Federal Office for Agriculture. The following services are offered to its members:

- Herdbook breeding
- Further development of breeding programs and of herdbooks
- Training and further education
- List of recognised breeders and experts
- General publications on breeds (,Herdespiegel', annual report)
- Performance test

The following breeders' associations for endangered breeds are linked to the breeders' association of Pro Specie Rara:

- Raetian Grey *Rätisches Grauvieh*
- Evolene *Evolènard Rinder*
- Mangalitsa *Wollschwein*
- Engadine Red *Fuchsfarbenes Engadinerschaf*
- Valais Blackneck *Walliser Landschaft*
- Bündner Oberland *Bündner Oberländerschaf*
- Spiegel *Spiegelschaf*
- Skudde *Skuddenschaf*
- St. Gall Booted Goat *St. Galler Stiefelgeiss*

Furthermore, PSR supports the conservation of the Original Freiberg Horse, the Appenzell Mountain Dog, the Diepholz Goose and the yellow Ligustica Bee.

Address: Züchterverband PSR, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

14.2.2. Breeders' Association for Indigenous Poultry - Züchterverein für ursprüngliches Nutzgeflügel

The ZUN - Züchterverein für ursprüngliches Nutzgeflügel (Breeders' Association for Indigenous Poultry) has taken over the conservation projects for poultry from PSR and continues them. Its first priority is to conserve indigenous livestock. At present, the Appenzeller Barthuhn (chicken), the Schweizerhuhn (chicken) and the Appenzeller Spitzhaubenhuhn (chicken) are actively conserved.

Address: ZUN – Züchterverein für ursprüngliches Nutzgeflügel, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 04

14.2.3. Slow Food

Slow Food in Switzerland is being set up at present. Efforts are being made to initiate a project similar to 'Arca' of Slow Food Italy. Within that framework, it is also planned to particularly support products from old breeds and rare varieties of cultivated plants.

Contact Switzerland and Liechtenstein:

Susanne Zweidler, Tel: 0041-1/380 39 49, E-Mail: zweidler@slowfood.ch

14.3. Governmental efforts for the conservation of endangered breeds of livestock

14.3.1. Implementation of the National Plan of Action in the area of livestock breeds

Inventories and overall Swiss conservation concept:

For the implementation of the National Plan of Action in the area of livestock breeds, the Federal Office for Agriculture has assigned a working group to document the actual situation of agricultural livestock breeds and to examine if and to what extent conservation measures are necessary. In a first step, all breeds were described and an inventory was taken. The result was a list including all Swiss livestock breeds to be conserved – divided up into endangered breeds and those which should be observed. For the conservation of Swiss livestock breeds, a feasible concept proposal and conservation measures (see below) were elaborated.

Proposed conservation measures:

Cattle, horses, pigs, sheep, goats:

- Set-up of semen-banks and embryo-banks
- Providing maintenance and breeding premiums even for animals not entered in the herdbook (for very small populations)
- Management of very small populations as an independent breeding specialisation
- *Ex situ* conservation of small *in situ* populations
- Use of endangered Swiss breeds in the management of areas of outstanding natural beauty
- Nucleus herds to achieve fast-breeding progress
- Support of scientific projects

Rabbits, chicken, doves

- Observation of stock development
- Set-up of a provisional herdbook

Bees

- Conservation measures (queen breeding, support of reference stations) should only be introduced where populations decrease substantially.

Dogs

- The National Plan of Action does not designate any conservation measures for dogs.

Financial support:

For the support of conservation measures, the government provides corresponding finance.

Special office/coordination office:

In order to guarantee the coordination and observation of conservation activities as well as the efficient use of official funds, a special office is to be set up. It supervises, amongst other things, the monitoring of livestock populations and maintains contact with national and international institutions. The special office is to be supervised by the Bundesamtes für Landwirtschaft (Federal Office for Agriculture).

Legal basis:

Article 141 of the federal agricultural legislation from 28th of April 1998 provides the legal basis for the implementation of the National Plan for Action.

Contact:

Bundesamt für Landwirtschaft, Mattenhofstrasse 5, 3003 Bern, Tel: 0041-31/322 26 77, Fax: 0041-31/322 26 34, URL: <http://www.blw.admin.ch>

Contact:

Karin Wohlfender, Tel: 0041-31/322 25 22, E-Mail: karin.wohlfender@blw.admin.ch

14.3.2. National focal point

The Bundesamt für Landwirtschaft (Federal Office for Agriculture) is at present the national focal point of the FAO. Karin Wohlfender acts as coordinator.

Address: Karin Wohlfender Bundesamt für Landwirtschaft, Mattenhofstrasse 5, 3003 Bern, Tel: 0041-31/322 26 77, Fax: 0041-31/322 26 34, URL: <http://www.blw.admin.ch>, E-Mail: karin.wohlfender@blw.admin.ch

14.4. Financial support for the conservation of rare Swiss livestock breeds

The support for the conservation of Swiss breeds is regulated in the new regulation for animal breeding (Tierzuchtverordnung). The following support exists:

- Fund for threatened Swiss breeds
- Fund for animal breeding
- Through the regulation on cattle and small animals from 1st of October 1989 (916.310 – Art. 1), Swiss performance breeds are supported. The Federal government can, however, also extend its support measures to endangered indigenous breeds. Regulations to support the conservation of a severely endangered breed in a purely bred population or the protection of its genes may be adapted according to requirements.
- Full animal support contributions – for all breeds linked to the breeders' association Pro Specie Rara.
- Financial support for the implementation of conservation measures provided for within the National Plan of Action.

14.5. National organisation of Swiss Animal Breeding Federations

14.5.1. National Breeding Organisation for Cattle

Each cattle breed is taken care of by its own breeding organisation. These are also responsible for herdbook keeping. Further information may be taken from the section on individual breeds. The Association of Swiss Cattle Breeders is responsible for performance breeds at the national level.

Address:

Schweizerische Rinderzüchter ASR, Villettemattstrasse 9, 3000 Bern 14, Tel: 0041-31/381'42'01, Fax: 0041-31/382 08 80

14.5.2. National Breeding Organisation for Horses

Address:

- Umbrella organisation of breeders: Verband Schweizerischer Pferdezüchterorganisationen, Les Lombrés, 190, 1580 Avenches
- Swiss stud Avenches, Case Postale 191, 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08

14.5.3. National Breeders' Associations for Sheep and Goats

With the coming into force of the new animal breeding regulation at the beginning of 1999, the responsibility for the herdbook management for sheep breeds (Swiss White Alpine (*Weisses Alpenschaf*), Swiss Brownheaded Mutton (*Braunköpfiges Fleischschaf*), Swiss Black-Brown Mountain (*Schwarzbraunes Bergschaf*), Valais Blacknose (*Walliser Schwarznasenschaf*), Swiss Charollais, Rouge de l'ouest and Shropshire) and goat breeds (Saanen, Toggenburg, Chamois Coloured (*Gemsfarbige Gebirgsziege*), Grisons Striped (*Bündner Strahlenziege*), (*Schwarzhalsziege*) Valais Blackneck, Peacock Goat (*Pfauenziege*), Appenzell (*Appenzellerziege*)) was handed over to the Schweizerischer Schaf- und Ziegenzüchterverband (Swiss Sheep and Goat Breeding Association). The practical management of the herdbook is done by 'Caprovis Data', founded in 1999. The current herdbook offices are directly linked to the breeding associations. The SZV – Schweizerische Zentralstelle für Kleinviehzücht (Swiss central office for small animal breeding) was wound up because of the reorganisation of animal breeding at the end of 1999.

Addresses:

- Schweizerischer Schafzüchterverband (Swiss Sheep Breeders' Association), contact: Herr Schneeberger, Postfach, 3360 Herzogenbuchsee (oder Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 68, Fax: 0041-62/956 68 79
- Schweizerischer Ziegenzüchterverband (Swiss Goat Breeders' Association), contact: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79
- Caprovis Data, Peter Liebetrau, Belpstrasse 16, 3000 Bern, Tel: 0041-31/388 61 11

14.5.4. National Breeders' Association for Pigs

Swiss pig breeds were managed by the SVZ-Schweizerische Zentralstelle für Kleinviehzücht (Swiss Central Office for Small Animal Breeding) until the end of 1999. Today, the herdbooks of the performance breeds (including the Swiss Yorkshire and the Swiss Improved Landrace) are kept by the SUISAG.

Address: SUISAG, Schweizerischer Schweinezüchterverband, Allmend, 6204 Sempach, Tel: 0041-41/462 65 50, Fax: 0041-41/462 65 49

14.5.5. National Breeders' Association for Poultry

Addresses:

- Verband Schweizer Geflügelhalter (Association of Swiss Poultry Keepers),
Burgerweg 24, 3052 Zollikofen
- Association des Aviculteurs, producteurs romands, Promenade du Canal, 83, 1950
Sion

14.5.6. National Breeders' Association for Dogs

The Schweizerische Kynologische Gesellschaft is the umbrella organisation for all Swiss pedigree dog clubs and responsible for the administration of the pedigree book

Address: SKG - Schweizerische Kynologischen Gesellschaft, Postfach, 3001 Bern, Tel: 0041-31/306 62 62

14.5.7. National Organisation for Small Animal Breeding / Gesellschaft für Kleintierzucht

The Gesellschaft für Kleintierzucht (Society for Small Animal Breeding) manages the breeding of rabbits, ducks, geese and doves. For more than 100 years, the society has been active in supporting these economically less interesting small animals.

Address:

Schweizerische Gesellschaft für Kleintierzucht – SGK, Präsident: Gion P. Gross,
Schürenstrasse 105, 8903 Birmensdorf, Tel: 0041-1/737 17 86

14.5.8. National Organisations for Bee Breeders

Addresses:

- Verband der Schweizer Bienenzüchtervereine, Jean-Paul Cochard, 1406 Cronay, Tel:
0041-24/433 11 55
- Société romande d'apiculture, Paul Girod, Neusté 10, 2740 Moutier, Tel: 0041-32/493
28 10
- Verein deutschschweizer und rätoromanischer Bienenfreunde, URL:
<http://www.bienen.ch>, publisher of the journal 'Schweizer Bienen-Zeitung'

14.6. Overview of the need for action in the area of Swiss livestock

Need for action for the individual species and breeds is dealt in the section on portraits of breeds.

General situation

The need for action in Switzerland is at present sufficiently taken care of on national and private levels, with some exceptions (compare also: Breeds with acute need for action). Most breeds have their own breeding organisations which explicitly deal with their conservation.

Support of the Raetian Grey

The cattle breed Raetian Grey is to date not supported officially despite being listed as an endangered breed. In Switzerland, it has died out but thanks to populations conserved in the bordering countries, it could be reintroduced. As this is not the original Swiss population, it is not supported officially.

Support of internationally endangered breeds

Hinterwald, Mangalitsa and Skudde do not originate from Switzerland. Therefore, the government does not support their conservation. Basing on an urgently needed international cooperation for the support of endangered livestock breeds, these breeds should also profit from Swiss support measures.

Breeds with acute need for action

- Original Freiberg Horses – No official recognition as breed and no official support.
- Capra Grigia – No official recognition as breed and no official support.
- Elbschaf – No private/ governmental support, no recognition.
- Spitzhauben (chicken): Breed is divided in many inbred types
- Zwergschweizerhuhn (chicken): Concrete conservation measures do not exist.

15. Portraits of livestock breeds in the Swiss Alpine region

Portraits of the individual breeds are designed to complement the 1995 study on Agricultural Genetic Resources in the Alps. More detailed portraits of the breeds may be taken from the 1995 study.

15.1. Overview of endangered livestock breeds

In the following table, endangered livestock breeds from the Swiss Alpine region are listed – not included in this table are pigeon and bee breeds as well as extinct breeds. Listing follows species and within these risk status.

Cattle

Breed	Stock**	Risk status	Trend	Initiatives*
Evolene / Evolenarde	117f/m HB (2000)	Critical	↑	+
Hinterwald / Hinterwälder	1202f HB (1999)	Vulnerable	↑	++
Raetian Grey / Rätisches Grauvieh	1349f HB (2000)	Vulnerable	↑	++
Herens / Eringer	7786f HB (1999)	Rare	↓	++
Original Brown Cattle /Original Braunvieh	5700f OP (1999)	Rare	↓	+

Sheep

Breed	Stock**	Risk status	Trend	Initiatives*
Elbschaf	?	Critical	?	-
Bündner Oberland /Bündner Oberländer	394f HB (2000)	Endangered	↑	++
Skudde / Skudden	430f HB (2000)	Endangered	↑	++
Spiegelschaf	650f HB (2000)	Endangered	↑	++
Valais Red /Walliser Landschaf	328f HB (2000)	Endangered	↑	++
Engadine Red / Engadinerschaf	1281f HB (2000)	Vulnerable	↑	++

Goats

Breed	Stock**	Risk status	Trend	Initiatives*
Capra Grigia	approx. 100f/m OP (2001)	Critical	?	++
Appenzell/Appenzeller ziege	828f HB (2001)	Endangered	↑	++
Grisons Striped /Bündner Strahlen	931f HB (2001)	Endangered	↑	++
Peacock Goat	502f HB (2001)	Endangered	↑	++

/Pfauenziege				
Booted Goat /Stiefelgeiss	429f HB (2001)	Endangered	↑	++
Valais Blackneck /Walliser Schwarzhals	502f HB (2001)	Endangered	↑	++
Nera Verzasca/Black Ticino	1663f HB (2001)	Vulnerable	↑	++
Toggenburg	3364 f HB (2001)	Vulnerable	→	++
Chamois Coloured	6853f HB (2001)	Rare	↑	++
Saanen / Saanenziege	6503f HB (2001)	Rare	↑	++

Horses

Breed	Stock**	Risk status	Trend	Initiatives*
Original Freiberg /Original Freiburger	300f OP (1999)	Endangered	↓	+
Hafling Mountain / Haflinger	506f HB (1999)	Endangered	↓	+
Freiberg	4732f HB (1999)	Vulnerable	↓	+
Swiss Halfblood /Schweizer Warmblut	2099f (1999)	Vulnerable	→	+

Dogs

Breed	Stock**	Risk status	Trend	Initiatives*
Bernese Mountain Dog /Berner Sennenhund	<5000f/m OP (2000)	Endangered	?	++
St. Bernhard /Bernhardiner	800f/m OP (2100)	Endangered	↓	++
Entlebuch Mountain Dog /Entlebucher Sennenhund	some hundred animals (2001)	Endangered	↑	++
Large Swiss Mountain Dog /Grosser Schweizer Sennenhund	500f/m OP (1999)	Endangered	↑	++
Appenzell Mountain Dog /Appenzeller Sennenhund	2500f/m OP (2000)	Vulnerable	↑	++

Pigs

Breed	Stock**	Risk status	Trend	Initiatives*
Swallow-bellied Mangalitsa / Schwalbenbäuchiges Wollschwein	243f HB (2000)	Endangered	→	++
Swiss Improved Landrace /Schweizerisches Veredeltes Landschwein	1517f HB (1999)	Vulnerable	↓	-

Chicken

Breed	Stock**	Risk status	Trend	Initiatives*
Spitzhauben	179f OP (2000)	Critical	?	++
Appenzeller Barthuhn	308f OP (2000)	Endangered	↑	++
Schweizerhuhn	261f OP (2000)	Endangered	↑	++
Zwergschweizerhuhn	?	Endangered	→	-

* ++ (existing with success), + (existing), - (non-existent)

** f =female animals, m =male animals, HB = Herdbook, OP = Overall Population

15.2. Cattle

15.2.1. Extinct cattle breeds

Adelboden Cattle

Adelboden cattle had external features similar to Hinterwald, but were smaller.

Einsiedel, Glaris, Schwyz, Rigi and Feldis Cattle

These former local breeds are considered to be the ancestors of Brown Mountain Cattle. They were victims of the first phase of breed consolidation in the 19th century. During this time, organised and strict breeding criteria were established for Brown Mountain Cattle in the whole of Switzerland.

Fribourg / Swiss Black Spotted (Synonyms: Freiburger Flecken, Schwarzfleckvieh, Freiburger Schwarzflecken)

In 1975, the last purebred Fribourg animal was slaughtered. Holstein cattle, similar with regard to external features but more high-performing replaced the black spotted Fribourg, in former times one of the four most important Swiss cattle breeds. Fribourg cattle were among the ancestors of the current black Holstein. Laurent Avon (France) ensured that semen was taken from the last Original Fribourg bulls. In Switzerland, it is not known if animals of this breed still exist.

Illiez and Lötschen

These cattle breeds from the Valais died out at the beginning of the 20th century. They were first grouped because of decreasing stock numbers, then integrated with Simmental cattle. The medium sized Illiez breed (approx. 450 kg) occurred in the districts Montey and Saint Maurice. The Lötschen breed was smaller and lighter (300-400kg), it was mainly kept in the districts of Leuk, Raron and Visp. Despite being smaller, milk yields were nearly as high as those of Illiez cows. Both breeds were white in colour with red spots.

Goms

Goms cattle originated also from the Valais (districts Brig, Mörel and Goms). They were small (350 kg), bright and unicoloured animals, and sold as far away as Italy. They were said to have had a delightful character. The remaining animals were finally integrated with Brown Mountain cattle.

15.2.1. Endangered cattle breeds

Evolénard/Evolene

Synonyms: Evolèner Rinder, Patcholé

Background: It can be assumed that small stocks are found in the Aosta Valley, too. These are, however, neither purebred nor taken care of by a breeders' association. Evolene cattle are also found in France.

Distribution: Valais (mainly in the Lötschental – Upper Valais)

Initiatives:

- Evolene cattle are taken care of by the EVZ - Evolèner Viehzuchtgenossenschaft (Evolene Breeders' Association). It is also responsible for herdbook keeping and breeding. Only purebred animals are listed in the herdbook.

- The overall responsibility and the Zentrale Herdebuchstelle (central herdbook office) is with the breeders' association of PSR. EVZ is linked to PSR and delivers up-to-date herdbook data quarterly.
- Within the framework of the project ,Erhaltungszucht des Evolèner Rindes und *ex situ*-Sicherung der genetischen Basis (conservation breeding of Evolene cattle and *ex situ* safeguarding of the genetic basis), semen and embryos were stored. However, only two usable embryos exist. Starting in the year 2000, a follow-up project, however without embryo production, is planned.
- The National Plan of Action calls for immediate conservation measures.

Contacts:

- EVZ - Evolèner Viehzuchtgenossenschaft, Albert Jerjen, Rhodania 3, 3904 Naters, Tel: 0041-27/923 34 02
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- France: Institut de l'Elevage, 149, rue de Bercy, 75595 Paris Cedex 12, Tel: 0033-1/40 04 52 06, E-Mail: laurent.avon@inst-elevage.asso.fr

Stock:

2000: 117 cows and bulls in the herdbook

Development trend: slightly increasing (1998-1999: 10%)

Assessment: critical

Need for action: Great, it is taken care of by different groups, but a solid basis is missing (stocks are too small). Experts' activities have to be developed according to PSR. More new breeders are needed.

Eringer/Herens

Synonyms: Hérens, Valais

Background: In the middle of the 19th century, Herens cows reached only a weight of 200-300kg. Today, their body weight amounts to more than twice as much (500-600kg).

Frequently animals are exported to the Italian Aosta Valley. Crossbreeding with Aosta Chestnut cattle is supposed to improve fighting characteristics. Purebred Herens cows in the Aosta valley are not registered. Their offspring are, however, registered in the herdbook of Aosta Chestnut (kept by the organisation AREV).

In France, Herens cattle occur, too (1999: 591 animals in the overall population).

Animals are exchanged with France or Italy in Switzerland.

Distribution: Mainly in the Valais Alps (Val d'Hérens)

Initiatives:

- Herens cattle are taken care of by the 'Fédération d'Elevage de la Race d'Hérens'. Particular emphasis is given to purebreeding. They also keep the herdbook.
- Within the framework of the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Fédération d'Elevage de la Race d'Hérens, Elie Fellay, Case Postale 338, 1951 Chateaufort/Sion
- Italy: AREV - P.za Arco d'Augusto, 11100 Aosta, Italy, Tel: 0039-165/345 10, Fax: 0039-165/36 12 63
- France: Institut de l'élevage, 149, rue de Bercy, 75595 Paris cedex 12, Tel: 0033-1/40 04 52 06, Fax: 0033-1/40 04 52 99, E-Mail: laurent.avon@inst-elevage.asso.fr

Stock:

1997: 7918 cows in the herdbook

Development trend: slightly decreasing

Assessment: rare

Need for action: Something is being done.

Original Braunvieh/Original Brown Cattle

Synonyms: compare Braunvieh

Background: The Original Brown Cattle are similar to Brown cattle, which were originally bred at the beginning of the 20th century – as typical double-purpose breed (milk and meat).

Besides the purely brown animals, 2 colour types occur: the Blüem- and the Gurtvieh type.

Original Brown cattle are also bred in Germany (1999: 559 animals in the overall population) and Austria (2000: approx. 50 animals in the overall population).

Distribution: Main distribution in eastern Switzerland

Initiatives:

- Original Brown cattle are taken care of by the 'Original Braunviehzuchtverband' (Original Brown Cattle Breeders' Association).
- The herdbook is kept by the Schweizerischen Braunviehzuchtverband (Swiss Brown Cattle Breeders' Association).
- Within the framework of the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Original Braunviehzuchtverband Switzerland, Josef Eggerschwiler, Gehren, 6402 Merlischachen, Tel: 0041-41/850 12 55
- SBV – Schweizerischer Braunviehzuchtverband, Chamerstrasse 56, 6300 Zug, Tel: 0041-41/729 33 11
- Austria: VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92
- Germany: Allgäuer Original Braunviehzuchtverein, Geschäftsstelle, Bachstrasse 9, 85354 Freising, Tel: 0049-8161/12805

Stock:

1999: 5700 cows in the overall population which is 2.6% of the overall population.

Development trend: decreasing

Assessment: rare

Need for action: The SBV is active in the conservation of breeds. The decreasing stock has to be observed.

Original Simmentaler Fleckvieh / Original Simmental

Synonyms: Simmentaler (note: this synonym is only valid in Switzerland, in other countries, animals with less than 99% of Simmental blood are also given this name).

Background: The milk yield of the Original Simmental is less than that of the Simmental. It is today only bred for hobby reasons.

Distribution: Main distribution is in western Switzerland

Initiatives:

- The Schweizerische Vereinigung zur Erhaltung und Förderung der reinen Simmentaler Fleckviehrasse has been active in the conservation and support of the Original Simmental since 1978. The association is a member of the Schweizerischen Fleckviehzuchtverband (Swiss Breeders' of Spotted Cattle Association).
- The herdbook is furthermore kept by the Schweizerischen Fleckviehzuchtverband. Original Simmental cattle are registered in the herdbook of the Simmental with a special code. They have to have at least 99% Simmental blood and a pedigree with at least 3 generations with origins in Switzerland.
- Within the framework of the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- SVS - Schweizerische Vereinigung zur Erhaltung und Förderung der reinen Simmentaler Fleckviehrasse, Luthernmatte, 6144 Zell, Tel: 0041-41/988 13 14
- Schweizerischer Fleckviehzuchtverband, Herr Bigler, Rüttistrasse, 3052 Zollikofen, Tel: 0041-31/910 61 11, Fax: 0041-31/910 61 99, E-Mail: sfzv@mail.netjump.ch

Stock:

1994/95: 21,731 animals in the herdbook

1999/00: 16,364 animals in the herdbook

Development trend: decreasing

Assessment: not endangered

Need for action: None

15.2.3. Endangered breeds from neighbouring countries

Hinterwälder Rind / Hinterwald

Synonyms: originally known in the right side of the Upper Rhine valley as 'Hirschvieh'.

Background: The dwarf cattle breeds, Adelboden and Feldis closely related to Hinterwald cattle, were replaced in Switzerland at the end of the 19th century.

In the southern Black Forest, a small population of Hinterwald cattle were kept. In 1983, a Hinterwald population was set up through Pro Specie Rara in Switzerland. Today, the breed which is classified as 'endangered' in its area of origin southern Germany (Baden-Württemberg: 4000 animals in the overall population) is purebred to 95%. Hinterwald cattle as a dwarf cattle breed are well adapted to the Swiss topography.

Initiatives:

- The breed is taken care of by the SHZ - Hinterwälder Zuchtverein which is also responsible for herdbook management. At the end of the 1990s, the SHZ left the breeders' association PSR. It is officially recognised by the Federal Government.

Contacts:

- SHZ – Schweizerischer Hinterwälder-Zuchtverein, Geschäftsstelle, Frau Christine Kölla, Alte Mühle, 9064 Hundwil, Tel: 0041-71/367 10 81, Fax: 0041-71/367 21 76, E-Mail: koella@dplanet.ch
- Germany: Coordinator Hinterwälder Rinder – Dr. Günther Furthmann, Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen, Schützenstrasse 6, 75853 Lenzkirchen-Kapf, Tel: 0049-7653/405

Stock in Switzerland:

1999: 1202 cows and 99 bulls in the herdbook

1997: 812 cows and 103 bulls (including young bulls) in the herdbook

Development trend: increasing

Assessment: vulnerable

Need for action: The SHZ is active in the conservation of the breed. There is a genetic basis for successful conservation. Support for breeding efforts should be tested (utilisation for the cultivation of steep slopes).

Rätisches Grauvieh/Rhaetian Grey

Synonyms:

Background: At the end of the 19th century, 2 types were differentiated in Switzerland: the lighter Albula type and the heavier Oberland type. Raetian grey cattle were replaced at the beginning of the 20th century by Brown Mountain cattle. In 1985, Pro Specie Rara introduced breeding groups related to the Albula type. Because of the high demand, animals are still imported into Switzerland. These are mainly large-framed animals.

Distribution: Entire Swiss Alpine region with a concentration in the Grisons.

Grey cattle were also bred in Tyrol (2000: 3870 cows in the herdbook) and in South Tyrol (large-framed type; 1993: 14,269 animals in the herdbook).

Initiatives:

- Since 1992, Rhaetian Grey cattle have been taken care of by the GdG - Genossenschaft der Grauviehzüchter (Federation of Grey Cattle Breeders). The original small-framed type (the so-called Rhaetian Grey cattle) is specifically supported. For that reason, the herdbook was completed with the so-called star register. The herdbook kept in two parts allows the conservation of the original small type despite imports of large-framed animals.
- The entire responsibility and the central herdbook are with the breeders' association of PSR. The GdG is linked to it and delivers quarterly the most recent herdbook data.
- Semen is stored.
- Because Swiss stocks have died out and were re-established with imports from foreign countries, there is no conservation support from the government.

Contacts:

- GdG - Genossenschaft der Grauviehzüchter, Ruedi Gmür, Höhe Gätziberg, 9450 Altstätten, Tel: 0041-71/755 45 51, Fax: 0041-71/755 68 73
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- Tyrol: Tiroler Grauvieh Zuchtverband, Brixner-Strasse 1, A - 6020 Innsbruck, Tel: 0043-512/57 30 94, Fax: 0043-512/58 02 16, E-Mail: grauvieh@lk-tirol.at
- South Tyrol: ANABoRa Grigia Alpina, Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen

Stock in Switzerland:

2000: 1349 cows and 135 bulls in the herdbook

Development trend: increasing (1998-1999: 23%)

Assessment: vulnerable

Need for action: The need for action is largely taken care of. The demand for Rhaetian Grey cattle, particularly from organic farmers, is high. Keeping this breed has become an economically viable niche. Experts' activities should be developed according to PSR. Support from the government would be desirable.

15.2.4. Swiss cattle breed bred internationally

Braunvieh/Brown Cattle

Synonym: Brune Suisse, Bruna Svizzera

Background: The name 'Brown cattle' is used today for those animals bred in the second half of the 20th century with regard to milk production. The original double-purpose breed is today called Original Brown cattle.

Contacts:

- SBV – Schweizerischer Braunviehzuchtverband, Chamerstrasse 56, 6300 Zug, Tel: 0041-41/729 33 11, Fax: 0041-41/729 33 77

Stock 1999: 219,458 cows und 1908 bulls in the herdbook

Holstein/ Swiss Black Pied

Synonym (colloquial): Schwarzfleckvieh, Machete Noire, Swiss Black Spotted, Swiss Black and White

Background: The name 'Spotted Cattle' is used for animals with foreign blood proportions of 14% to 74.5%. Holstein cows are originally black in colour. The name 'Holstein' is also used for black spotted animals. The red colour developed from a genetic defect which is passed on recessively. In Switzerland, black animals have only been registered in the herdbook since 1996.

Contacts:

- Schweizerischer Holsteinzuchtverband, Grangeneuve, 1725 Posieux, Tel: 0041-26/305 59 00, Fax: 0041-26/305 59 04, E-Mail: admin@holstein.ch

Stock 'Holstein' 1999/00: 5411 cows in the herdbook (animals with at least 75% Black Pied blood)

Stock 'Red Holstein': 1999/00: 83,913 cows in the herdbook (animals with at least 75% Black Pied blood)

Simmentaler Fleckvieh / Swiss Red Spotted

Swiss Red Spotted has, in contrast to the Original Simmental, up to 12.5 % Holstein blood.

Synonym: Schweizerisches Fleckvieh, Pied Rouge du Simmental,

Colloquial synonyms : Schweizerisches Rotfleckvieh, Tachetée Rouge,

Contacts:

- Schweizerischer Fleckviehzuchtverband, Rüttistrasse, 3052 Zollikofen, Tel: 0041-31/910 61 11, Fax: 0041-31/910 61 99, E-Mail: sfzv@mail.netjump.ch

Stock 1999/00: 28,026 cows in the herdbook (animals must have at least 87.5% Simmental blood).

15.3. Sheep

15.3.1. Extinct sheep breeds

Grabs Sheep

Grabs sheep died out in the 20th century through crossbreeding with Oxford sheep.

Lötschen Sheep

The black Lötschen sheep formerly also occurred in the Valais.

Luzein Sheep

The Luzein sheep has not yet completely died out, it can, however, only be conserved within the breed of the related Spiegel. The stock proved to be too small to initiate successful conservation measures. Today, there is only one enterprise in Switzerland with approx. 10 Luzein sheep (Eugen Bantli, Luziensteig, Maienfeld, Tel: 0041-81/302 30 92 7304).

The Luzein sheep originally spread from the Grisons to the Upper Prättigau. During the breed consolidation in 1938, it was integrated into the Swiss White Alpine.

Roux de Bagnes (Synonym: Bagner Schaf, Roux-du-Pays), Juraschaf, Saanenschaf, Simmentalerschaf

The Roux de Bagnes is an improved type of the Valais local sheep with very fine wool.

Within the framework of breed consolidation, it was amalgamated with a single breed together with the Jura-, Saanen-, Elb- and Simmentaler-sheep – the Black-Brown Mountain. These types do not exist any more today.

Tavetsch Sheep (Synonym: Nalpser Schaf)

This breed from Grisons Upland was considered to be a direct descendant of the peat sheep. It died out in 1954 because of inbreeding.

Wildhaus sheep

The white-headed Wildhaus sheep from Toggenburg was integrated into the Swiss White Alpine after 1940. In the principality of Liechtenstein, the area where it mostly occurred,

descendants of the Wildhaus sheep were still found until the 1970s. Today, it is considered to be extinct.

Visp sheep

This breed which was formerly widely spread in Valais has died out today.

15.3.2. Endangered sheep breeds recognition by the Federal Government

Bündner Oberländer Schaf/ Grisons

Synonym: Meddler Schaf (similar to Tavetsch), Tujetsch-Medel

Background: The conservation of the Grisons was the first sheep project initiated and implemented by Pro Specie Rara at the beginning of the 1980s.

Only a few animals of the Vrin type of the Grisons sheep exist. Thanks to the support of the WWF, some animals of the Vrin type could be purchased at the end of the 1990s. They were then integrated into the breed Grisons.

Distribution: eastern Switzerland (mainly Grisons Highlands)

Initiatives:

- Grisons sheep are taken care of by the VEB – Verein zur Erhaltung des Bündner Oberländer Schafes (Association for the Conservation of Grisons) which was founded in 1996. The VEB is also responsible for herdbook keeping and breeding issues.
- The breeders' association of Pro Specie Rara has the overall responsibility and the central herdbook. The VEB is linked to PSR and delivers the most recent herdbook data quarterly.
- The National Plan of Action calls for immediate conservation measures.

Contacts:

- VEB, Windelsteig, 9127 St. Peterszell, Tel: 0041-71/377 20 52
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

Stock:

2000: 394 ewes and 82 rams in the herdbook (>50 breeding groups)

Development trend: increasing (1998/99: +16%)

Assessment: endangered

Need for action: VEB and PSR are active in the conservation of the breed. Finding new breeders is a problem at present. Furthermore, not all breeders participate in the association. To make conservation work as successful as possible, efforts should be coordinated.

Fuchsfarbiges Engadinerschaf/Engadine Red

Synonyms: Besch da pader, Paterschef, Engadiner Fuchsschef, Val d'Ultimo (Italy), Ultnerschef (Italy), Braunes Bergschaf (Germany, Austria), Rotes Bergschaf

Background: The black type of Engadine red amounts makes up only 3-5% of the entire Engadine Red population. Only a few breeders select the black colour in particular.

According to PSR, the number of breeders specialising in black animals will increase in future.

This breed also occurs in Germany (2000: 1600 animals in the overall population), Italy (1998: 800 ewes and 170 rams in the herdbook) and Austria (1998: 516 animals).

Distribution: entire Switzerland

Initiatives:

- Engadine Red are taken care of by the SEZ – Schweizerischer Engadinerschaf Zuchtverein (Association for the Conservation of Engadine Sheep) which was founded in 1992. The SEZ is also responsible for herdbook keeping and breeding issues.
- The breeders' association of Pro Specie Rara has the overall responsibility and the central herdbook. The SEZ is linked to PSR and delivers the most recent herdbook data quarterly.
- Utilisation in landscape management.
- The National Plan for Action calls for immediate conservation measures.
- The cooperation between breeders' associations has intensified during the last year. In November 2000, the 'Vereinigung der Bergschafzüchter' was founded. This new association aims to support Mountain sheep breeding and husbandry in the Alpine region. For the year 2001, the Bayerische Herdebuchgesellschaft (Bavarian herdbook society) holds the chair of the society.
- Because the breed occurs in several countries, SAVE Foundation takes care of the coordination of conservation efforts between the countries involved.

Contacts:

- SEZ, Kathrin Krieg, Sonnental, 8712 Stäfa, Tel: 0041-1/920 06 55
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- Italy: Federazione Zootechnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Barbara Mock, Via Galvani, 40, Bolzano, Tel: 0039-471/20 28 39, Fax: 0041-471/204 186
- Germany: Josef Grasegger, Schlossweg 10, D-82467 Garmisch-Partenkirchen
- Austria: Tiroler Schafzuchtverband, Mr. Jaufenthaler, Brixner Strasse 1/Zi 12, A-6020 Innsbruck
- Arbeitskreis Braunes Bergschaf, Georg Palme, Amt für Landwirtschaft und Ernährung Mühldorf, Am Kellerberg 11, 84453 D - Mühldorf am Inn
- Bayerische Herdebuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 D-München, Tel: 0049-89/53 62 27
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 1281 ewes and 147 rams in the herdbook

Development trend: increasing (1998/99: +18%)

Assessment: vulnerable

Need for action: Various groups are active in the conservation of the breed. Particularly the stock development of the black type has to be monitored.

Spiegelschaf

Background: The Spiegel from Austria differ with regard to their phenotype and probably genetically, too, from the Swiss population.

Distribution: Mainly in the Rhine valley and Prättigau, but also in the whole country

Initiatives:

- In 1985, the Spiegel became part of a conservation program of PSR. Today, they are taken care of by the SSZ (Spiegelschaf Zuchtverein) – founded in 1997. It is also responsible for herdbook management and overall breeding.
- The overall responsibility and the management of the herdbook is with the breeders' association of PSR. The SSZ is linked to it and up-to-date herdbook data are delivered quarterly.
- The National Plan of Action calls for immediate conservation measures.

Contacts:

- SSZ, Engulgasse 12a, 9000 St.Gallen, Tel: 0041-71/222 74 20; E-mail: muellerotto@surfeu.ch, URL: <http://www.spiegelschaf.ch>
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engulgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

Stock:

2000: 650 ewes and 140 rams in the herdbook

Development trend: increasing (1998/99: 58%)

Assessment: endangered

Need for action: Several groups are active in the conservation of the breed. Thanks to a lively presence in exhibitions and media, the demand for Spiegel has been large and the number of breeders increases continuously. The problem of a very narrow genetic basis still exists.

Walliser Landschaft/Valais Red

Synonym: Roux du Valais, Roux du pays, Valais Red

Distribution:

Most breeding groups are found in the western Central Plateau, the Jura, Bernese Alps and French parts.

Initiatives:

- Valais Red are taken care of by the WLS – Schweizerische Schafzuchtverein der Walliser Landschaft (Swiss Breeders' Association of Valais Red) The WLS is also responsible for herdbook keeping and breeding issues.
- The breeders' association of Pro Specie Rara has the overall responsibility and the central herdbook. The WLS is linked to PSR and the most recent herdbook data are delivered quarterly.
- The National Plan for Action provides immediate conservation measures.

Contacts:

- WLS, Meren, 3718 Kandersteg, Tel: 0041-33/675 13 79
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engulgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

Stock:

2000: 328 ewes and 59 rams in the herdbook

Development trend: increasing (1998/99: 11%)

Assessment: endangered

Need for action:

WLS and PSR take care of the need for action. Finding new breeders is a problem at present. In the Valais, many existing animals are not recorded in the herdbook. The interest in herdbook breeding has increased during recent years.

15.3.3. Recognised and not endangered sheep breeds

Braunköpfiges Fleischschaf/ Swiss Blackheaded Mouton

Synonym: Tête brune, Oxford, Oxfordshire Down,

Background:

In the herdbook of the Swiss Blackheaded Mouton, Oxford sheep from the U.K. and Blackheaded Mouton from Germany are also registered (with special identification).

Initiatives:

- Within the framework of the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Schweizerischer Schafzuchtverband, Industriestrasse 9, 3362 Niederönz, Tel: 0041-62/956 68 , Fax: 041-062/956 68 79

Stock:

1999: 12,206 female and 954 male animals in the herdbook

Development trend: stable

Assessment: not endangered

Need for action: None.

Schwarzbraunes Bergschaf / Black-Brown Mountain

Synonym: Brun-noir du pays, Mouton du Jura, Brun du noir pays types, Juraschaf

Background: Within the framework of breed consolidation, the breeds Saanen, Elbschaf, Roux de Banges and Simmental sheep were merged into a single breed which is today called Black-Brown Mountain.

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Schweizerischer Schafzuchtverband, Industriestrasse 9, 3362 Niederönz, Tel: 0041-62/956 68 , Fax: 0041-62/956 68 79

Stock:

1999: 9860 female and 684 male animals in the herdbook

Development trend: stable

Assessment: not endangered

Need for action: None

Walliser Schwarznasenschaf / Blacknosed Swiss

Synonym: Nez noir du Valais,

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Schweizerischer Schafzuchtverband, Industriestrasse 9, 3362 Niederönz, Tel: 0041-62/956 68 , Fax: 0041-62/956 68 79
- Association des éleveurs de la race Nez Noir, René Regotz, 3933 Stadelried, Tel: 0041-27/952 18

Stock:

1999: 13,215 female and 717 male animals in the herdbook

Development trend: stable

Assessment: not endangered

Need for action: None.

Weisses Alpenschaf / Swiss White Alpine

Synonyms: Blanc des Alpes,

Background: Through the exchange of breeding animals, both breeding types, Swiss White Mountain and White Alpine Improved, fused in the course of the time into Swiss White Alpine. In the herdbook of the White Alpine, also purebred Merinos from Germany and Ile de France sheep from France are also entered (with special identification).

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- Schweizerischer Schafzuchtverband, Industriestrasse 9, 3362 Niederönz, Tel: 0041-62/956 68 , Fax: 0041-62/956 68 79

Stock:

1999: 39,392 female and 2938 male animals in the herdbook

Development trend: decreasing

Assessment: not endangered

Need for action: None.

15.3.4. Not recognised Swiss breeds

Elbschaf

Synonym: Frutigschaf

Background: The yellowish colour type (Elbschaf) of the Black-Brown Mountain originates from around Frutigen in the Bernese Oberland. At present, these animals are not recognised as a distinct breed. The Schweizerische Schafzuchtverband (Swiss Sheep Breeders' Association) registers the animals in the herdbook of the Black-Brown Mountain. There, the colour of registered animals should be noted, but is not done consistently. Information on how many yellow-coloured animals exist could not be obtained. According to the Schweizerischer Schafzuchtverband, the breeds Elbschaf and Black-Brown Mountain only differ in colour. Therefore, there is no official action to conserve the Elbschaf. The Elbschaf is also not recognised as a distinct breed within the National Plan of Action. There are some breeders who try to conserve the yellow-coloured type. According to these breeders, the Elbschaf does not only differ in colour from the Black-Brown Mountain, but also with regard to the smaller and more fragile body build.

Initiatives:

- There are no conservation measures. Elbschaf breeders are not organised among themselves. Pro Specie Rara has stopped trying to obtain recognition for the breed.

Contacts:

- Schweizerischer Schafzuchtverband, Industriestrasse 9, 3362 Niederönz, Tel: 0041-62/956 68 , Fax: 0041-62/956 68 79

Stock numbers: not known

Need for action: Nothing is being done! The set-up of a nucleus herd of animals defined as Elbschaf because of their physical characteristics is urgently required. Furthermore, separate recording in the herdbook and coordination amongst Elbschaf breeders is needed.

15.3.5. Endangered foreign breeds

Skudden / Skudde

Background:

The original home of Skudde sheep was East Prussia/Masuria, '*Memelland*', the '*kurische Nehrung*' and Lithuania. Skudde died out in their area of origin. In 1936, 3600 purebred animals still existed in East Prussia. Important populations are only found in Switzerland and Germany (1999: 1885 ewes and 202 rams in the herdbook). Skudde breeders from Germany and Switzerland cooperate. Skudde sheep mostly have white fur. In Switzerland as well as in Germany, there are only a few black and brown animals.

Initiatives:

- Skudde are taken care of by the VSSZ – Verb and Schweizer Skuddenzüchter (Swiss Federation of Skudde Breeders) which was founded in 1992. Within the federation, the '*Interessengemeinschaft für braune und schwarze Skudden*' is active in the conservation of the brown and black colour types.

- The breeders' association of Pro Specie Rara has the overall responsibility and the central herdbook. The WLS is linked to PSR and the most recent herdbook data are delivered quarterly.
- Utilisation in landscape management
- As the breed is not from Switzerland, there are no governmental conservation measures.

Contacts:

- VSSZ, Waldhof, 8614 Bertschikon, Tel: 0041-1/935 38 56
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und Zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- Germany: Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27

Stock:

2000: 430 ewes and 79 rams in the herdbook

Development trend: increasing (1998/99: +30%)

Assessment: endangered

Need for action: In Switzerland, need for action is taken care of. Enhanced cooperation with Germany concerning the conservation of the brown and black type is urgently required.

Attempts should furthermore be made to settle the animals in their area of origin. Support from the government would be desirable.

15.4. Goats

15.4.1. Endangered goat breeds recognised by the Federal Government

Appenzellerziege

Distribution: both Appenzell cantons, St. Gall (Toggenburg)

Initiatives:

- The herdbook is managed by the Swiss Goat Breeders' Association.
- The National Plan for Action calls for immediate conservation measures. Therefore, a conservation program has been started which is implemented by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association). It includes descent control, avoidance of inbreeding, controlled mating and financial support for breeders.

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79
- Ziegenzuchtgenossenschaft Urnäsch, H. Fuchs, Unter Egg, 9107 Urnäsch

Stock:

2001: 828 nanny-goats and 83 billy-goats in herdbook

Development trend: increasing

Assessment: endangered

Need for action: Covered.

Bündner Strahlenziege / Grisons striped

Synonyms: Chèvre ranée des Grisons, Girgionese striseiata,

Distribution: Mainly in Grisons

Initiatives:

- The herdbook is kept by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association).
- The organisation 'Bündner Strahlenziege' is at present implementing a support program in cooperation with the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association).
- The National Plan of Action calls for intermediate conservation measures. Therefore, a conservation program was funded. It is implemented by the Swiss Goat Breeders' Association. It includes decent control, avoidance of inbreeding, controlled mating and financial support for breeders.

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79
- Interessengemeinschaft Bündner Strahlenziege, Andreas Michel, Ziegenzuchtverband Graubünden, Landwirtschaftliche Schule Plantahof, Plantahofstrasse 205, 7302 Landquart, Tel: 0041-81/307 45 22, Fax: 0041-81/307 45 46

Stock:

2001: 931 nanny-goats and 104 billy-goats in the herdbook

Development trend: increasing

Assessment: endangered

Need for action: The Swiss Goat Breeders' Association is at present active in the conservation of the breed.

Pfauenziege / Peacock Goat

Synonyms: Prättigauer Ziege, Palomaziege, Grau-schwarze, Grau-schwarz-weiße Gebirgsziege, Razza naz (Ticino), Colombia (Bergell), Chèvre peon, Grey-Black Mountain Goat,

Background: It is assumed that peacock goats also occur in Italy (around Lake Como, Valchiavenna and Val San Giacomo), Austria and France (High Savoy). According to the Schweizerischer Ziegenzuchtverband, they do not comply with the Swiss type.

Distribution: cantons Ticino, Grisons, St. Gall, Bern, Aargau

Initiatives:

- The peacock goat is taken care of by the 'IG Peacock Goat'.
- The Schweizerischer Ziegenzuchtverband is responsible for the management of the herdbook.
- The National Plan of Action provides immediate conservation measures. In 2001, a conservation program was started. It includes descent control, avoidance of inbreeding, controlled mating and financial support for breeders.

Contacts:

- IG Pfauenziege, Prof. Kurt Pfizer, Kranichweg 17, 3074 Muri, Tel: 0041-31/951 20 63
- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 502 nanny-goats and 100 billy-goats in the herdbook

Development trend: increasing

Assessment: endangered

Need for action: The Swiss Goat Breeders' Association is active in the conservation of the breed.

Stiefelgeiss / Booted Goat

Synonyms: St. Galler Stiefelgeiss, St. Galler Oberländer Ziege, Sardonaziege, Chèvre bottée

Distribution: The centre of booted goat breeding is situated around Sargans and in the Weisstannental, smaller groups occur throughout Switzerland (excluding Ticino).

Initiatives:

- The SGS – Stiefelgeissen Züchterverein Schweiz (Booted Goat Breeders' Association Switzerland), founded in 1993, takes care of the breed. It is also responsible for herdbook keeping and breeding issues. Special attention in breeding is given to hair features (Hösli and Mänteli).
- The overall responsibility and Central Herdbook is with Pro Specie Rara. The SGS is linked to PSR and the most recent herdbook data are delivered quarterly.
- Utilisation in landscape management
- Project of the Federal Government for the conservation and support of booted goats.

Contacts:

SGS, alte Zürcherstrasse 12, 8903 Birmensdorf, Tel: 0041-1/737 48 66; E-mail:

info@stiefelgeiss.ch, URL: <http://www.stiefelgeiss.ch>

- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und Zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 071/223'74'01, E-Mail: tiere@psrara.org

Stock:

2000: 429 nanny-goats and 75 billy-goats in the herdbook

Development trend: Increasing (1998/99: +16%)

Assessment: Endangered

Need for action:

The SGS and Pro Specie Rara are active in the conservation of the breed.

15.4.2. Recognised goat breeds not assessed to be endangered by the Federal Government

Gemsfarbige Gebirgsziege / Chamois Coloured

Synonyms: Chamoisée des Alpes, Camosciata delle Alpi, Alpina, Alpine

Background: The Chamois Coloured is today divided into two types: the horned Grisons type and the hornless Hasli (synonym: Oberhasli-Brienz). The types are not listed separately.

The name 'Grisons' is often given to animals from the Grisons – without distinguishing between hornless or horned. Till the year 1999, animals from the Grisons were listed separately as milk performance requirements for females were lower there than in other cantons. The Grisons breeding associations have tried to change this.

In former times, the Greyerz type was distinguished (synonyms: Guggisberg, Schwarzenburg, Gruyère), too. Today, the expression is not used any more.

A lively exchange of animals has always taken place between both types. Today, horned animals are increasingly bred. Being polled is linked to increasing hermaphroditism/impotence. In western Switzerland, breeding is increasingly orientated towards performance. Saanen goats are often crossbred. German-Swiss breeders pay more attention to purebreeding and therefore try to avoid an exchange with western Swiss breeders.

Distribution: Entire Switzerland

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.
- The herdbook is kept by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association).

Contacts:

- Schweizerischer Ziegenzuchtverband, contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 6853 nanny-goats and 668 billy-goats in the herdbook

Development trend: increasing

Assessment: rare

Need for action: The Swiss Goat Breeders' Association and by the regional breeders' associations are active in the conservation of the breed. More intensive activities are, however, needed. Both types - Oberhasli-Brienzer and Grisons – should be recorded separately in the herdbook.

Nera Verzasca/ Black Ticino

Synonyms: Ticino, Schwarze Tessiner,

Distribution: centre of breeding is situated in the Verzasca valley of the cantons Ticino.

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.
- Plans exist to support the breed in future because it is a mountain goat breed.

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 1663 nanny-goats and 154 billy-goats in the herdbook

Development trend: increasing

Assessment: vulnerable

Need for action: The Swiss Goat Breeders' Association is at present active in the conservation of the breed.

Saanen Ziege / Saanen

Synonym: Gessenay

Background: The Saanen is distributed today in 14 European countries. Since the 1990s, the so-called Zurich goat has been classified as belonging to the Saanen, too, when it was found that the Zurich had a close to 100% Saanen blood. The Zurich goat originated from crossbreeding Appenzell and Saanen goats. At the beginning of the 1990s, it was still listed separately from the Appenzell.

Distribution: western and northern Switzerland

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.
- The herdbook is kept by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association).

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 6503 nanny-goats and 798 billy-goats in the herdbook

Development trend: increasing

Assessment: rare (only valid for Switzerland)

- Need for action: The Swiss Goat Breeders' Association is at present active in the conservation of the breed.

Toggenburger Ziege / Toggenburg

Distribution: St. Gall, Central Switzerland, Great Britain, North America, individual animals in South America

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.
- The herdbook is kept by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Federation).

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 3364 nanny-goats and 320 billy-goats in the herdbook

Development trend: stable

Assessment: vulnerable

Need for action:

The Schweizerischer Ziegenzuchtverband is active in the conservation of the breed.

Walliser Schwarzhalsziege / Valais Blackneck

Synonyms: Valaisanne à col noir, Di Ghalsochtu, Chèvre des Glaciers, Capra dal Collo Nero,

Distribution: today throughout Switzerland, strongest concentration in the Upper Valais.

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.
- The herdbook is kept by the Schweizerischer Ziegenzuchtverband (Swiss Goat Breeders' Association).
- Financial support measures for mating with the smallest possible degree of inbreeding.

Contacts:

- Schweizerischer Ziegenzuchtverband, Contacts: Alfred Zaug, Postfach, 3360 Herzogenbuchsee, (or Industriestrasse 9, 3362 Niederönz), Tel: 0041-62/956 68 50, Fax: 0041-62/956 68 79

Stock:

2001: 502 nanny-goats and 100 billy-goats in the herdbook

Development trend: increasing

Assessment: endangered

Need for action: Particularly measures to avoid inbreeding are at present being implemented.

15.4.3. Goat breeds not recognised by the Federal Government

Capra Grigia

Synonym: Graue Geiss

Background: For many years, the chances of successful conservation have been rated to be low because of CAE infections and lack of knowledge of grey animals. The rescue of the breed seems, however, possible at present. According to PSR, the grey type of the Passei Mountain goat from South Tyrol could be equivalent to the Capra Grigia.

In 1897, the 3 following types were described: Liviner (synonym: Misoxer), Bleni-Valmaggia (synonym: Lavizzarer) and Riveria goat. Today, those types are not differentiated any more.

Distribution: Ticino

Initiatives:

- Pro Specie Rara is searching at present actively for animals in Ticino. No specific breeders' organisation exists.

Contacts:

- Pro Specie Rara, Engulgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- South Tyrol: Federazione Zootecnica dell'Alto Adige, Associazione sudtirolese degli allevamenti di piccoli animali, Barbara Mock, Via Galvani, 40, Bolzano, Italy, Tel: 0039-471/20 28 39, Fax: 0039-471/204 186

Stock:

2001: approx. 100 animals in the herdbook kept by 12 breeders and a number of scattered animals in southern Switzerland

Assessment: critical

Need for action: Great, the breed has to date not been saved. Conservation measures taken by PSR are promising. A breeding organisation and description of the breed does not yet exist.

15.5. Horses / donkeys / mules

15.5.1. General information on horses

Overall stock of horses in Switzerland (1998): 46,297 animals

Extinct breeds in Switzerland: Burgdorfer, Erlenbacher

15.5.2. Indigenous Swiss horse breeds

Original Freiburger Pferde / Original Freiberg

Synonyms: Franc-Montagnard, Franches-Montagnes, Cheval du Jura, Jura

Background: The original Freiberg is the only still existing autochthonous Swiss horse breed. The Original Freiberg is distinct from the Freiberg as it must not have more than 2% foreign blood. Original Freiberg horses make up today approx. 10 % of Freiberg horses. A lighter type (stallion families 'Jurassien') and a heavier type (stallion family 'Raceur') are differentiated. Both types are specifically conserved.

Initiatives:

- The Interessengemeinschaft zur Erhaltung des Original Freiburger Pferdes is active in the pure conservation of Freiberg horses. The group cooperates with PSR when purchasing male foals. The measure supports the licensing of at least one young stallion per year. In cooperation with the Swiss stud in Avenche, a semen-bank is being set up. Until March 2000, 9 stallions were recorded. It is planned to record 30 stallions altogether.
- Note: the Original Freiberg horse has not yet been recognised by the Federal Government. It is combined with the Freiberg horse. Therefore, conservation measures have not yet been initiated.

Contacts:

- IG zur Erhaltung des Original Freiburger Pferdes, Heidi and Fritz Gurtner, Unterdorfstrasse 23, 3752 Wimmis, Tel: 0041-33/657 19 16
- Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08

- Pro Specie Rara, Engulgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- Schweizerischer Freiburger Zuchtverband, Sur-la-Côte, 2510 Mont-Crosin

Stock:

1999: 30 stallions and approx. 300 mares in the overall population

Development trend: strongly decreasing as a large number of animals are already old.

Assessment: endangered

Need for action:

Acute, several organisations are active in the conservation of the breed. Support from the Federal Government is urgently needed.

Freiberger/ Freiberg

Background: The breeding of Freiberg horse focuses today on the elegant type. For that purpose, warm-blooded horses are increasingly inbred.

Initiatives:

- Within the National Plan of Action, the breed was given the status ‘subject to observation’.
- The herdbook is kept by the Swiss stud in Avenches.

Contacts:

- Schweizerischer Freiburger Zuchtverband, Sur-la-Côte, 2510 Mont-Crosin
- Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08

Stock:

1999: 4732 mares in the herdbook

Development trend: decreasing

Assessment: vulnerable

Need for action: None

15.5.3. Horse breeds bred internationally

Haflinger / Hafling Mountain Pony

Synonyms: Avelignese

Background: The herdbook is today kept by the Swiss stud in Avenches. The animals are purebred.

Hafling Mountain Ponies occur today in Germany (1998: 12,869 animals in the overall population), Italy (1995: 5025 mares in the herdbook) and Austria (1998: 7153 mares in the herdbook).

Contacts:

- Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08
- Austria: Zentrale Arbeitsgemeinschaft österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Germany: Arbeitsgemeinschaft der Haflingerzüchter und -halter in der BRD, Dr. Uvo A. Wolf, Ringstrasse 20, 82432 Walchensee, Tel: 0049-8858/253
- Italy: ANACRA - Ass. Naz. Allev. Cavalli Razza Avelignese, Viale Lavagnini, 50129 Firenze, Tel/Fax: 0039-55/57 18 67, E-Mail: anacra@haflinger.it

Stock:

1999: 506 mares in the herdbook

Development trend (only valid for Switzerland): decreasing

Assessment: endangered

Need for action: Acute for the population of Hafling Mountain Ponies in Switzerland as nothing is being done

Schweizer Warmblut / Swiss Halfbred

Synonyms: Neue Einsiedler, Cavallo della Svizzera, Demi-sang Suisse, Swiss Saddle Horse

Former names: Einsiedler, Entlebucher, Ajoie

Background: With the change in breeding practices at the beginning of the 1970s, the local types Einsiedel, Entlebuch and Ajoie were merged and from then on bred as Swiss Halfbred. The former local types Einsiedel, Entlebuch and Ajoie as such do not exist any more.

Some of the animals in the monastery of Einsiedel are of the old type. In 1989, the monastery owned 89 animals, 6-10 descended directly from mares already owned by the monastery in the 19th century.

Initiatives:

- The herdbook is kept by the stud Avenches.
- The Horse Breeders' Federation supports and coordinates the interests of Einsiedel breeders and keeps a herdbook.

Contacts:

Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08

Stock:

1999: 2099 mares and 172 stallions in the herdbook (DAD-IS)

Development trend: stable

Assessment: vulnerable

Need for action: None for the Swiss halfbred. Direct and urgent conservation measures should be taken for the animals in the monastery of Einsiedel.

15.5.4. Donkeys

Contacts for donkeys :

Schweizerische Interessengemeinschaft der Eselfreunde, c/o Annamaria Matter, Mitteldorf 9, 3283 Kallnach, Tel: 0041-32/392 18 23, URL: <http://www.bauernverband.ch-ldw-esel>

Steinesel

The only autochthonous Swiss donkey breed is the Steinesel. It is, however, very difficult to locate animals today. Pro Specie Rara searched for the Steinesel in the mid 1990s. Only very few crossbred animals were, however, found. The breed has probably died out.

15.5.5. Mules

Swiss Mule breeding is based exclusively on donkey stallions of Italian breeds.

Contacts for mules:

IG Maultier, Postfach, Sirnach, President: Luzius Heinen, Feldstrasse 1, 8320 Feraltdorf, Tel: 01/954'25'57

15.6. Dogs

15.6.1.General Information

There are 13 dog breeds which originate in Switzerland. In the following, the 4 mountain dogs and the St. Bernhard breed are presented. Furthermore, the following 4 hounds and basset hounds exist: Schwyzer-, Berner-, Jura- und Luzerner Niederlaufhund (basset hound).

It has to be assumed that the breeding basis for basset hounds is relatively narrow. The National Plan of Action does not provide any conservation measures for dogs.

15.6.2. Mountain dogs and St. Bernhard

Berner Sennenhund / Bernese Mountain Dog

Synonym: Durrbächler

Background: The breed Bernese Mountain Dog was recognised in the year 1904.

In future, all future breeding dogs have to pass a character test before licensing for breeding.

Amongst others, security and friendliness in the dog-human relationship are required.

Selection aims in particular at easy to guide, quiet and safe service dogs which feel safe and at ease in the modern world. The Bernese Mountain dog is also suited as a draught dog. In Switzerland this feature is, however, not sufficiently recognised. In foreign countries, the pulling of carts with Bernese Mountain dogs is a popular sport. Watch dog features have, however, slightly decreased during the recent years.

Initiatives:

- The Schweizerische Klub für Berner Sennenhunde monitors pure breeding

Contacts:

- Schweizerischer Klub für Berner Sennenhunde, President: Margret Bärtschi, Lindentalstrasse 71, 3067 Boll (BE), Tel: 0041-31/839 '4310

Stock:

2000: 4000-5000 purebred animals and an unknown number of crossbred animals

Assessment: vulnerable

Need for action: The stock of the Bernese Mountain Dog is protected in the long term. Today, there are clubs for the Bernese Mountain Dog in 25 countries.

Grosser Schweizer Sennenhund / Large Swiss Mountain dog

Initiatives:

- The Klub für Grosse Schweizer Sennenhunde is active for pure breeding of this breed.

Contacts:

- Klub für Grosse Schweizer Sennenhunde, Frau Monika Lanz, Kilchweg 19, 4919 Roggwil, Tel: 0041-62/929 37 04

Stock:

1999: 500 purebred animals

Development trend: increasing

Assessment: endangered

Need for action: There are activities, but insufficient. The stock is protected in the long term.

Appenzeller Sennenhund / Appenzell Mountain Dog

Synonym: Trybhond

Background:

As the Appenzell Mountain Dog is not a fashionable dog, its distribution only proceeds slowly. Most dogs are sold to foreign countries because the Appenzell Mountain dog still has the image of a farmers' dog in Switzerland. This does not promote its distribution. 99% of its population in Switzerland is black. The interest in pure breeding is relatively low in Switzerland.

In Germany and France, some breeders use inbreeding to obtain havanna brown Appenzell.

Initiatives:

- PSR has set up a conservation program for the Appenzell Mountain dog. The Club für den Appenzeller Sennenhund (Club for the Appenzell Mountain Dog) cooperates with PSR. It is attempting to have the name 'Appenzell Mountain' recognised. To improve

the blood stock, male dogs were imported from France and Finland where small populations of Appenzell exist. As further blood refreshment will be necessary, typical cross-breeds will be used in future, too.

- The Club für den Appenzeller Sennenhund is responsible for breeding issues concerning the Appenzell Mountain.

Contacts:

- Club für den Appenzeller Sennenhund, Ines Döös, Schulhausstrasse 5, 62030 Sempach
- Pro Specie Rara, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

Stock:

2000: 250 purebred animals, of these 35 breeding bitches and 20 male dogs, 2-3 animals are havanna brown.

Development trend: slight increase

Assessment: endangered

Need for action: PSR and the club for the Appenzell Mountain Dog are active in the conservation of the breed (mainly pure breeding).

Entlebucher Sennenhund / Entlebuch Mountain Dog

Synonym: Schärli

Initiatives:

- The Schweizerischen Club für Entlebucher Sennenhunde (Swiss Club for Entlebuch Mountain) is responsible for breeding control. The club keeps an eye on pure breeding and provides mating recommendations. To avoid eye problems which occurred through inbreeding at the end of the 1980s, thorough breeding hygienic measures are taken today. Each breeding male has to pass an eye test annually and each bitch before mating. Animals with eye problems are excluded from breeding. To avoid inbreeding, the animal hospitals of the Universities Zurich and Bern are cooperating.

Contacts:

- Schweizerischer Club für Entlebucher Sennenhunde, P. Hunziker, Geiserstrasse 1, 4812 Mühletal, Tel: 0041-62/752 20 43, breeding coordinator: Max Heller (0041-1/980 17 08)

Stock:

2001: 49 bitches and 33 male dogs used for breeding, the entire population amounts to several hundreds of animals.

Development trend: increasing

Assessment: endangered

Need for action: Mainly the club is active in the conservation of the breed. A lively breeders' association exists and its activities have resulted in an increase in the population.

Bernhardiner / St. Bernhard

Synonym: Saint Bernhard, San Bernardo, St. Bernard

Initiatives:

- The Bernhardiner Club (St. Bernhard Club) takes care of pure breeding. Breeding animals are only licensed if they are free from hip joint dysplasia – each animal has to be x-rayed. For blood improving purposes, an exchange of animals with Germany and Italy takes place.

Contacts:

- Bernhardiner Club, Mr. Anderegg, Bitterachen 224, 3513 Bigental, Tel: 0041-34/461 24 33, Zuchtkommissionspräsident: Dr. Martin König (Tel: 0041-26/684 36 36), URL: <http://www.berhardiner-club.ch>

Stock:

2001: approx. 800 purebred animals with pedigrees, including 40 male dogs and 100 bitches used for breeding. Long-haired St. Bernhard: 65-70%, short-haired St. Bernhard 30 –35 %.
Development: decreasing
Assessment: endangered
Need for action: The St. Bernhard Club is active in the conservation of the breed. At present, inquiries for export purposes are on the increase.

15.7. Pigs

15.7.1. Extinct pig breeds

Marchschwein

The Marchschwein from the district of March in canton Schwyz was already nearly extinct before the end of the 19th century.

Oberländer Schwein

This breed originated in the Grisons Rhine valley near Surselva. It is considered to be the last representative of the 'Torfschwein'. The last reference to this breed dates back to the year 1964.

15.7.2. Autochthonous pig breeds

Schweizerisches Edelschwein / Swiss Yorkshire

Synonym: Grand Porc Blanc, Swiss Large White,

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- SUISAG, Schweizerischer Schweinezuchtverband, Allmend, 6204 Sempach, Tel: 0041-41/462 65 50, Fax: 0041-41/462 65 49

Stock:

1999: 15,386 sows and 990 boars in the herdbook 1992: 20,712 herdbook animals

Development trend: decreasing

Assessment: not endangered

Need for action: None

Schweizerisches Veredeltes Landschwein / Swiss Improved Landrace

Synonym: Porc Amélioré du pays,

Initiatives:

- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- SUISAG, Schweizerischer Schweinezuchtverband, Allmend, 6204 Sempach, Tel: 0041-41/462 65 50, Fax: 0041-41/462 65 49

Stock:

1999: 1517 sows and 97 boars in the herdbook.

1992: 3395 herdbook animals

Development trend: decreasing

Assessment: vulnerable

Need for action: Yes – particularly because of the strongly decreasing stock numbers. These were reduced by more than half in the 1990s. The need for action is at present not taken care of. There is no breeders' association active in working for the conservation of the Swiss Improved Landrace.

15.7.3. Endangered foreign pig breeds

Wollschwein/Mangalitsa

Synonyms: Wollhaariges Weideschwein, Porc Laineux des Pacages, Mangalitza (Austria), Sýrnia

The origin of Mangalitsa pigs was old Austria-Hungary. 4 types are differentiated: the blond, the red, the black and the swallow-bellied. Today, the most important population of Mangalitsa pigs is found in Switzerland. In the 1980s, only a few animals were left in the whole of Europe. In Austria (2000: 150 swallow-bellied animals) and Germany (2000: 45 red and 45 blond animals). Efforts for conservation breeding remain on a small scale. In former Yugoslavia and Romania, only a few scattered animals are found. In Hungary (2000: 600 blond and 80 swallow-bellied and 70 red sows), Mangalitsa husbandry was of exemplary character until the beginning of the 1990s when governmental conservation breeding stopped because of the lack of finance. Today, Mangalitsa breeding in Hungary has recovered slightly in the private sector and the breed is supported with husbandry contributions. Pro Specie Rara took over the responsibility for breeding issues in 1986.

Distribution: entire Switzerland

Initiatives:

- The Mangalitsa is taken care of by the SVWS – Schweizerische Vereinigung für die Wollschweinzucht (Swiss Association for Mangalitsa Breeding), founded in 1994. The SVWS is also responsible for herdbook management and breeding issues in general.
- The breeders' association of Pro Specie Rara has the overall responsibility and the central herdbook. The SVWS is linked to it and delivers the most recent herdbook data quarterly.
- Utilisation in landscape management
- Because the breed occurs in several countries, SAVE foundation, the European umbrella organisation, takes care of the coordination of conservation efforts. At regular intervals, international meetings with Mangalitsa breeders are organised for the coordination of breeding efforts.

Contacts:

- SVWS – Schweizerische Vereinigung für die Wollschweinzucht, Petra Fitze und Alex Graf, Dorfstrasse 28, 8564 Wäldi, Tel: 0041-71/657 15 93
- Züchterverband für gefährdete Nutztierassen Pro Specie Rara und zentrale Herdebuchstelle, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org
- Germany: IG Wollschwein, Jürg Flegler, Zwetschgenweg 30, 35037 Marburg
- Austria: Verein zur Erhaltung der Gefährdeten Haustierrassen, Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt
- Hungary: Prof. Dr. Imre Bodo, Boráros tér 3, H-1093 Budapest
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 243 sows and 76 boars in the herdbook

Development trend: slightly increasing (1998/99: +3%)

Assessment: endangered

Need for action: Several organisations are active in the conservation of swallow-bellied Mangalitsa. More support for breeders is, however, needed as many of them stop because it is too much work. Pro Specie Rara has plans to sell Mangalitsa meat via the wholesaler Coop. Thus, the conservation of this breed could indirectly be safeguarded. Governmental support is at present missing.

At the European level, the population of black Mangalitsas should be screened urgently. Within the framework of this study, black animals could not be located in any country. In Hungary, there were enterprises during the times of the planned economy which specialised entirely in black animals.

The conservation of blond Mangalitsa is safeguarded in Germany and Hungary. For red Mangalitsa in other countries, the need for action is great.

15.8. Poultry

15.8.1. General information

The National Plan for Action calls for the setting up of a provisional herdbook and the supervision of stock development.

15.8.2. Swiss poultry breeds

In Switzerland, 87 poultry breeds are officially represented. The Appenzeller Barthhuhn, the Appenzeller Spitzhauben and the Zwergschweizerhuhn are considered to be indigenous.

Appenzeller Barthuhn

Synonym: Appenzeller Huhn

Background: Appenzeller Bart occur in two colour types – black and partridge coloured. Because of increased crossbreeding with the Rheinländer Huhn and the partridge-coloured Italiener, the partridge-coloured type of Appenzeller Huhn has come under pressure. The black type is not considered to be endangered.

Initiatives for the partridge-coloured type:

- The ZUN – Züchterverein für ursprüngliches Nutzgeflügel (Breeders' Association for Autochthonous Poultry) has taken over and continued the conservation projects of Pro Specie Rara. Particular attention is given to the conservation of the original breed.
- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- ZUN – Züchterverein für ursprüngliches Nutzgeflügel, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 04, E-Mail: tiere@psrara.org
- SRGV – Schweizerischer Rassegeflügelzuchtverband, President: Manuel Strasser, Zollikofen, Tel: 031/915'50'50
- Appenzeller Huhn-Club, F. Eugster, Taastrasse 41, 9442 Berneck, Tel: 0041-71/744 34 60

Stock partridge coloured:

2000: 308 chicken and 32 cocks kept by 54 breeders

Development trend: increasing

Assessment: endangered

Need for action: The Appenzeller Huhn-Club is active for the conservation of the partridge-coloured Appenzeller Barthuhn.

Appenzeller Spitzhaubenhuhn

At the end of the 19th century, the Appenzell Spitzenhauben was represented with 10 colour types. Today, only 4 are left. Extensive crossbreeding with foreign chicken breeds (Holländischer Brakel, Hamburger Silberlack, La Flèche) resulted in increasing pressure on the Spitzhauben. A conservation program was set up for the remaining animals. Some inbreeding problems still exist today (e.g. deformity of claws). Animals with inbreeding problems are consequently eliminated from breeding today.

Initiatives:

- The ZUN – Züchterverein für ursprüngliches Nutzgeflügel (Breeders' Association for Autochthonous Poultry) has taken over the conservation projects of Pro Specie Rara and continues them. Via back-crossing, efforts are made to restore lost colour types.
- Within the National Plan of Action, the breed was given the status 'subject to observation'.

Contacts:

- ZUN – Züchterverein für ursprüngliches Nutzgeflügel, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 04, E-Mail: tiere@psrara.org
- Appenzeller Huhn-Club, F. Eugster, Taastrasse 41, 9442 Berneck, Tel: 0041-71/744 34 60

Stock 2000:

Entire stock: 179 chicken and 41 cocks kept by 54 breeders

White colour type : 38 chicken and 8 cocks

Black colour type: 54 chicken and 12 cocks

Golden colour type: 28 chicken and 11 cocks

Gold spotted colour type : 59 chicken and 10 cocks

Assessment: critical (for each of the four colour types)

Need for action: Still acute – the genetic basis is very narrow. The ZUN and the Appenzeller Huhn-Club are active in the conservation of the breed.

Schweizerhuhn

Initiatives:

- The ZUN – Züchterverein für ursprüngliches Nutzgeflügel (Breeders' Association for Autochthonous Poultry) has taken over the conservation project of Pro Specie Rara and continues it.
- The National Plan of Action designates immediate conservation measures.

Contacts:

- ZUN – Züchterverein für ursprüngliches Nutzgeflügel, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 04, E-Mail: tiere@psrara.org

Stock:

2000: 261 chicken and 31 cocks kept by 38 breeders

Development trend: increasing

Assessment: endangered

Need for action:

The ZUN is active in the conservation of the breed.

Zwergschweizerhuhn

Background:

The Zwergschweizerhuhn has been known in Switzerland since 1946. It is mainly kept as a hobby breed.

Initiatives:

- To date, no association exists which carries through concrete conservation measures for the Zwergschweizerhuhn. A description of the breed is available from the SRGV -

Schweizerischen Rassegeflügelverband. The Zwergschweizerhuhn is also recorded by the SRVG when stocks are counted.

Contacts:

- SRGV - Schweizerischer Rassegeflügelzuchtverband, Manuel Strasser, Tel: 0041-31/915 50

Stock:

The stock has not been assessed any more since the mid 1990s. The entire population is probably slightly smaller than that of the Schweizerhuhn.

Development trend: stable

Assessment: endangered

Need for action:

Nothing is being done at present. It would be reasonable to link up the Zwergschweizerhuhn and the Schweizerhuhn in a joint association.

15.8.3. Pigeons

In Switzerland, 90 pigeon breeds (excluding carrier pigeons) are officially represented. The report of the Federal Government on endangered breeds showed, amongst other things, that all Swiss pigeon breeds are endangered.

Swiss pigeons are all descended from local farm pigeons, which all had a functional body shape. Neither very flashy colours nor body shapes obstructing flight could survive. They are mainly distributed in the cantons Thurgau, Zurich, Aargau, Lucerne and Bern. Pigeons were kept on farms as welcome suppliers of additional meat and for decoration. Husbandry as such had to be extensive. The birds had to search for food on their own. The equipment of the dovecots was modest. Animals lived freely and were only kept indoors during the sowing season. In more market-orientated agriculture, however, they have lost their economic importance. They owe their further existence to hobby breeders who keep up the genetic and cultural inheritance and who appreciate their still conserved simplicity and naturalness. The number of breeders of diverse breeds is alarmingly small.

Swiss pigeon breeds and their degree of risk:

- Aargauer Weisschwanz – critical
- Berner Gugger – critical
- Berner Halbschnäbler – endangered
- Berner Lerche – critical
- Berner Rieselkopf – critical
- Berner Spiegelschwanz – critical
- Berner Weisschwanz – endangered
- Eichbühler – critical
- Einfarbige Schweizertauben – critical
- Luzerner Einfarbige – endangered
- Luzerner Elmer – critical
- Luzerner Goldkragen – endangered
- Luzerner Kupferkragen – critical
- Luzerner Rieselkopf – critical
- Luzerner Schild – critical
- Luzerner Weisschwanz – critical
- Poster – endangered
- Thurgauer Elmer – critical
- Thurgauer Mehrfarbige – endangered

- Thurgauer Mönch – endangered
- Thurgauer Schild – endangered
- Thurgauer Weisschwanz – endangered
- Wiggerthaler Farbeinschwanz – endangered
- Zürcher Weisschwanz – endangered

Initiatives:

- Today, the Swiss Pigeon Breeders' Association takes care of the conservation of breeds.
- The pigeon project of Pro Specie Rara, undertaken in cooperation with the 'Club der Luzerner Taubenzüchter', stopped because of lack of efforts from the official breeding associations.

Contacts pigeons:

- SGK, contact Rassetauben und Brieftauben, U. Frei, Murenbergstrasse 1, 4416 Bubendorf, Tel: 0041-61/931 29 70
- Schweizerischer Taubenzuchtverband, Familie Freiburghaus, Birkenweg 8, 3506 Grosshöchstetten, Tel: 0041-31/711 15 77

Need for action:

The Schweizerischen Taubenzuchtverband (Swiss Pigeon Breeders' Association) is active in the conservation of endangered Swiss Pigeon breeds.

15.8.4. Geese and ducks

Local indigenous geese and duck breeds from Switzerland do not exist. The following endangered European breeds are, however, represented in Switzerland:

- The Diepholz Landgans (synonym: Oie de Diepholz) originates from Northern Germany, from the county Diepholz of the same name. For approx. 100 years, it has been bred there. In 1925, the Diepholz goose was recognised in Germany as a breed. The goose is closely related to the Greylag Goose with regard to build and appearance. The animals distributed in Switzerland are mostly found in central Switzerland and the German-speaking highlands. They are conserved by PSR and have been recorded in a herdbook since 1995. In the year 2000, 99 geese and 132 ganders were registered in the herdbook, kept by 80 breeders.
- The Pommern Ente (Pommeranian Duck) with its main area of distribution in Pomerania, has been bred in Switzerland since 1920.

Contacts Diepholzer Landgans:

- Pro Specie Rara, Engelgasse 12a, 9000 St. Gallen, Tel: 0041-71/222 74 20, Fax: 0041-71/223 74 01, E-Mail: tiere@psrara.org

Contacts Pommern Ente:

- Eva Wagner, Rietli, 8499 Sternenbergr, Tel: 0041-52/394 1230

15.9. Bees

15.9.1 General information

According to official statistics, there are approx. 25,000 beekeepers in Switzerland with more than 300,000 bees. As the bee stock has considerably increased since the pre-war times, today it is tending to stagnate. In Switzerland, 5 bee breeds and hybrids are kept: Mellifera, Ligustica, Carnica, Buckfast and Caucasia. The free natural mating has always led to a mixing up of breeds. Thus, approx. 90% of the bees in Switzerland are considered to be 'local' bees - a crossbred of Carnica and Mellifera. The Ligustica, too, has become mixed up with Carnica and Mellifera. The National Plan of Action only provides conservation measures for bee breeds if their stock decreases greatly.

15.9.2. Swiss local breeds

Yellow Ligustica

Synonym: Ligustica, Italian bee

Scientific name: *Apis mellifera ligustica*

Background: The Ligustica bee has practically died out in Switzerland. Purebred specimen of these yellow bees are seldom found. Today, the popularity of the Ligustica is again rising.

Ligustica bees are increasingly imported from Italy.

Distribution: southern Switzerland, Italy

Initiatives:

- The SLB - Verein zur Erhaltung der Schweizerischen Landrassebiene – has been active since 1988 in preventing the mixing of breeds. Today, 20-30 Ligustica breeders are linked to the SLB. In the Calanca valley, a small bee station has been set up especially for Ligustica.
- Pro Specie Rara is also active in supporting the Yellow Ligustica, in cooperation with the SLB.

Contacts:

- SLB – Verein zur Erhaltung der Schweizerischen Landrassebiene, Contacts: Gabriel Kuhn, Tüfistrasse 38a, 8311 Brütten, Tel: 0041-1/816 82 82, 0041-52/345 26 68, 0041-79/638 51 84
- Voce del Sud, Casella postale 47, 6504 Bellinzona, Tel: 0041-91/821 52 35, Fax: 0041-91/821 52 39, E-Mail: psr-fnp@wsl.ch, Contacts: Sabine Lanfranchi

Stock:

2001: 80-100 purebred colonies

Development trend: increasing

Assessment: critical

Need for action: SLB and PSR are active in the conservation of the breed. Measures for purebred conservation also have to be coordinated with northern Italy. The Yellow Ligustica has mainly been replaced through hybridisation with foreign bees (Caucasia, Buckfast).

Mellifera

Synonyms: Schweizer Landrasse, Schweizer Nigra, Nigra, Dunkle Biene, Nordbiene

Scientific name: *Apis mellifera mellifera*

Distribution: Mainly in eastern Switzerland, also in Bern.

Initiatives:

- The SLB - Verein zur Erhaltung der Schweizerischen Landrassebiene – has been active since 1988 in the conservation of purebred Mellifera bees, maintaining purebred control stations. At present, approx. 200 mellifera beekeepers are linked to the SLB.
- Mellifera beekeepers are particularly active in pure breeding.

Contacts:

- SLB – Verein zur Erhaltung der Schweizerischen Landrassebiene, Contacts: Gabriel Kuhn, Tüfistrasse 38a, 8311 Brütten, Tel: 0041-1/816 82 82, 0041-52/345 26 68, 0041-79/638 51 84
- Mellifera Imkerfreunde, Christian Gäggeler, Pappelweg 21, 3612 Steffisburg, Tel: 0041-33/437 21 26

Stock 2000:

- 1000-2000 purebred colonies
- Today, 6 class A control stations and 24 class B control stations exist in Switzerland. In A stations, pure breeding is guaranteed as they are located at an altitude of more than 1300m a.s.l. and at a sufficient distance from the next beekeeper to allow free mating without foreign influence.

Development trend: stable

Assessment: endangered

Need for action:

The SLB and the Mellifera Imkerfreunde are active in the conservation of the breed. Inter-species hybridisation through hybrid breeds is still a problem. Minimum pure breeding is, however, guaranteed in the class A control stations.

15.9.3. Foreign bee breeds and hybrids

Buckfast

Background:

For some years, a small group of breeders has dealt with the hybrid bee Buckfast. Swiss local breeds are endangered by interspecific hybridisation through the presence of hybrid bees. The buckfast bee is not recognised as an official breed by the 'Verein deutschschweizer und rätoromanischer Bienenfreunde'.

Contacts:

- Fredy Stadler, Hauptstrasse 21, 8583 Sulgen, Tel: 0041-71/642 42 64

Carnica

Scientific name: *Apis carnica*

Background:

Carnica bees are actually not a Swiss breed. They are relatively strongly represented in western Switzerland, but are also kept increasingly in other parts of the country. The purebred Carnica is increasingly threatened by hybrid bees.

Contacts:

- SCIV - Schweizer Carnicaimker-Vereinigung, president: Pius Birri, Sommerhalde 3, 5078 Zeihen, Tel: 0041-62/876 13 64

2000: Today, 5 class A control stations and 23 class B control stations exist in Switzerland. In the A stations, pure breeding is guaranteed.

Development trend: increasing

Need for action: None.

Caucasia

The bee breed Caucasia from the former Soviet Union is also present in Switzerland. Breeders have so far shown little interest in the Caucasia.

15.10. Rabbits

In Switzerland, 36 rabbit breeds are known. Most of them occur internationally and are thus not endangered. Only the breeds Schweitzer Feh (number of breeders 2001: 156), Dreifarbiges Kleinschekchen (number of breeders 2001: 54), Schweizer Schekchen (number of breeders 2001: 274) and Schweizer Fuchs (number of breeders 2001: 98) are indigenous in Switzerland. They are conserved by the Schweizerische Gesellschaft für Kleintierzucht (Swiss Association for Small Animal Breeding). There is no need for action at present.

The National Plan of Action plans a provisional herdbook for rabbit breeds as well as the monitoring of rabbit stock development.

Contacts Small Animal Breeding – Rabbits:

Schweizerische Gesellschaft für Kleintierzucht – SGK, Contacts: Ernst Kern, Gallusstrasse 7, 9500 Will, Tel: 0041-71/911 24 42

16. Principality Liechtenstein

16. 1. General information on agriculture

In the principality of Liechtenstein, 2% of agricultural enterprises on average are annually lost. The number of enterprises with more than 20 ha increases. 2/3 of all enterprises are situated in the mountain region. Large areas in the valleys were developed for building. Field cropping was extended to sensible peat areas since the end of the 1990s. Cattle stock has increased slightly since 1950.

16.2. Endangered livestock in Liechtenstein

16.2.1. Summary

None of the still known livestock breeds has its origin in Liechtenstein. Exclusively Swiss or international breeds are kept. Animal breeding is strongly orientated by the development in Switzerland. Premiums for keepers of endangered Swiss breeds have not been allocated.

16.2.2. Need for Action

Need for action for Swiss breeds is taken care of by Switzerland. It is, however, required that Liechtenstein participates in a conservation program for breeds from the Greater Rhine valley.

16.2.3. Contact

Administration of the principality of Liechtenstein, office for agriculture: St. Floringasse 3, 9490 Vaduz, Tel: 00423-236 66 03, Fax: 00423-236 66 09, Tierzucht: F. von Falz-Fein (Tel: 00423-236 66 02), URL: http://www.firstlink.li/regierung/amt_landwirt.htm

16.2.4. Cattle

Local breeds:

Remaining stock of former local breeds such as for example the darker 'Tyrol Breed' do not exist any more today.

Prevailing breeds:

Brown Mountain cattle (1999: 1674 cows and 8 bulls in the herdbook), Black Pied and Red Holstein

Breeding associations:

The Liechtenstein cattle breeders' associations are linked up to Swiss breeding associations.

16.2.5. Sheep

Local Breeds:

Own local breeds do not exist in Liechtenstein. The original breeding area of Spiegel sheep includes Liechtenstein, too. The association in Switzerland is active for breeders' interests and their stock.

Prevailing breeds:

White Alpine

Breeders' associations:

In 1978, the Liechtenstein federations were linked up to the Swiss and the St. Gall sheep breeders' association.

Contacts Spiegel in Switzerland:

SSZ – Spiegelschaf Zuchtverein, Engelgasse 12a, 9000 St.Gallen, Tel: 0041-71/222 74 20

16.2.6. Goats

Local breeds:

Own local breeds do not exist. The original breeding area of the Booted goat comprises also of Liechtenstein. Breeders and their stock are integrated into the association in Switzerland. An own Liechtenstein goat breeding association does not exist any more.

Prevailing breeds:

Chamois Coloured, Saanen

Breeders' federation:

At present, a goat breeding association does not exist any more in Liechtenstein.

Address Booted Goat Switzerland:

SGS - Stiefelgeissen Züchterverein Schweiz, Alte Zürcherstrasse 12, 8903 Birmensdorf, Tel: 0041-1/737 48 66

16.2.7. Pigs

Local breeds:

Indications of the occurrence of a typical local pig type do not exist.

Prevailing breeds:

Landrace, Improved Land Race

16.3. Endangered varieties of cultivated plants in Liechtenstein

16.3.1. Summary

There is large need for action for taking an inventory of old cultivated plants in Liechtenstein. Particularly fruit and vine varieties should be given special attention.

16.3.2. Project 'Genetic Diversity in Liechtenstein'

This project is affiliated to the agricultural office of Liechtenstein and has been given as assignment to an external body in 2001. Inventories for different varieties of cultivated plants are an important part of the project. All cultivated plant species should be integrated. The first results are expected in 2001. A cooperation with the agricultural school Salez in Switzerland exists.

Contact:

- Administration of the principality of Liechtenstein, agricultural office: St. Floringasse 3, 9490 Vaduz, contact: Helmut Frick, Friedrich von Falz-Fein, Tel: 00423-236 66 01
- Agricultural school Rheinhof, 9465 Salez, Tel: 0041-81/758 13 21, Fax: 0041-81/758 13 01, contact: Hans Oppliger

16.3.3. Fruits

Background: The former and the actual species spectrum are closely linked up with the one of eastern Switzerland. Standard trees are still found in large amounts, but are mostly very overaged and neglected.

Initiatives:

- Project ‘Genetical Diversity of cultivated Plants in Liechtenstein’ (compare above)
- The Ökobüro Büchel is planning at present a project on the conservation of standard tree fruits in Liechtenstein. Besides the elaboration of plans for tree management, an inventory is going to be taken of old varieties and they are to be conserved in variety gardens.
- At the beginning of the 1990s, an inventory of nature-priority areas was set up. In this inventory, areas are particularly marked where old fruit stocks and stone fruit stocks exist. This inventory was the basis for fruit variety mapping. The respective report exists at the office for forest, nature and landscape.

Contacts:

- Ökobüro Büchel, Oliver Kopp and Klaus Büchel, Ingenieurbüro für Agrar- & Umweltberatung, Postfach 54, 9493 Mauren, Tel: 00423-373 90 50, Fax: 00423-373 90 51, E-Mail: oliver.kopp@kba.li
- Amt für Wald, Natur und Landschaft, St. Floringasse 3, 9490 Vaduz, Leiter: Dr. Felix Näscher, Tel: 00423-236 64 01

Need for action:

The need for action with regard to inventories and conservation of Liechtenstein fruit varieties is acute. First steps were initiated by the project ‘Genetic Diversity of cultivated Plants in Liechtenstein’. In case the communities will provide the necessary support, a part of the need for action will be taken care of by the Ökobüro Büchel. To date, governmental support for the conservation of old fruit varieties is entirely missing. Only an annual contribution per standard tree is paid.

16.3.4. Vines

Background: In the 19th century, the products of vine cultivation were an important agricultural export product for Liechtenstein. In these times, vine cultivation was, besides cattle breeding, one of the most profitable production branches of agriculture. Vineyards are still found in all valley communities today. They are mainly small and smallest properties. Today, the vine cultivation area comprises of 3.5 ha (state: 1999). For the conservation of vine varieties, an inventory has not yet been carried through. Old varieties are only found by individual cultivated vine growers.

Initiatives:

- Project ‘Genetic diversity of cultivated plants in Liechtenstein’ (compare above)

Contacts:

- Rebkommissär F. von Falz-Fein, Landwirtschaftsamt: St. Floringasse 3, 9490 Vaduz, Tel: 00423-236 66 03

Need for action:

Need for action is great. The first steps to set up an urgently needed inventory have been initiated by the agricultural office in 2001. The Liechtenstein variety spectrum and the old and small vine cultivation areas need to be examined urgently, particularly with regard to possible local breeds.

16.3.5. Garden and field plants, potatoes, fibres

Background: Because of the low geographical extension, Liechtenstein is traditionally strongly orientated by its neighboring countries. Seed has since ever been imported from foreign countries. Liechtenstein breedings never existed in history.

Initiatives:

- Project ‘Genetic diversity of cultivated plants in Liechtenstein’ (compare above)

Need for action: Direct need for action does not exist as actual Liechtenstein varieties did never exist. The set-up of a variety garden with varieties and species formerly important in Liechtenstein in cooperation with the genebanks of the neighboring countries would be very desirable.

16.3.6. Maize

Background: Since the end of the 17th century, maize has become very important for self-supply in Liechtenstein. The so-called ‘Türka-Riebel’ was for a long time the basic food in the Rhine valley.

Initiatives:

- The private association Rheintal Ribelmais works for *in situ* and *ex situ* conservation of Rheintal Ribelmais varieties. The search for old varieties has just started, and will, besides the grisons Rhine valley and the canton St.Gall, also concern the principality of Liechtenstein. Contact to producers from the principality Liechtenstein exist as well as plans to set up a working group. For the conservation and description of Rheintal Ribelmaize varieties, a project was acknowledged in Switzerland from the governmental side. In August 2000, the maize semolina speciality ‘Rheintal Ribel’ was registered as Protected Designation of Origin (PDO) in Switzerland.

Contact:

- Verein Rheintaler Ribelmais, Landwirtschaftliche Schule Rheinhof, 9465 Salez, Tel: 0041-81/758 13 21, Fax: 0041-81/758 13 01, E-Mail: rolf.kuenzler@lsrheinhof.ch,
- Business Manager: Hans Oppliger

Need for action:

Swiss organisations are active for the conservation of the variety. Conservation measures Supported for conservation measures by the Liechtenstein government is urgently needed.

16.4. General contact addresses:

- Administration of the principality of Liechtenstein, agricultural office: St. Floringasse 3, 9490 Vaduz, Tel: 00423-236 66 03, Fax: 00423-236 66 09, URL: http://www.firstlink.li/regierung/amt_landwirt.htm, Contacts: Julius Ospelt (director), F. von Falz-Fein (animal breeding, fruit and vine cultivation), Helmut Frick (plant production),
- LGU - Liechtensteiner Gesellschaft für Umweltschutz, Herr Hauri, Im Bretscha 2, 9494 Schaan, Tel: 00423-232 52 62, Fax: 00423-232 52 63, E-Mail: lgu@lgu.li, URL: <http://www.lgu.li>
- Verein Bio-Liechtenstein, president: Leopold Schurti, Lenggasse 56, 9494 Schaan, Tel/Fax: 00423-392 13 70

17. General report on cultivated plants in the German Alpine region (Bavaria)

17.1. Protection of cultivated plants in Germany

In Germany, the Federal States are basically responsible for measures relating to the conservation, protection and utilisation of Agricultural Genetic Resources. The Federal Government has coordination tasks and is responsible for the international representation of Germany, particularly in the EU and international organisations. The Federal Government nevertheless participates in the planning and financing of measures initiated by the Federal States within the framework of the program “Improvement of Agricultural Structures”. The cultural landscape program with its subprograms is mentioned as an example. Most efforts in Germany involve *ex situ* conservation. At six genebank sites, in 86 botanical gardens and in approx. 20 special collections and working collections plant genetic material is stored for long-term conservation. It is not always easy to determine the relationship of the material to the Alps as the only well documented material is that which has been collected within the catchment area of the German genebanks. Up to date, German genebanks have not collected any Plant Genetic Resources in the Alps. *In situ* conservation was, until now, of little importance in Germany as this form of conservation is more intensive than *ex situ* conservation. *In situ* conservation has mainly been left in the hands of private initiatives. The conservation of genetic resources has not yet been considered to be a criterion in the planning and realisation of plant cultivation, management and nature protection measures. It is little known to what extent nature conservation measures support the conservation of genetic resources. On-farm conservation mainly takes place in organic farming, fruit cultures and in cloister, house and school gardens. There is, however, little detailed assessment (inventory). There are numerous private initiatives on the conservation of traditional diversity as on-farm conservation, but these are not coordinated.

17.2. Protection of cultivated plants in the Bavarian Alpine region

In Bavaria, mainly private initiatives such as associations and cooperatives deal with the conservation of old cultivated plants. Furthermore, some institutes, particularly those with genebank, are actively involved in the conservation of Plant Genetic Resources, particularly those with genebanks. The actors committed to the conservation of cultivated plants are mentioned in the section on organisations. The attempt to establish a cooperation between these different actors has proven to be difficult. Presumably they cooperate, there is however no overall coordination.

17.2.1. Agricultural measures supporting the conservation of cultivated plants

Integrated plant production

Integrated plant production provides a niche where old cultivated plants are conserved. 600 precision field trials are being carried out all over Bavaria, coordinated and evaluated by the State Research Centre for Agronomy and partially implemented by the participation of the

Staatlichen Versuchsgüterverwaltungen (Governmental Research Station Administration). They form the basis for government information on integrated plant production.

Plant breeding

Plant breeding is supported on the governmental side through the Department of Applied Breeding at the Bavarian State Research Centre for Agronomy (LBP) and the TU München-Weihenstephan (Technical University of Munich). The Bayerische Pflanzenzuchtgesellschaft (Bavarian Plant Breeding Society) develops the basic material needed to produce a variety. 17 medium-sized plant breeding companies participate in breeding and offer a region-specific diversity of suitable varieties. Seed is reproduced in Bavaria over an area of approx. 25,600 ha. Bavarian varieties account for a reproduction area of approx. 47,200 ha.

There is currently greater recognition of the importance of the conservation of genetic resources since breeding success depends to a large extent on genetic diversity. The potential basic material for the breeding of cultivated plants is actively cultured and conserved within the framework of the so-called 'Bavarian Genepool'. Further development of the genepool for wheat and barley is planned. Different measures have helped conserve the genetic diversity of cultivated plants on a relatively broad genetic basis, ranging from local breed populations to modern varieties. The collection of wild forms of hop and particularly resistant grasses in the Alpine region represent examples of such measures and of the exchange of breeding material.

17.2.2. Management of the distribution of local varieties

After passing the EU-regulations at the Leipzig Conference for Plant Genetic Resources, the individual member states have started to work on a revision of the Seed Act. In Germany, the Federal Variety Certification Office is the responsible institution. At present, there is a national experts' program which aims to prepare a draft for a new Seed Traffic Act. It includes, in accordance with EU legislation, the marketing of not officially recognized varieties which are to be classified as 'Origin'. The draft is very general. It tries to achieve a compromise between the different actors working in the area of conservation of cultivated plants and to consciously overcome any bureaucratic and financial hurdles.

The Bund Deutscher Pflanzenzüchter (Federation of German Plant Breeders) has considerable influence on the Federal Variety Certification Office BSA. It is now officially acknowledged that large deficits exist with regard to the implementation of defined objectives. The German government has tended to contribute to an aggravation of the problem since the 1990s because it has consciously or perhaps unconsciously enhanced genetic erosion of local varieties through the Federal Variety Act. The variety list of the BSA includes a record of all certified varieties in Germany. Requirements on variety licensing are differentiability, homogeneity, stability and, in the area of agricultural species, their local cultural value. In most of the cases, local varieties do not fulfil these requirements. Handling is left to private initiatives. The activities of private initiatives with regard to seed marketing have not been obstructed during the last years, but they are, however, not supported by the governmental side. Activities of private initiatives are described in detail in the section on organisations.

17.2.3. Legal frame conditions for the conservation of Plant genetic Resources

Until now, a national law for the conservation of cultivated plants has not existed in Germany. Agricultural plant species including vegetable species are subject to certification according to the Seed Act.

In Germany, there is no regional legislation regulating the conservation of cultivated plants. In 1970, the free state of Bavaria already declared the conservation of the cultural landscape to be an agricultural-political objective within the framework of the legislation on the support of Bavarian agriculture. Cultivated plants are, however, not mentioned in particular.

17.2.4. Implementation of the National Plan of Action in Bavaria

In Germany, there is no country-wide program for the implementation of the National Plan of Action as it would be unconstitutional. The individual Federal States are responsible for the implementation, and they are sometimes very slow, particularly with regard to the conservation of old cultivated plant varieties. The current situation shows that the conservation of old varieties of cultivated plants is closely linked to organic agriculture. Most of the on-farm cultivation is, indeed, taking place on organic farms.

In Bavaria it would be possible to implement the National Plan of Action via the Bavarian program for cultural landscapes (KULAP). The following points of KULAP relate particularly to the conservation of cultivated plants:

- the conservation and development of genetic resources
- the avoidance of a replacement of regionally adapted plant varieties and respective seeds.
- the support of structures and landscape structuring elements such as extensive orchards.

17.2.5. Financial support for the conservation of old cultivated plants

For more detailed information on direct financial support for the conservation of old cultivated plants in Bavaria, compare chapter 1.3.1. Regulation 2078/92 (new: 1257/99).

17.2.6. Governmental institutions active in the conservation of cultivated plants in Bavaria

Zentralstelle für Agrardokumentation und -information (ZADI) - Centre for Documentation and Information in Agriculture

Informationszentrum Genetische Ressourcen (IGR) - Information Centre Genetic Resources

The ZADI and its department IGR are governmental organisations within the BMVEL (Federal Ministry for Consumer Protection, Food and Agriculture). They have been investigating 'Biodiversity in Agriculture, Forestry and Fishing Industry'. At present, 14 researchers are working at the IGR:

The IGR is responsible for the following tasks, particularly in the area of Plant Genetic Resources:

- Information system Plant Genetic Resources (GENRES) on the internet under the following address: <http://www.genres.de/pgrdeu>
- Office for the implementation of the national experts' program of Plant Genetic Resources
- Implementation of experts' events on Plant Genetic Resources, A Plant Genetic Resources Series, participation in relevant events, fairs, exhibitions.

Most of the information is related to Germany, although there is also some information from the EU, Eastern Europe and other countries. Conservation work is done through consultation services, documentation and provision of information systems.

Details of some IGR projects on Plant Genetic Resources are given below:

1) Bundesinformationssystem für Genetische Ressourcen (BIG) (Federal Information System for Genetic Resources)

(compare also: <http://www.big-flora.de>)

Financed by the Federal Ministry of Education and Research (BMBF), the

Bundesinformationssystem für Genetische Ressourcen BIG is being set up on the Internet. BIG will contain biological, genetic, ecological and geographical information. Four institutions with a comprehensive data collection (wild flora, collections of botanical gardens, genebank accessions etc.) and the corresponding know-how are participating in the

implementation of BIG: Bundesamt für Naturschutz BfN (Federal Office for Nature Protection), the botanical garden of the Ruhruniversität Bochum (RUB) on behalf of the Verband der Botanischen Gärten (Federation of Botanical Gardens) and the Institute of Plant Genetics and Crop Plant Research as well as the IGR. The decentralised data is going to be linked up and made available in a user-friendly way.

2) EUROGENBANK

The project is supported by the EU within the framework of ELSA (Ethical, Legal and Social Aspects of the Life Sciences and Technologies Programmes of the Fourth Framework Programme) and by the University of Versailles. The EUROGENBANK will include collections of biological material (humans, plants, animals and microorganisms) from nine European countries. It will be categorised according to scientific, institutional and economic aspects. Ethical and legal aspects will also be investigated. The IGR has taken over the task of revising data on Plant and Animal Genetic Resources in Germany.

Address Villichgasse 17, 53177 Bonn, Tel: 0049-228/ 954 82 02, Fax: 0049-228/ 954 82 20,

E-Mail: igr@zadi.de/ begemann@zadi.de, URL: <http://www.zadi.de/igr/>

Director IGR: Dr. Frank Begemann

Contact: Dr. Frank Begemann

Genebanks

In genebanks, plant seed is collected, deep frozen and revived each 10-15 years in order to maintain its germinating capability. In Germany, there are two large genebanks: Gatersleben and Braunschweig:

Bundesanstalt für Züchtungsforschung an Kulturpflanzen – Federal Centre for Breeding Research on Cultivated Plants (BAZ)

Address: Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, E-Mail: L.Frese@bafz.de

Institut für Pflanzengenetik und Kulturpflanzenforschung- Institute for Plant Genetics and Crop Plant Research (IPK)

Address: Corrensstrasse 3, 06466 Gatersleben, Tel.: 0049-39482/ 52 80, Fax: 0049-161/ 251 93 32 or 0049 -9482/ 52 86

Director of the genebank: Prof. Dr. Andreas Graner

Besides the large genebanks, collections are also maintained in their branches:

Branch “South“ - Genebank Fruit, Dorfplatz 2, 01326 Dresden-Pillnitz

Branch “North“ – Potato Collection, Parkweg 1, 18190 Groß Lüsewitz

Branch “North“ – Oil and Forage Plants Collection

23999 Malchow/Poel

It is planned to network the genebanks and for sufficient personnel and financial means to be made available to secure the future institute. Altogether, in the next few years, activities in the *ex situ* area will be more sharply defined and a qualitative improvement of collection management will take place.

Bundessortenamt - Federal Variety Certification Office (BSA)

The Bundessortenamt BSA with its 400 employees has been in existence since 1950. Its Hanover genebank stores varieties from the whole republic as well as some stocks of old cultivated plants. Special attention is given to agricultural and horticultural varieties. The main area of activity is variety testing, with a focus on the conservation of reference assortments. The office manages 15 testing stations, with a cultivation area of approx. 600 ha. This area is distributed in different cultivated and natural regions of Germany.

Further information may be taken from the Internet page of the BSA:

<http://www.bundessortenamt.de/>.

The following list shows the individual tasks of the Bundessortenamt

- variety protection for new plant varieties
- certification of plant varieties
- monitoring of protected and licensed varieties
- verification of the varietal trueness of seeds, plants and plant parts
- publication of descriptive variety lists
- national and international cooperation for seed regulations
- federal coordination office for the control offices of the Federal States and for foreign countries.

On the whole, local varieties are not actual varieties. Besides, the certification condition of homogeneity is not met by any local variety. The BSA cannot serve as a source for information on cultivated plants in the Bavarian Alpine region as stored samples are not evaluated.

Address: Osterfelddamm 80, 30627 Hanover; or Potash 610440, 30604 Hanover, Tel.: 0049-511/ 95 66-5, Fax: 0049-511/ 56 33 62

Federal Ministry for Consumer Protection, Food and Agriculture (BMVEL)

The name “Federal Ministry of Food, Agriculture and Forestry“ was changed to “Federal Ministry for Consumer Protection, Food and Agriculture (BMVEL)“.

Address: Rochusstrasse 1, 53123 Bonn-Duisdorf, Tel.: 0049-228/ 529-0, Fax: 0049-228/ 529 42 62, E-Mail: poststelle@bml.bund.de, internetaddress <http://www.bml.de>

Contact: Dr. Himmighofen, Tel.: 0049-0228/ 529 35 50 or 0049-1888/ 529 35 50

Federal Research Centre for Breeding Research on Cultivated Plants (BAZ)

A more detailed description of the BAZ and the BAZ genebank may be taken from the internet pages : <http://www.bafz.de> and <http://www.fal.de/bgrc/bgrc-g.html> .

Address: Bundesallee 50, 38116 Braunschweig, Tel: 0049-531/ 596 23 02, Fax: 0049-531/ 596 24 57, contact: Dr. L. Frese,

Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten (ELF) / (Bavarian Federal Ministry)

Address: Postfach 22 00 12, 80535 München, Internetaddress <http://www.stmelf.bayern.de/>

17.2.7. German integration into the ECP/GR

In Germany, there are two national coordinators for the ECP/GR:

- 1) At a political-administrative level:

Dr. Wilbert Himmighofen, Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL), Postfach 140270, Rochusstrasse 1, 53107 Bonn, Tel.: 0049-228/ 529 35 50, Fax: 0049-228/ 529 43 18 E-Mail Andrea Steuernagel:

Steuernagel@bmvel.bund.de.

This is also the head office responsible for the implementation of the program.

2) At a technical-administrative level and for the coordination:

Dr. Franz Begemann, Zentralstelle für Agrardokumentation und -information (ZADI) Abt. Informationszentrum Genetische Ressourcen (IGR) Villichstrasse 17, 53177 Bonn, Tel.: 0049-228/ 954 82 02, Fax: 0049-228/ 954 81 49- 220, E-Mail: begemann@zadi.de

Two of the 17 members of the On-Farm Conservation and Management Task Force come from Germany:

1) Bernd Horneburg, Dreschflegel, Heinrich-Dueker Weg, 37073 Goettingen, Tel.: 0049-551/ 394 36, Fax: 0049-551/ 396 01, E-Mail: bhorneb@gwdg.de

2) C. Heiko Becker, Institut für Pflanzenbau und Pflanzenzüchtung, Georg August Universität, Von Siebold-Strasse 8, 37073 Göttingen, Tel.: 0049-551/ 39 43 60, Fax: 0049-551/ 39 43 61, E-Mail: hbecker1@uni-goettingen.de

Germany has working groups for the following plant groups in the ECP/GR:

Allium working group:

Partner in Germany: Dr. Joachim Keller, Institut für Pflanzengenetik und Kulturpflanzenforschung – Genbank, Corrensstrasse 3, 06466 Gatersleben, Tel.: 0049-394 82/ 5280/5267, Fax: 0049-39482/ 51 55, E-Mail: keller@ipk-gatersleben.de

Oats (Avena) working group:

Partner in Germany: Dr. Lothar Frese, Bundesanstalt für Züchtungsforschung an Kulturpflanzen (BAZ) – Genbank, Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/ 596 24 51, Fax: 0049-531/ 596 24 57, E-Mail: l.frese@bafz.de

Barley working group:

Responsible for Germany: Dr. Helmut Knüpffer, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK) – Genbank, Corrensstrasse 3, 06466 Gatersleben, Tel.: 0049-39482/52 83 , Fax: 0049-39482/51 55 E-Mail: knupffer@ipk-gatersleben.de. Homepage: <http://www.ipk-gatersleben.de>.

Beta working group:

Partner in Germany: Dr. Lothar Frese, Bundesanstalt für Züchtungsforschung an Kulturpflanzen (BAZ) – Genbank, Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/ 596 2451, Fax: 0049-531/ 596 24 57/23 99, E-Mail: l.frese@bafz.de

The BAZ genebank (L. Frese and C. Germeier) is also responsible for the international databank for Beta (IDBB).

Brassica working group:

Partner in Germany: Klaus J. Dehmer, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK) – Genbank, Corrensstrasse 3, 06466 Gatersleben, Tel.: 0049-39482/52 10, Fax: 0049-39482/51 55, E-Mail: dehmer@mendel.ipk-gatersleben.de

Forage plants working group:

Partner in Germany: Dr. Evelin Willner, IPK-Genbank, Branch Malchow, Inselstrasse 9, 23999 Malchow/Poel, Tel./ Fax: 0049 3842/52 03 16, E-Mail: e.willner@so.hs-wismar.de

Legumes working group:

Partner in Germany: Thomas Gladis, ZADI/IGR, Villichgasse 17, 53177 Bonn, Tel.: 0049-228/954 82 10, Fax: 0049-228/954 82 20, E-Mail: gladis@zadi.de, th.gladis@gmx.de

Malus/Pyrus working group:

Responsible for Germany: Prof. Dr. Manfred Fischer, Genbank Fruit Dresden-Pilnitz am IPK Gatersleben, Bergweg 23, 01326 Dresden, Tel.: 0049-351/261 50 10, Fax: 0049-351/261 50 11, E-Mail: fischerm@ipk-gatersleben.de

Potato working group:

Partner in Germany: Dr. Konrad Schüler, Institut für Pflanzengenetik und Kulturpflanzenforschung - IPK, Außenstelle „Nord“ – Kartoffelsammlung, Parkweg 1, 18190 Groß Lüsewitz, Tel: 0049-38209/805 25, Fax: 0049-38209/805 25, E-Mail: genbank.luesewitz@t-online.de

Prunus working group:

Partner in Germany: Prof. Dr. Manfred Fischer, Genbank Obst Dresden-Pilnitz am IPK Gatersleben, Bergweg 23, 01326 Dresden, Tel.: 0049-351/ 26150 10, Fax: 0049-351/ 261 50 11, E-Mail: fischerm@ipk-gatersleben.de

Umbelliferae working group:

Partner in Germany: Thomas Nothnagel, Institute of Horticultural Crops, Neuer Weg 22/23, 06484 Quedlinburg, Tel.: 0049-3946/472 51, Fax: 0049-3946/472 55, E-Mail: t.nothnagel@BAFZ.de

Wheat working group:

Partner in Germany: Hansjörg Walther, Institut für Resistenzgenetik BAZ, Graf-Seinsheim Str. 23, 85461 Grünbach, Tel.: 0049-8122/97 57 14, Fax: 0049-8122/97 57 97

17.2.8. Bavarian quality seals

The following three quality seals, which testify the origin of a product, relate mainly to extensive orchards which contribute occasionally to the conservation of old fruit varieties.

1) “Qualität aus Bayern – Garantierte Herkunft“ (quality from Bavaria - guaranteed origin)
Fruit schnapps thus labelled is produced in Bavaria with fruit harvested in the same state.

2) Origin “Schnäpse aus Altbayern“ (schnapps from old Bavaria)

Fruit schnapps is produced from fruit harvested in old Bavarian extensive orchards.

3) “Öko-Qualität, garantiert aus Bayern“ (eco-quality, guaranteed from Bavaria)
An eco-label for Bavarian products.

17.3. EU – measures for the conservation of cultivated plants in Bavaria

17.3.1. Regulation 2078/92 (new: 1257/99) on the development of rural areas.

As part of the Bavarian program for cultural landscapes and within the framework of the implementation of EU-regulation 1257/99 of the 17th May 1999, the following financial support for cultivated plants is allocated within Bavaria:

- 282 EUR/ha for the cultivation of old cultural varieties
- extensive crop rotation with 50-180 EUR/ha

- The program also offers further financial support which contributes indirectly to the conservation of cultivated plants in the Alpine region:
- Financial support for extensive fruit cultures: for the first 20 trees of an enterprise 5 EUR/tree, for further trees 2.5 EUR/tree, the upper limit of the grant is 308 EUR/ha. Per supported extensive fruit tree, 100m of area are deducted. i.e. a maximum of 100 extensive fruit trees per ha can be financially supported. Trees with less than 3 m of crown diameter are not financially supported, the same applies to trees with less than 1.60m stem height.
- Vine cultivation in steep and terraced sites has been recognized to be an important formative element for landscapes. The continued cultivation of these sites is threatened by high costs and difficult working conditions. Therefore, these areas receive enhanced financial support within the framework of the Bavarian program for cultural landscapes with 410 to 2.564 EUR/ha. In 1999, the annual requirement of funds was estimated to be 1.025.640 EUR (770 ha with approx. 1.333 EUR/ha). No difference is made between old and modern vine varieties.

17.3.2. Regulation 1467/94

Contact in Germany for the Regulation 1467/94:

Dr. Wilbert Himmighofen, Bundesministerium für Ernährung, Landwirtschaft und Forsten,
Rochusstrasse 1, 53123 Bonn, Tel 0049-228/529 35 50, Fax 0049-228/529 43 18, E-Mail:
<mailto:BN3967@bml.bund400.de>

Germany participates in the following projects of EU-regulation 1467/99 (more detailed information on regulation 1467/94 may be taken from the introduction):

GEN RES #20: Allium

Contact: Dr. Joachim Keller, Institut für Pflanzengenetik und Kulturpflanzenforschung,
Corrensstrasse 3, 06466 Gatersleben.

GEN RES #34-#45: Potato

Sub-coordinator NGOs: Dr. Konrad Schöler, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK), Genbank Außenstelle Nord, Parkweg 1, 18190 Groß Lüsewitz.

GEN RES #61: Prunus

Contact: Prof. Dr. Manfred Fischer, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK), Außenstelle Genbank Obst Dresden-Pilnitz, Dorfplatz 2, 01326 Dresden.

GEN RES #81: Vine Grapes (coordination)

Contact: Dr. Erika Dettweiler, BAZ-Institut für Rebenzüchtung Geilweilerhof, 76833 Siebeldingen.

GEN RES #88: Maize

Contact: Andreas Börner, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK), Corrensstrasse 3, 06466 Gatersleben.

GEN RES #104: Barley

Coordination: Dr. Helmut Knüpfner, Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK) – Genbank, Corrensstrasse 3, 06466 Gatersleben.

GEN RES #042: Beta (coordination)

Contact: Dr. Lothar Frese, Bundesanstalt für Züchtungsforschung an Kulturpflanzen (BAZ) – Genbank, Bundesallee 50, 38116 Braunschweig

17.3.3. Regulation 2092/91 on ecological agriculture

The EU Council Regulation 2092/91 of the 24th June 1991 on ecological agriculture and the respective labelling of agricultural products and foods (EU-Eco Regulation) has been replaced by four new regulations. The Bayerische Landesanstalt für Ernährung (LfE) (Bavarian Federal Institution for Nutrition) is the control body and is responsible for the execution of the EU-Eco-Regulation. At present, ten controlling offices with a total of 117 controllers are working for the control procedure of the EU-Eco Regulation. As the regulation does not include any responsibility for the recording and registration of eco-products, the LfE has no overview of the considerable amount of eco-goods on the Bavarian market (Bavarian Agricultural Report 2000).

Support measures for ecological agriculture on the basis of the EU-Eco Regulation 2092/91 supporting the conservation of old cultivated plant varieties are as follows:

- for the cultivation of old varieties of cultivated plants: 281 EUR/ha

17.3.4. LEADER-projects

In Germany, there are only LEADER -projects on regenerative resources. Particular plant varieties are, however, not supported by LEADER-projects. First steps for *in situ* conservation are being taken. For example, there are projects with lentils (more on-farm projects), which are, however, strongly orientated towards breeding, or projects with perennial ryegrasses (considered to be an *in situ* project). Within the Alpine region, some

projects are at present carried out in the upland (Lower Bavaria and Baden-Württemberg). The Alps are not directly supported by LEADER.

Contact in Germany:

Deutsche Vernetzungsstelle LEADER bei der Bundesanstalt für Landwirtschaft und Ernährung (BLE), Adickesalle 40, 60322 Frankfurt/Main, Kontaktperson: Hans Fink, Tel.: 0049-69/156 4 9 56, Fax: 0049-69/156 47 87, E-Mail: leader2@internet.de. InternetAddress <http://www.leader2.de>

17.4. NGOs

17.4.1. VEN (Verein zur Erhaltung der Nutzpflanzenvielfalt e.V.)

The VEN (Verein zur Erhaltung der Nutzpflanzenvielfalt e.V.) is an NGO active throughout Germany which is committed to the conservation of old cultivated plants. At present, approx. 40 active conservationists are offering different plant varieties. Activities of VEN relate less to the Alpine region as few members come from Southern Germany. Conservation initiatives and private persons in the southern German region are more orientated towards and organised in the Austrian Arche Noah. VEN's work concentrates on the search for relicts of cultivated plants and for old gardens. It also cooperates with other organisations such as VERN (Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg e.V.) or Dreschflegel. They cover, however, the northern German area with their work and do not focus on the Alps. Since 2001 VEN has been active in an international network for genetic resources.

Contact: Ursula Reinard, Sandbachstr. 5, 38162 Schandelah, Tel./Fax: 0049-5306 714 02, E-Mail: ven.nutz@gmx.de

17.4.2. KERN (Kulturpflanzen Erhalten Rekultivieren Nutzen)

Strictly speaking, KERN is not an NGO as such. It is, however, mentioned in this chapter as it plays a central role in the protection of the diversity of cultivated plants in the non-governmental sector.

The German network for the conservation, reclamation and utilisation of the diversity of cultivated plants, KERN, was founded on 30.9.2000 in the open-air museum close to Kiekeberg, Hamburg. The KERN network is supposed to be the German contact between NGO organisations and government and public institutions. The network is active in the implementation of the Convention on Biological Diversity at a political, institutional, financial and practical level. It focuses on the Global Plan of Action for the conservation and sustainable use of Plant Genetic Resources for nutrition and agriculture. It is supposed to link all organisations which develop and elaborate ideas, plans, projects and working methods for the successful design of German on-farm management. Founders include VERN (Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg), VEN (Verein zur Erhaltung der Nutzpflanzenvielfalt), the supporting association of the open-air museum at the Kiekeberg, the Getreideforschung Darzau (cereal research) and the private persons Ulla Grall and Gabriele Blümlein.

Contact: KERN (Kulturpflanzen Erhalten Rekultivieren Nutzen), c/o BUND Landesverband Berlin, Crellestr. 35, 10827 Berlin, 0049-30/78 79 00 24, E-Mail: sekretariat@kern-verbund.de

17.4.3. Pomologenverein e.V. (Pomologists' Association)

The Pomologenverein specialises in apples and is active throughout Germany especially in the North. The association is described in more detail in the section on organisations.

Contact: Bundesgeschäftsstelle, Meierkamp 1, 49406 Eydelstedt-Gothel, Tel.: 0049-5442/18 82, Fax: 0049-5442/12 15

17.4.4. NGOs specialised on the Alpine region

Until now there has been no NGO in Germany which focuses on the Alpine region. This is understandable because of the limited geographical extension of the Alps in Germany. There are, however, local interest groups which focus on special areas of work.

17.5. Summary of the need for action and other requirements

About 55% of the overall area in Germany is used for agriculture. As a result of this high percentage, agricultural utilisation is of particular ecological importance with regard to the conservation and sustainable utilisation of biological diversity. Further development of organic farming could help achieve the intended objectives.

It is difficult to demarcate the Alpine region from other regions. There are many transitional regions and cultivated plants have spread across borders. With regard to the Alpine region, it can be stated that generally the emphasis has been on collecting cereals. To date, little attention has been given to other cultivated plants.

The Bavarian Alpine region is an area which has been neglected for a long time by official organisations. The area has only recently been receiving increased attention. The dramatic change the cultural landscape has undergone through increasing tourism and mountain sports has also been ignored. More recent investigations have shown that these types of land use have a much stronger influence on gene erosion than - as assumed before - animal husbandry. Particularly at higher altitudes, field cultures are subject to very fast gene erosion, garden cultures are less affected.

Protected areas should be increasingly included in the conservation of cultivated plants. In the Bavarian Alpine region this would be the biosphere reserve in the Berchtesgarden Alps. In particular the grassland belt would benefit from such measures. For forage plants, *in situ* conservation would seem most sensible. As foresters know, wild plants, too, are best conserved in their natural habitats. Field visits would, however, help to evaluate the species and varieties of wild fruit currently available. The legal framework of the Seed Traffic Act, however, obstructs activities for overall on-farm conservation and urgently needs to be changed. In the genebanks, it is often difficult to name varieties from the Alpine region and particularly from the Bavarian Alpine region. The historical development of collections has meant that there is no standard regarding the definition of origins. The problem is a historical one. Not all collections handed over to genebanks by institutions over the last years had been well documented. The blame should not be given to genebanks because they only use information as provided.

Of the cultivated plants from the Alpine region cereals are relatively well documented. Other plants have only been recorded on the side. Fruit conservation work has reached a very high standard. Vegetables, medicinal plants and kitchen herbs have never been collected systematically. Medicinal plants and kitchen herbs seem to be less endangered. There is an urgent need for collection tours in the near future. Variety gardens for vegetables, such as the one maintained by the Arche Noah in Schiltern (A), have to be initiated.

A lot of knowledge on cultivated plants has been lost. University institutions and research stations need to collect still existing knowledge and make it available to the wider public. In particular, very little is known about vegetables. There is need for action to record the formerly cultivated species and varieties in a historical inventory of cultivated plants.

Up until now, the Federal Ministry for Consumer Protection, Food and Agriculture has only allocated area-related subsidies for farmers utilising certain old varieties and for trees in extensive fruit cultures. This led to many actors expressing a desire for more concrete support for old cultivated plants.

The fruit and vegetable markets in Germany offer a high proportion of products from foreign countries or of products produced in European greenhouses with high energy expenses. There is an urgent need to increase offers of local products on the markets.

18. Portraits of organisations, institutions and institutes active in the conservation of cultivated plants in the Bavarian Alpine region

This chapter portrays actors committed to conservation of cultivated plants in Germany. The information was valid in 2001. Information on individual actors is taken from the questionnaires, literature and Internet research and personal contacts. The information provided has not been verified. The information has been grouped into fruit and wild fruit, vines, vegetables, legumes, cereals, medicinal plants and herbs, oil, fibre and forage plants. The list does not claim to be complete.

18.1. Fruit and wild fruit

18.1.1. Background

In the Alpine region, grasslands with extensive fruit cultivation were used for animal husbandry. Intensive fruit cultivation usually played a subordinate role. Fruit with a focus on apples were generally cultivated for home use. There was a niche for partially commercial fruit cultivation in the district of Rosenheim, in Bad Feilnbach and in Chiemgau.

The trading of fruit only became more important in the 1950s. For commercial cultivation only four fruit species were important: apples, pears, cherries and damsons.

18.1.2. Traditional fruit cultivation in the Bavarian Alpine region

Pome and stone fruit

Flourishing trade has helped to transfer marginal field cropping areas into grassland and a diverse, extensive orchard culture has developed in the grassland belt. Some old and indigenous varieties of fruit trees can still be found. Considerable losses of old fruit trees were caused in 1956 by hail damage followed by a period of hard frost. When replanting, more recent fruit varieties were used.

In the Bavarian Alpine upland around Bad Aibling, many of the damson and plum trees died during the very hard winters of 1956/57 and 1983/84 when temperatures fell to -30°C. Only wild plum trees were able to withstand these conditions.

Apples and pears are the main fruit trees in the Alpine region. They are grown in monasteries, on farms and in smaller house gardens for home use. In Swabia, there used to be more cultivated house gardens in former times when everybody brewed his own home-made must. Relicts of the formerly high number of fruit varieties still exist. Plums, damsons, cherries, quinces and mirabelles are mainly cultivated in house and farm gardens. Cherries are traditionally grown on the milder uplands as well as in Würzburg and Middle Franconia. Peaches and apricots are only cultivated as espaliers on house walls, more for home use than for commercial cultivation. In the district of Bad Feilnbach, stone fruit are cultivated especially for schnapps production.

Berries

Strawberries, blackcurrants, redcurrant, gooseberries, blackberries and raspberries have been cultivated in the Bavarian Alpine region for a long time.

Nuts

Walnuts (*Juglans regia* L.) were formerly found at each farmstead and often in yards and gardens. Frequently, 3 to 5 nut trees were found per farmstead. The nut was also a typical vineyard tree, especially in Würzburg and Middle Franconia. During the winter of 1956/57, a heavy loss of nut trees was recorded. In this particular winter, it was warm in January and very cold in February. 90% of the trees died. In Bad Feilnbach, only a single tree, which is today 150 years old, survived the hard winter.

The common hazelnut (*Corylus avellana* L.) is probably the oldest indigenous German nut species. Prehistorical research defines a period called the “Hazel period”, which coincides with the most highly developed cultural stage of the Stone Age. The cultivated hazel is found wherever there is natural forest hazel. The cultivated hazel is, however, a plant which needs care. Therefore, it does not grow in the same locations as the wild form. The hazelnut is distributed everywhere in rural areas as hazelnut hedge. In the Alpine region it occurs where the climate is too rough for walnuts. The hazel never played an important commercial role in Bavaria but was mostly cultivated for home use.

Wild fruit

From the stones of wild fruit species, which were found during excavations in the settlements of the lake dwellers of Lake Constance, it can be concluded that lake dwellers already collected wild fruit. Wild fruit were traditionally collected in the entire Bavarian Alpine region, mainly in its natural environment.

18.1.3. Current situation

Pome and stone fruit

Extensively managed meadows with sparsely planted standard fruit trees serve as a basis for old Bavarian fruit spirits. The small-scale farm enterprise structure in the hilly uplands has been managed that way for generations. Agriculture tends to concentrate on animal husbandry, schnapps production provides, however, a welcome extra income. The quality of the schnapps from the uplands is based more on the exceptional diversity of varieties and tastes than on its high sugar and therefore high alcohol content. In extensive orchards, many old fruit varieties could survive thanks to their robust character. Apples, pears, damsons and cherries dominate in terms of quantity. Mirabelles, greengages, quinces, rowanberries, blackthorn, elder and cornelian cherries play a subordinate role in terms of quantity, they contribute, however, in terms of quality, to the range of spirits offered.

In the genebank East in Dresden-Pillwitz, approx. 400 samples are conserved in the form of cultivated field plants. Besides the activities of the genebank, the 6 German breeding gardens (RSGs) have to be mentioned here (RSG of the LWK in Hanover and Kiel, the Landespflanzenamt (the Federal Plant Protection Office) in Magdeburg, the RGO Obstreiserverkauf (scion sale) in Meckenheim, the Rhineland-Palatinate Landesanstalt für Pflanzenbau und Pflanzenschutz (Federal Institute for Plant Production and Plant Protection) in Mainz as well as the RSG Weinsberg). They deliver healthy scions of modern varieties from their extensive collections to numerous hobby gardeners and to nurseries for grafting purposes. Many federal and private institutions, museums and NGOs (amongst others Pomologenverein, NABU, BUND) are active in recording, characterising, conserving and replanting historical fruit varieties in the regions they originally came from.

The conservation of old fruit varieties in the Bavarian Alpine region is particularly difficult because some of them have been totally destroyed by climate and clearing. In most recent times, the fire blight has become another severe threat for fruit cultures.

Berries

Nothing is known about berries from the Bavarian Alpine region. It will probably be very difficult to find old stocks as berry plants do not generally become as old as fruit trees and modern varieties with larger fruits are clearly preferred for cultivation purposes.

Nuts

The condition of walnut trees and the quality of the nuts today only seldom comply with required standards, most commercial walnuts are therefore imported from California. There is little economic use for most of the indigenous stock. Another problem is that frost kills the early sprouting flowers of many trees and consequently they do not thrive at higher altitudes. Added to this, a single tree at a farm covers the demands of a whole family. At suitable sites, such as open vineyards, slopes difficult to access or village squares the walnut can provide rewarding yields. In Bavaria, walnuts were never cultivated commercially because the yield is uncertain. Their main importance lies, however, in home use.

Today, hazelnut and walnut seedlings of less cultivation value prevail. The old and well-tried hazelnut varieties are scarcely found any more (Friedrich & Schurich, 1990).

The most important contemporary collections of tree nuts are now kept by the RSG Weinsberg and the Rhineland-Palatinate Landesanstalt für Pflanzenbau und Pflanzenschutz (Federal Institute for Plant Production and Plant Protection) in Geisenheim near Mainz. The oldest collection in Geisenheim was unfortunately cut down. Selected varieties of good quality from the 1930s and 1940s originate from this collection and are still available as grafted nuts.

Wild fruit

In the genebank East collection, wild fruit varieties are also conserved. Several private organisations and local federations are engaged in the conservation of wild fruit. There is currently an increased demand for fruit trees, mainly cherries, nuts, wild apples and wild pears for afforestation. Besides fruit, they also deliver very good timber. Following the storm “Lothar” in December 1999, clearings have partially been reforested with fruit trees.

The BMVEL (*Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft*; formerly BML) published a list including wild plants with potential or real value for nutrition, agriculture and forestry. It consists of approx. 1000 species including forest plants.

Bundes-Obstarten-Sortenverzeichnis

The Bundes-Obstarten-Sortenverzeichnis (BOSR) (Federal Variety Register for Fruit Species) provides a well-documented genebank inventory of fruit species and varieties from the genebank East in Dresden-Pillnitz and numerous German institutes, research stations and other institutions.

The databank can be accessed online via <http://www.genres.de/bosr/>. At present, the online register contains 45 fruit species with 17,200 entries of 5,779 fruit varieties, including 3,000 apple varieties. Information on variety names, synonyms, conserving institutions, virus status variety protection is stored in the genebank.

18.1.4. Overview of organisations and institutions

The following table gives an overview on the conservation initiatives of the different institutions in the Bavarian Alpine region. They are described in detail in the chapter on actors.

	NGOs	Private	Nurseries	Governmental and paragovernmental institutions	Total

Apples	2	2	1	6	11
Pears	2	1	1	6	10
Nashi-Li				1	1
Damsons	1	3	1	3	8
Apricots				1	1
Peaches				1	1
Plums		1	1	2	4
Cherries	1	1	1	4	7
Mirabelles	1			1	2
Reineclaudes	1				1
Quinces	1		1	2	4
Berries			1	4	5
Wild Fruit	1	1	1	4	7
Hazelnut				1	1
Walnut				1	1
Almond				1	1

18.1.5. Need for action

Pome and stone fruit

In Bavaria, there is a very large conservation initiative for fruit which is supported by private persons, universities, nurseries, governmental bodies and public institutions. Repeatedly, individual collection activities have been conducted. The economically important apples, pears, damsons and cherries enjoy most attention. On the whole, the conservation of rare varieties of these groups seems to be secured. There may, however, be some scattered old varieties which have not been registered yet.

There have not yet been any intensive collection activities for plums, mirabelles, greengages and quinces. These fruit species are presently only cultivated for home use. There is a high probability that old varieties could be found in private gardens. Action is also urgently needed for this plant group and collection should be started. Furthermore, a lot of PR-work is necessary to give these fruits a place in society.

Berries

There are no conservation initiatives for berries, apart from strawberries. As berry plants do not live as long as fruit trees, it will be difficult to discover old varieties. In spite of this, collection activities and an inventory are urgently needed or there should at least be a call to report old berry varieties and have them registered. There is a great need for action with respect to completing the existing collections. The genebank Fruit Dresden Pillnitz should be complemented with berries and a second back-up collection should be started.

Wild fruit

The conservation of wild fruit is quite well covered. Here, it would be necessary to control past and present activities in the forest area. It can be assumed that there are many locally

adapted varieties of wild fruit which have not yet been recorded. A collection tour would certainly be worth the effort. Many rare wild fruit species could be added to the collection in Dresden-Pillnitz. There is need for action with regard to a back-up.

Nuts

An extended collection tour for walnuts has never taken place. The nuts are mainly reproduced using kernels, on the whole using seedlings from small fruit i.e. only small and hard-shelled nuts were used. These seedlings originate nearly exclusively from modern varieties. Some hobby cultivators have, however, carried out trials with seedlings from large fruit. Grafting of nuts has never been applied in practice. Currently there is no hazelnut collection. Hazelnuts have sometimes been collected, but never systematically. Neither conservation work nor collection tours have been carried out for nuts. It cannot be ruled out that there may be some old nut trees and hazelnut varieties still scattered around. Therefore, there is an urgent need to carry out collection tours and complete the existing 2 collections.

18.1.6. Actors

The following list contains information on the most important actors in the field of conservation of fruit and wild fruit in the Bavarian Alpine region. The list starts with private groups and individuals, followed by nurseries, public institutions and governmental institutions.

Südostbayerischer Verband der Obst- und Kleinbrenner e.V.

Address: Landratsamt Rosenheim, Sachgebiet Gartenbau, Wittelsbacherstr. 53, 83022 Rosenheim, Tel.: 0049-8031/39 22 07, Fax: 0049-8031/39 22 42

Contact: Josef Stein, Hirnsberg 2 1/2, D-83093 Bad Endorf, Tel.: 0049-80 53 17 26

Description: J. Stein is the honorary business manager of the Südostbayerischer Verband der Obst- und Kleinbrenner e.V. (South-East Bavarian Federation of Fruit and Small-Scale Distilleries). The association was founded in 1950, following on from a previous association. Many of the 750 members of the association come from Upper and Lower Bavaria, a large number from the edge of the Alps where most fruit trees and distilleries are found. There are loose contacts with distillers in Switzerland and Tyrol. In the district of Rosenheim, some variety experts and collectors cultivate fruit trees in their gardens. These members coordinate variety selection amongst themselves in order to support under-represented varieties and to avoid cultivation of widely spread varieties. The private collections comprise of approx. 600 varieties. The focus is, however, on spirit production which generates an additional income for farmers. Apples, pears, damsons and cherries, mirabelles, greengages, quinces, rowans, sloes and cornelian cherries are used for spirit production. Fruit diversity plays an important role within this context. The Südostbayerische Verband der Obst- und Kleinbrenner also does PR-work. For example, in autumn 2001, an exhibition was organised in Rosenheim in cooperation with the Deutscher Pomologenverein.

Type of organisation: private association

Active since: 1950

Number of members: 750

Pomologen-Verein e.V.

Address: Bundesgeschäftsstelle, Meierkamp 1, 49406 Eydelstedt-Gothel, Tel.: 0049-5442/18 82, Fax: 0049-5442/12 15

Contact in Bavaria: Friedrich Renner, LLA Triesdorf, 91746 Weidenbach, Tel: 0049-9826/13 48

Description: The Pomologenverein mainly operates in Northern Germany, its activities, however, cover the whole country. Conservation work depends on individual members.

Particular efforts are made in Bavaria, Saxony and Baden-Württemberg. Wilfried Müller from Saxony and Friedrich Renner from Bavaria are considered to be the most competent variety experts in Germany. They continually exchange information. Mr. Renner has 800-1000 apple and pear varieties in his garden. The Südostbayerischer Verband der Obst- und Kleinbrenner consults him for variety identification.

The working program of the Pomologenverein is a complex one: Collection and identification of old fruit varieties, initiation and conservation of variety gardens, realisation of fruit exhibitions, information on variety recommendations according to regional standard requirements, consultation for new plantings and variety selection, testing of new varieties for extensive standard tree cultivation, administration of a central variety register for the protection of endangered gene reserves, support of hobby cultivators and extensive orcharding. Moreover, it publishes an annual journal and cooperates closely with organisations with the same objectives.

Type of organisation: private association

Active since: 1991

Obstgarten Anton Bauer

Address: Anton Bauer, Geflügelhof, Jarzt, Lindenstrasse 7, 85777 Fahrenzhausen, Tel.: 0049-8133/461 or 0049-170/180 80 42

Description:

Anton Bauer in Jarzt maintains an old fruit garden with more than 600 fruit varieties. More than 500 apple varieties form the largest part of the collection. Furthermore, pears, damsons and cherries are represented. The varieties originate from the whole of Europe, including the Alps. Mr. Bauer tries to conserve fruit varieties. However, there is no additional protection of existing varieties nor are these administered in an electronic database. Mr. Bauer is one of the few experts on old fruit varieties in the Bavarian Alps.

Type of organisation: private

Loose Helmut, Kreisheimatpfleger (District Caretaker for Home Country Issues)

Address: Kolbermoorerstrasse 48, 83043 Bad-Aibling, Tel.: 0049-8061/ 87 24.

Description: Helmut Loose has been collecting old plum and damson varieties for more than 30 years. His collection includes many ungrafted damsons, e.g. those produced from seed. During the hard winter of 1956/57 it was mainly the grafted plants that died. Before that, precursors from groups of damson were numerous. Strictly speaking, these were not varieties but damson archetypes. Helmut Loose has raised approx. 28,000 damson trees during his life. As he now approaches his eighties, he has handed over the whole business to his son Bernhard Loose. In the district of Bad Feilnbach, stone fruit including damson were cultivated especially for spirit. Bernhard Loose takes care of old damson varieties which are known as 'Pframmen' or 'Kriecherl'. Scions have been sent to the Technische Universität Weihenstephan (Technical University Munich/Weihenstephan).

Type of organisation: private

Hans-Joachim Bannier

Address: Dorotheenstr. 26, 33615 Bielefeld, Tel./ Fax: 0049-521/ 12 16 35

Description: Hans-Joachim Bannier owns a variety garden with approx. 200 apple and 30 damson varieties. He is a specialist in variety identification. In addition, he is documenting numerous *in situ* sites of several varieties throughout the whole of Germany. He is engaged in the reproduction and distribution of certain regional varieties which are not available anywhere else. Some of these varieties are cultivated in the Alpine region. Mr. Bannier is a member of the Deutscher Pomologenverein and active in the working groups "damson variety identification" and "apple variety identification".

Type of organisation: private gardening enterprise

Databank: not yet

Additional protection: partially, several not yet identified varieties are not available anywhere else.

Long-term conservation: basically yes

Baumgartner Baumschulen (nursery)

Address: Hauptstrasse 2, 84378 Nöham-Dietersburg, Tel.: 0049-8726/205, Fax: 0049-8726/1390, InternetAddress: <http://www.baumgartner-baumschulen.de>

Director: Gerhard Baumgartner

Contact: Gerhard Baumgartner, E-mail: baumgartner@baumgartner-baumschulen.de

Description:

Gerhard Baumgartner's nursery in Nöham has been a family enterprise for four generations and specialises in fruit trees. The enterprise has been controlled by the Bund Deutscher Baumschulen (Federation of German Nurseries) with regard to quality and environmentally friendly production. The nursery is trying to propagate old and rare fruit species and varieties and thus rescue them from extinction. A large fruit exhibition is held annually, with more than 100 varieties in the program. On the whole it is old varieties which are grown, most of which have been cultivated in the Alpine region. Varieties originate mainly from the Austrian region. Altogether, approx. 600 varieties are found in the assortment. Cultivated fruit are listed in the table below:

Fruit Species	Number of Varieties
Apples	261
Pears	113
Sweet cherries	43
Damsons and plums	34
Sour cherries	18
Peaches	8
Apricots	3
Quinces	3
Red- and blackcurrants	6
Gooseberries	4
Raspberries	3
Blackberries	4
Hazelnut	4
Walnut	1

The assortment also includes many wild plants such as sorbs trees, rowan trees, cornelian cherries, mulberries, black arona, elder, sand pear (nashi), European chestnuts, cherry plum, june berries, blueberries, cowberries, rose hip, medlar, sea buckthorn and blackthorn.

Type of organisation: private enterprise, nursery

Members of staff: 7

Databank: yes

Additional protection: partially, e.g. Bundessortenamt und Versuchsanstalt Triesdorf

Long-term conservation: yes

Stiftung Kompetenzzentrum Obstbau-Bodensee (Foundation Expert Centre Fruit Cultivation Lake Constance)

Address: Schumacherhof 6, 88213 Bavendorf, Tel.: 0049-751/79 03-0, Fax: 0049-751/ 79 03-322, E-mail: kompetenzzentrum-obstbau@web.de

Director: Dr. Manfred Büchele

Description:

The Kompetenzzentrum für Obstbau-Bodensee is concerned with the collection of varieties of extensively managed fruit cultures focusing on pome fruit. Conservation work is done on farm in a variety garden. The collection includes approx. 400 apple varieties. Of these, 260 are old varieties, mostly cultivated in the Alps and the uplands. Remaining varieties are mainly modern breeds. Besides these, there are also pears, berries and quinces in the variety garden. The work of the Kompetenzzentrum für Obstbau covers the uplands and the area Lake Constance-Upper Swabia. Moreover, the centre provides reproduction material and is engaged in PR activities. The actual collection was started by Edgar Friedrich who has been dealing with fruit for 40 to 50 years. He started his activities by searching the environs for old varieties and by asking various colleagues. He discovered that a variety may have 4 to 5 different names. Today, he is still discovering duplicates carrying several names. Therefore, more names are known than varieties actually exist.

Type of organisation: paragonovernmental

Active since: 1980

Members of staff: 24

Databank: yes

Additional protection: no

Long-term conservation: yes

Bayerischer Landesverband für Gartenbau und Landespflege (Bavarian Federal Association for Horticulture and Landscape Management)

Address: Herzog-Heinrich-Str. 21, 80366 München, Tel.: 0049-89/54 43 05 13, Fax: 0049-89/532 88 41

Description: The Bayerischer Landesverband für Gartenbau und Landespflege maintains a list of 69 supply sources for rarer apple and pear varieties in Bavaria and Baden-Württemberg. This list records approx. 300 mostly old apple varieties and approx. 100 pear varieties. The association itself does not carry out conservation activities for fruit but coordinates different institutions. Conservation activities are not planned. The conservation of old fruit varieties is the task of nurseries and ministries for agriculture and forestry.

Type of organisation: paragonovernmental

Forschungsanstalt Geisenheim, Sachgebiet Obstbau (Research Station Geisenheim, Department of Fruit Cultivation)

Address: Von-Lade-Str. 1, 65366 Geisenheim am Rhein, Tel.: 0049-6722/50 65 61, 0049-6726/50 25 60, E-mail: Obstbau@geisenheim.fh-wiesbaden.de , Internet address: <http://www.mnd.fh-wiesbaden.de>

Director of the department and contact: Prof. Dr. Helmut Jacob

Description: The research station Geisenheim assesses and breeds fruit varieties and fruit stocks. It focuses on all relevant fruit species of Middle Europe. The department maintains assortment plantings of old and modern varieties of fruit species which have been selected according to their virus resistance and their performance ability. Assortment plantings also include varieties from the Alpine region. A particular test for these varieties is, however, not carried out at the research station Geisenheim. The following table provides an overview on the fruit species included in the collection and the number of their varieties:

Fruit Species	Number of Varieties
Apples	230
Pears	37
Nashi-Li	10
Quinces	4

Apricots	9
Peaches	4
Plums/Damsons	220
Sour cherries	40
Sweet cherries	46
Blackberries	11
Raspberries	26
Redcurrants	16
Blackcurrants	28
White currants	4
Gooseberries	19
Black aronia	4
Elder	4
Hazelnut	19
Walnut	25
Almonds	6
Total	763

Type of organisation: governmental

Active since: founded in 1872 as “Königliche Lehranstalt für Obst- und Weinbau” (Royal School for Fruiculture and Viniculture) since 1987 subdivision into 14 institutes

Members of staff: 15

Databank: yes

Additional protection: yes, partially transfer to the genebank Fruit, Dresden.

Long-term conservation: yes

Lehrstuhl für Obstbau Technische Universität München/ Weihenstephan (Chair for Fruit Cultivation, Technical University Munich/Weihenstephan)

Address: Vöttingerstrasse 38, 85354 Freising, Tel.: 0049-8161/71 32 33

Description: The Chair for Fruit Cultivation at the University of Munich also deals with old fruit varieties, but only as a fringe area. A so-called ‘scion-service’ exists which helps lovers of certain fruit varieties to find scions from old fruit trees. The Chair itself does not have its own fruit tree garden. In the trial garden, a lot of berries are cultivated and developed. In 1953, Gerda Pessol wrote a thesis on Upper and Lower Bavarian mountain farms and their fruit trees, including the local marketing of the fruit. In the 1950s, some agricultural enterprises in this region tried to create a second source of income by marketing fruit from extensive fruit cultures. After the death of the priest Eigner from Hohenpercha, the Chair inherited his collection of drawings of more than 900 apple and pear varieties. The collection includes many varieties from the Bavarian region.

Type of organisation: governmental

Institut für Obst, Gemüse- und Weinbau (Institute for Fruit, Vegetables and Vine Cultivation)

Address: Universität Hohenheim (370), 70593 Stuttgart, Tel.: 0049-711/459 23 59, Fax: 0049-711/459 23 51, InternetAddress: <http://www.uni-hohenheim.de>

Director: Prof. Dr. R. Stösser

Contact: Dr. W. Hartmann, walthart@uni-hohenheim.de

Description: The Institute for Fruit, Vegetable and Vine Cultivation focuses on the breeding of damsons and plums, variety fruit testing, conservation of old pear varieties and their utilisation possibilities and the management of the Variety Office for the Conservation of Pome Fruit. Its work covers the whole of Baden-Württemberg. Conservation work is carried

out on-farm through the replanting of several old and new fruit varieties and through conservation work. At the University Hohenheim, approx. 200 apple, 300 pear, 250 damson and 50 cherry varieties are taken care of. *Malus sylvestris sylvestris* and *Pyrus ssp achrras* are also being cultivated whilst a PhD thesis with molecular markers is completed. There is also a small collection of mirabelles. Different varieties of the above mentioned fruit were also cultivated in the Alpine region.

Current projects are:

-AG Streuobst Baden-Württemberg

- Research project working on quality distillates from varieties of extensively managed fruit species
- Evaluation task (MLR Baden-Württemberg): Evaluation of fruit varieties influencing landscapes, especially must and commercial and non-commercial pear varieties.
- Setting-up variety conservation centre for pome fruit including an inventory of old varieties in Baden-Württemberg.

Type of organisation: governmental, university

Active since: 1990

Members of staff: 2

Databank: presently being set up

Additional protection: pears in the must pear variety garden "Unterer Frickhof", apples in the Kompetenzzentrum Bavendorf.

Long-term conservation: yes

Institut für Pflanzengenetik und Kulturpflanzenforschung Gatersleben – Institute for Plant Genetics and Crop Plant Research , IPK Gatersleben, Branch Genebank Fruit Dresden-Pilnitz

Address: Bergweg 23, 01326 Dresden, Tel.: 0049-351/261 50 10, Fax: 0049-351/261 50 11

Director: Prof. Dr. Manfred Fischer

Contact: Prof. Dr. Manfred Fischer, E-mail: fischerm@ipk-gatersleben.de

Description: The genebank Dresden-Pilnitz Fruit is engaged in the collection, conservation and assessment of fruit varieties and wild fruit varieties. Its focus is on apples, pears and strawberries. Some of the current projects are: Sharka resistance of plums, evaluation of *Malus sieversii*, - original seeds – progeny from Central Asia and cryopreservation (in preparation). The varieties originate mainly from Europe, *Malus sieversii* from Central Asia. Some of the European varieties come from the Alpine region. The IPK Gatersleben maintains a genebank and provides propagation material. Furthermore, the institute is engaged in PR-activities and maintains an *ex situ* variety garden. A large arboretum is linked to the garden, including amongst others 1100 apple varieties. The genebank contains apples, sweet cherries and plums, including many local varieties: approx. 50% apple varieties, 15% sweet cherries, approx. 10% plums, approx. 5% sour cherries and approx. 15% wild strawberry varieties.

Type of organisation: governmental

Active since: 1971

Members of staff: 7

Databank: yes

Additional protection: partially *ex situ* at other sites

Long-term conservation: yes

District Administration Rosenheim, Department Gardening and Land Conservation

Address: Landratsamt Rosenheim, Kreisfachberater, Postfach, 83004 Rosenheim

Director: Josef Stein

Contact: Josef Stein, Wittelsbacher Str. 53, 83022 Rosenheim, Tel.: 0049-8031/39 3 2 07,

Fax: 0049-8031/ 39 22 42

Description:

The district administration deals with fruit varieties, mainly apples, pears for drying, must and spirit production. The geographical area covered is the district of Rosenheim, only a few kilometres away from the Alpine mountains. On-farm conservation is safeguarded by the Obst- und Kulturweg Ratzinger Höhe (Fruit and Culture Path) along which 250 different fruit varieties have been planted. It is supposed to contribute to the knowledge and conservation of village and landscape structures. Different fruit varieties were planted along the path, for didactical purposes as well as for scion supply, for the comparison of ecological demands and last but not least for the conservation of varieties. The following fruit species are found along the path: cherries, German medlar, mulberries, sorb trees and large old pear trees which are considered to be the typical farm-yard tree. The district administration is also engaged in PR-work and provides propagation material.

The village of Ulperding is an outstanding fruit cultivation area, situated at a slightly higher altitude. The ring farmer maintains a “Pelzgarten” (small nursery) and supplies fruit trees for the region. This helps to distribute and conserve many old varieties such as “Coullon,s Renette”, “Damason-Renette”, “Geflammtter Kardinal” and “Gänskragen” (Stein, B, undated).

Type of organisation: governmental

Active since: 1979

Members of staff: 2

Databank: yes

Additional protection: colleagues and collectors.

Long-term conservation: yes

18.2. Vines

18.2.1. Background

In the Bavarian Alpine region, vine cultivation is quite limited for climatic reasons, so it was never considered to be important. As a rule, old varieties such as Riesling, Silvaner, Traminer, Spätburgunder are of most importance due to their quality and cultivation area. Roughly 50% of the German vine cultivation area is planted with classical old vine varieties. As a result of the wine louse and clone selection, many old varieties are no longer used for wine production and are only found in the vine collection. Vine conservation (*Vitis vinifera* L., interspecific varieties and wild forms) is carried out by institutions in six outdoor collections. There are presently approx. 5300 vines. More than 2800 vines are conserved in the genebank of the Institut für Rebenzüchtung (Institute for Vine Breeding) (IRZ) of the BAZ in Siebeldingen. Medium-range targets include measures for the long-term conservation of genetic vine resources and for cost minimisation in conservation.

18.2.2. Traditional vine cultivation in the Bavarian Alpine region

In the Bavarian uplands, vines were often cultivated on house walls which offered a certain protection against the rough climate. Traditionally vines were cultivated in Würzburg and Middle Franconia. The so-called “Boxbeutel” from Franconia is a special wine bottle form.

18.2.3. Current situation

95% of Bavarian wine production takes place in the administrative district of Lower Franconia. White wine makes up nearly 93% of the total amount with 673,000 hl in 1999, red wine 7% with 52,000 hl. With 327,000 or 153,000 hl, respectively, of must, the varieties Müller-Thoreau and Silvaner yield the highest harvests, followed by Bacchus (90,000 hl), Keener (39,000 hl) and Riesling (22,000 hl). The Spätburgunder with 17,000 hl dominates red

varieties, followed by the Portugieser (8,000 hl) (Bayerischer Agrarbericht 2000). In the Alpine region, vines are not cultivated as the climate is too rough. The vegetation period is too short and therefore does not allow maturity with a high sugar content.

18.2.4. Need for action

In the Bavarian Alpine region, vines were never cultivated and still are not important today. The climate is not suitable for vine cultivation. Varieties from the Alpine region are not known, collection tours will therefore probably not be very successful. The search for old vine varieties should mainly concentrate on espalier vines on house walls as it is more likely that old varieties will be discovered here.

18.2.5. Actors

Bundesanstalt für Züchtungsforschung an Kulturpflanzen - Federal Centre for Breeding Research on Cultivated plants (BAZ)– Institut für Rebenzüchtung Geilweilerhof (IRZ)

Address: 76833 Siebeldingen, Tel.: 0049-6345 410, Fax: 0049-06345 9 19050

Director: Prof. Dr. Reinhard Töpfer, Contact: Dr. Erika Dettweiler, E-mail:

e.dettweiler@geilweilerhof.suew.shuttle.de

Description: The Institut für Rebenzüchtung Geilweilerhof deals with the scientific examination and conservation of vines (*Vitis* spp.). The focus is on resistance research and resistance breeding. The work deals with all important wine growing areas world-wide. Conservation of the varieties is guaranteed by a variety garden and a genebank. Besides that, the institute also provides reproduction material. Altogether, approx. 1500 interspecific crossbreedings and 1000 varieties of *Vitis vinifera* are taken care of. The Institut für Rebenzüchtung Geilweilerhof is participating in the project Genres 081 (European Network for Grapevine Genetic Resources) which is setting up a European network for Vine Genetic Resources. The IRZ continuously updates the databank for vine varieties which has been in existence since 1984 (<http://www.genres.de/idb/vitis>). The databank was set up with the support of the International Weinamt and IPGRI. With the help of ZADI/IGR it has been made internationally available. IPGRI-passport data of more than 18,000 vine varieties are recorded in the databank, including the morphological and evaluation data and pictures of approx. 1000 vine varieties.

Type of organisation: governmental

Members of staff: 85

Databank: yes

Additional protection: partially

Long-term conservation: yes

Forschungsanstalt Geisenheim, Fachgebiet Obstbau (Research Station Geisenheim, Department Fruit Cultivation)

Address: Von-Lade-Str. 1, 65366 Geisenheim am Rhein, Tel.: 0049-6722/50 65 61, 0049-6726/50 25 60, E-mail: Obstbau@geisenheim.fh-wiesbaden.de , InternetAddress:

<http://www.mnd.fh-wiesbaden.de>

Director of the department and contact: Prof. Dr. Helmut Yescob

Description: The research station Geisenheim was already presented in the chapter on fruit. It conserves 24 varieties of grapes both old and new varieties.

Type of organisation: governmental

District Administration Rosenheim, Department Gardening and Land Conservation

Address: Landratsamt Rosenheim, Kreisfachberater, Postfach, 83004 Rosenheim

Director: Josef Stein

Contact: Josef Stein, Wittelsbacher Str. 53, 83022 Rosenheim, Tel.: 0049-8031/39 32 07, Fax: 0049-8031/ 39 22 42

Description:

The district administration of Rosenheim is mainly engaged in the conservation of fruit. These activities are described in the chapter on fruit and wild fruit. Together with the winegrowers' association Randersacker they started a vineyard in 1985 along the Fruit and Culture Path Ratzinger Höhe. The name "Weinberg" indicates that wine was grown here until Medieval times. 5 vine varieties have been tested for yields, climatic suitability and resistance.

Type of organisation: governmental

18.3. Vegetables (incl. potatoes)

18.3.1. Background

Many of the available vegetables originate from outside Germany. Only very few wild forms are found in Middle Europe. There are only individual German local breeds.

An alarming impoverishment of the local vegetable species and variety spectrum has taken place. In the industrial countries, the disastrous impacts of this gene erosion are at present still hidden by imports. The loss of knowledge, culture and tradition can, however, not be compensated. In everyday language as well as in science, this loss also leads to many misunderstandings and to confusion. The reasons for the neglect of old vegetable varieties are numerous. People generally do not take the time to prepare them properly and producers have long since shifted to high-yielding varieties. It was, and still is, assumed that vegetable varieties are less acutely endangered than field plants. The assumption that they are relatively well conserved by producers and that gene erosion is less damaging than in the area of cereals has led to the present situation where there are only very few collections of old vegetable varieties.

For potatoes, the opposite is the case. Around 1840, a considerable gene erosion took place as basically the whole stock suffered from phytophthora during the potato epidemics. Losses were so severe because potato cultures had had no contact with the pathogen for 250 years. After that, breeding was carefully controlled. Phytophthora-resistant cultivated forms and wild forms from the Andes were used for crossbreeding. And so there was an enrichment of the genetic pool. During the last 10-20 years, a further 10-20 wild species were crossbred.

18.3.2. Traditional vegetable cultivation in the Bavarian Alpine region

In the Bavarian Alpine region, mainly representatives of crucifers are cultivated (beets, white cabbage, kohlrabi). This group originates from the Mediterranean area. The Romans brought many crucifers into the country, which later on developed their own forms in the new environment.

Probably the most spectacular rediscovery of old vegetable varieties is that of the Bavarian turnip. It has been cultivated from Medieval times until today in house gardens. Around 1840, it became rare and was only found in house gardens. In cooking books, however, it reappeared again and again. Most interestingly, it was never subject to controlled breeding and therefore remained a typical local variety. It is distributed far beyond the Alps including Alsace, Augsburg, Regensburg and the region along the Danube. The plant was mainly

cultivated in river valleys. Most probably, a similar form was grown in Switzerland. In the Eastern Alpine region, fodder carrots (*Daucus carota*) and carrots (*Daucus carota* ssp. *sativus*) were often cultivated. Less known is the cultivation of pumpkins and melons which occurred in the Alpine region up to 1000 m a.s.l..

A typical dish of the Bavarian Alpine region is sauerkraut. White cabbage is fermented and thus preserved. A similar preservation form is also known for the garden turnip. It is cut into pieces, salt is added and then it is processed like sauerkraut. The final product is called “Rübenkraut”. It is considered to be a poor peoples dish.

In the Bavarian Alpine region, garden turnips (*Brassica rapa*) were traditionally used for both fodder purposes and for human consumption. Allgood (*Chenopodium bonus-henricus*) is cultivated up to Alpine regions. Garden cress (*Lepidium sativum*) came to the Alps with the Romans and is cultivated at different altitudes. Oriental bunias (*Bunias orientalis*) was formerly grown as a vegetable in the whole of eastern and southern Germany. Garlic (*Allium sativum*), a vegetable distributed all over the world, is also cultivated in the Alpine region and is used as a spice for dishes. Rooted celery (*Apium graveolens* var. *rapaceum*) was introduced in Medieval times in its cultivated form and appeared in late Medieval times north of the Alps. Wild forms are also found in the coastal regions of Northern Europe.

Wild plants were also used traditionally, e.g. dandelions which grow both in the valleys and at higher altitudes. In Germany, the plant was consumed as steamed dish.

The potato became known as poisonous ornamental plant in the year 1630. The reason why it took so long until the potato was accepted as food was that Europeans poisoned themselves by consuming the poisonous fruit and not the edible tubers.

Potato cultivation only broke through in Prussia after the dictatorial measures of Frederick the Great (1740 – 1786). Upper Bavaria was the last German country where the potato was introduced. Since 1800, the plant has been cultivated here. Potatoes were traditionally important both as a commercial crop and for home use. In Bavaria, potato breeding companies breed potatoes especially for local supply. In the Bavarian Alpine region, old local breeds still exist today. Particularly mealy potatoes have been conserved until today.

18.3.3. Current situation

The most common way of conserving vegetables is the *ex situ* conservation in genebanks. Altogether, the reproduction of vegetables is difficult. Plants are often biennial (wintering problems) and allogam. Species which can be reproduced vegetatively can be conserved *in vitro* (e.g. *Allium sativum*). Seed can often only be stored for a short time (e.g. onions, salad). Collections of vegetables are therefore rare at the international level.

The genebank in Gatersleben has only a few vegetables originating from the Alpine region in its large collection. The situation at the genebank in Braunschweig is the same.

It is mainly NGOs and private individuals who are engaged in *in situ* conservation of vegetables. Arche Noah in Austria has made considerable efforts in this direction and collected many old vegetable varieties which are conserved today.

The largest potato collection is maintained by the IPK branch in Groß Lüsewitz.

Another *in vitro* collection comprising of around 800 clones exists in Braunschweig. The collection is increasingly cryopreserved and will soon be transferred to Gatersleben. Most of the potatoes stored are bred varieties. The origin of most local varieties is not clear and a lot of knowledge about these varieties has been lost. Information on the origins is mostly only available on-site.

Arche Noah in Austria also conserves some potato varieties from Germany. Amongst them are old cultivated varieties and local varieties which have been rediscovered.

18.3.4. Overview of organisations

The following table shows an overview of organisations and institutions which are active in the conservation of vegetables and potatoes. The actors and their activities are described in more detail later on.

	Private	NGOs	Governmental Institutions	Total
Vegetables	1	3	2	6
Potatoes		1	2	3

18.3.5. Need for action

Vegetables

As the example of the Bavarian turnip has shown, vegetables which have long been forgotten are still cultivated in the Alpine regions today. These rare vegetables are mostly grown by old farm women who know precisely how to prepare those plants. Until its rediscovery, official genebanks knew nothing of the Bavarian turnip. Collection tours would probably lead to the discovery of many old vegetable species and varieties.

A broadly planned collection tour for vegetables has never been conducted in Germany. The enormous abundance of forms in this plant group has, to date, scared off most institutions. Official organisations assume, however, that most of the vegetables still exist in the hand of producers. Added to this, the respective tasks and interests of both genebanks (IPK cereals, collection tours in the Caucasus mountains, BAZ genebank *beta*-turnips and oats, expeditions in the distribution areas of wild species of *beta* – the Alps do not belong to them) do not lend themselves to work on this topic. Some appeals have been published over the last few years in newspapers and journals. People were asked to report rare vegetable varieties. Some old cultivated plants could subsequently be stored in the genebanks, however with poor information on the material. Private individuals only communicate information on cultivated plants in a personal interview. The large number of reported species meant that there was not enough man-power to carry out this task.

There is an urgent need to perform collection tours in house and farm gardens. In particular in the valleys of the inner Alps. There is a high probability that not all cultivators have been reached by the appeals made to date.

As there is only little knowledge on old vegetable varieties, conduction of inventories would seem to have first priority. A historical inventory could provide detailed information on the former situation and the need for action. Genebanks limit their activities to *ex situ* conservation. For vegetables from the Alpine region, there is currently no comprehensive collection of vegetables from the Alps. Existing collections have to be extended and to be completed with variety gardens. Meanwhile, only private individuals and NGOs carry out on-farm conservation of vegetables. They provide an essential contribution to the conservation of rare vegetable varieties, with limited financial means and considerable ideological efforts. These organisations urgently need financial support, and a cooperation with public organisations has to be initiated.

Potatoes

Because of the broad range of adaptation possibilities of the potato, a great diversity of forms has developed. Extended collection tours in the Alpine region have never taken place. Official organisations assume that most of the remaining potato varieties have already been collected during the collection tours of the NGOs Pro Specie Rara (CH) and Arche Noah (A) and that

collection tours are no longer necessary. In spite of this, it cannot be excluded that old rare varieties may still be found in the hands of private individuals. Therefore, specific collection tours in the Bavarian Alpine valleys and remote areas would be worthwhile. There is a need for action in order to set-up variety gardens for potatoes at different locations.

18.3.6. Actors

Bretschneider Eike – Perennial Cultures, Herbs and Vegetable Plants

Address: Nelkenweg 5, 40699 Erkrath-Hochdahl, Tel./Fax: 0049-2104/339 62

Contact: Eike Bretschneider

Description: Mrs. Bretschneiders activities are concerned with herbs, vegetables and perennials. Her enterprise, which carries the Demeter seal, produces seed for the 'Initiativkreis für Saatgut aus biologisch-dynamischem Anbau' (Initiative for Seeds from Biological-dynamic Agriculture) and sells seeds to biological gardeners. The skirret (*Sium sisarium*) and the winter sugar pea (*Pisum sativum ssp. sativum convar. axiphium*) were traditionally cultivated in the Alpine region. Both plants originate from PSR from Switzerland. Many old and rare vegetable varieties can be found in her collection such as green and red amaranth, corky-fruit water-dropwort, curled mallow, allgood, salsify, buckhorn plantain, turnip-rooted chervil, snakeweed, evening primrose great burdoc.

Type of organisation: private enterprise

Active since: 1983

Databank: no

Additional protection: no

Long-term conservation: not guaranteed, as Mrs. Brettschneider is already 73 years old and a successor has not yet been appointed.

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/ 86 27,

E-mail: info@arche-noah.at, InternetAddress: <http://www.arche-noah.at>, director und

Contact: Beate Koller

Description:

A detailed description on Arche Noah can be found in the Austrian portrait section. In its assortment, Arche Noah also conserves some traditionally cultivated German potato varieties (Bona, Edelgard, Flava, Hobigers Viola, Mittelfrühe, Odenwälder Blaue, Ostbote and Zwiebler). Most of them are old breeding varieties, but there are also some local varieties. Some of these were, and still are, cultivated in the Alpine region at higher altitudes. There are also quite a number of other vegetables in the Arche Noah assortment. Some of them were also cultivated in the Alpine region.

Type of organisation: NGO

Allerleirauh / Kultursaat e.V. – Initiativkreis für biologisch-dynamisches Gemüsesaatgut (Initiative for Bio-dynamic Vegetable Seeds)

Address: Auguste Victoria Str. 4, 61213 Bad Nauheim

Contact: Christina Henatsch, Adelagasse 3, D-44892 Bochum, Tel./Fax: 0049-234/ 927 19 71,

E-mail: Christina-Henatsch@gmx.de

Description: Bio-dynamic vegetable seed breeding starts from seed. The 'Initiativkreis für biologisch-dynamisches Gemüsesaatgut' was founded in 1985 in order to obtain stable varieties which represent an alternative to the dependency on large seed producers. Its activities range from breeding, research and reproduction to the exchange of seeds and PR-work.

Currently, more than 100 bio-dynamic enterprises in Germany and other European countries (U.K., France, Italy, The Netherlands, Switzerland, Spain and Austria) belong to the association. They all reproduce vegetable, herb and flower seed. The assortment includes more than 300 vegetable varieties. The association does not deal with the Alpine region as a priority, it can, however, be assumed that some varieties originate from the Alpine region. Several different projects with vegetables, maize, flowers and herbs are currently being conducted.

Type of organisation: NGO

Active since: 1985

Members of staff: 120

Number of members: 170

Databank: yes, currently being established

Additional protection: no, but responsibilities in reproduction and conservation breeding are increasingly being shifted towards variety caretakers.

Long-term conservation: yes, improvement through breeding aiming at the reintroduction onto the market for commercial production.

Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg e.V. VERN (Association for the Conservation and Recultivation of Cultivated Plants in Brandenburg)

Address: Burgstrasse 20, 16278 Greiffenberg, Tel.: 0049-33334/702 32, Fax: 0049-333 34/851 02, E-mail: vern_ev@01019freenet.de, InternetAddress: www.vern.de

Contacts: H. Lohner, R. Vögel

Description: In spring 1996, VERN – Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg e.V. - was founded. Today, the association has 4 collaborators and 80 members. VERN coordinates and runs several projects in the Brandenburg Nature Protection Area. The collection also contains vegetable varieties from the Alpine region. Besides protection of old and nearly forgotten cultivated plants the focus is on the conservation and improvement of knowledge about care, cultivation and processing techniques. On-farm conservation is secured by a network of variety gardens, farmers and gardeners. The association is also involved in PR-work and the provision of conservation material and it conducts training courses on environmental education and nature protection. At present, approximately 2000 origins of species and varieties are conserved. The species include tomatoes, potatoes and vegetables. The EU-project RESGEN CT 34/45 on potatoes has already been completed. VERN's work also covers middle and north-eastern Europe.

Type of organisation: NGO

Databank: yes, available for cereals and potatoes, the rest being initiated.

Additional protection: partially yes, for Alpine origins duplicates from IPK Gatersleben.

Long-term conservation: no

Institut für Pflanzengenetik und Kulturpflanzenforschung - Institute for Plant Genetics and Crop Plant Research IPK - Gatersleben

Address: Correnstr. 3, 06466 Gatersleben, Tel.: 0049-39482/51 09, Fax: 0049-39482/51 55, E-mail: Ballhausen@ipk-gatersleben.de, InternetAddress: <http://www.ipk-gatersleben.de>

Director: Prof. Dr. Andreas Graner

Contact: Dr. Helmut Knüpffer

Description: The genebank Gatersleben has a collection of approx. 10,000 vegetable plants and can supply further information on the origin of the stored material. It is assumed that vegetables from the Alpine region are also included in the collection. Research is, however, time-consuming as the geographical coordinates of the sites of discovery have only recently

been documented as a result of recording passport data. This means that the identification of samples according to origins is very expensive.

Type of organisation: governmental, foundation under public law

IPK Genebank Branch Potatoes Gross Lüsewitz

Address: Parkweg 1, 18190 Gross Lüsewitz, Tel.: 0049-38209/805 25, Fax: 0049-38209/805 25

Director: Dr. Konrad Schüler

Contact: Dr. Konrad Schüler

Description: The emphasis of the work at the Genebank Branch Potatoes in Gross Lüsewitz is on the collection, conservation, evaluation, documentation and provision of Plant Genetic Resources of potatoes from the whole of Europe. It is difficult to identify origins from the Alpine region. Some of the varieties in the genebank originate from the Alpine region, they come from Pro Specie Rara (CH) and Arche Noah (A). Conservation work is done on-farm where different varieties are conserved in a field genebank, PR-work and the production of reproduction material also are done at the genebank. 2000 varieties of *Solanum tuberosum* ssp. *Tuberosum* are conserved in the genebank, 200 of these are local breeds.

Type of organisation: governmental

Active since: 1950

Members of staff: 4-5

Databank: yes

Additional protection: duplicates in other genebanks, cryopreservation

Long-term conservation: yes

Bundesanstalt für Züchtungsforschung an Kulturpflanzen BAZ – Genbank (Federal Centre for Breeding Research on Cultivated Plants BAZ- genebank)

Address: Bundesallee 50, D-38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, L.Frese@bafz.de

Description: The Alpine region is not one of the main areas covered by the BAZ genebank. Theoretically it would be possible to search in the information system of the BAZ genebank for special variety names of significance to the Alpine region. However, none of the available samples have yet been allocated to this region. An investigation into the identification of respective varieties would have to start with intensive literature studies. Altogether, there are more than 2000 samples of vegetable plants in the genebank. A detailed description of the BAZ genebank can be found in the chapter on cereals.

Type of organisation: governmental

18.4. Legumes

18.4.1. Background

Apart from some groups related to the indigenous flora, legumes do not originate from Germany. However, they became very important after their introduction. In house and farm gardens, a rich diversity of forms has developed. The material in the genebanks is mainly from collection tours where legumes have been recorded. There are several gaps in knowledge on legumes. For example practically nothing is known about vetchlings and chickpeas.

18.4.2. Traditionally cultivated legumes

During the Carolingian period, **peas** (*Pisum sativum*) were distributed throughout the whole of Germany as field crops. The centres of pea cultivation were the monasteries, as pea dishes were considered to be fasting food until late into the Medieval Age. Many contemporary sources have proved that the pea was more important than the field bean at that time. Many peas with coloured flowers were cultivated which have practically disappeared today.

The **field bean** (*Vicia faba*) was, until recently, very important in Germany as a food source. It has been increasingly replaced by the potato and *Phaseolus*-beans. It was mainly cultivated in South Germany, including the Alpine region and the uplands. *Vigna unguiculata* is a particularly rare traditionally cultivated species. Some relicts from long ago have been found. Neolithic lake-dweller village settlements are proof that **lentils** (*Lens culinaris*) were already cultivated in Middle Europe at the foot of the Alps during the Stone Age. Like the pea, the lentil needed a very long time to proceed towards the North. Therefore, until recently the traditional centre of lentil cultivation was the south of Germany. Here, it became very important. Mature seeds are consumed as soup or mashed. A plant resembling the lentil is *Vicia vilia* which was previously often cultivated but which has become extremely rare. The most important legume in the Bavarian Alpine region is the **garden bean** (*Phaseolus vulgaris*). The second most important is *Phaseolus coccinus*. A first description of the garden bean in the German area was given by Hieronymus Bock in the year 1539 who identified seven varieties. More descriptions by Leonhard Fuchs 1543, Gessner 1561, and Clisius ca. 1590 followed. The garden bean was therefore already known in the 16th century, but remained a curiosity. It only began to spread in the 17th century.

18.4.3. Current situation and need for action

Legumes are conserved today mainly *ex situ* by the two large genebanks in Braunschweig and Gatersleben. Up to date, systematic collection tours in Germany have not taken place.

Therefore, not many samples from the Bavarian Alpine region can be found in the genebanks. Collection activities in the Austrian Alpine region were, however, intensive. 10 to 15 years ago, it was noticed that there was large scale gene erosion of legumes. A collection tour in the Bavarian Alps should, therefore, not be postponed any longer. Today, many traded varieties are cultivated in western European countries. Old varieties which are no longer traded are transferred to the genebanks where they are stored and reproduced. Currently the genebanks keep peas, garden and field beans from the Alpine region. Pea varieties with coloured flowers are particularly interesting, e.g. red varieties. Special attention should be given to these forms during collection tours.

Official organisations have not yet started variety gardens or *in situ* conservation. During this study, neither private individuals nor NGOs could be found which were actively interested in legumes from the Alpine region. It would be important to create variety gardens which focus on indigenous representatives.

By using marketing strategies and PR-activities such as “Slow Food”, legumes could increasingly be brought back to the kitchen.

18.4.4. Actors

**Institut für Pflanzengenetik und Kulturpflanzenforschung, IPK – Gatersleben -
Institute for Plant Genetics and Crop Plant Research**

Address: Correnstr. 3, 06466 Gatersleben, Tel.: 0049-39482/51 09, Fax: 0049-39482/51 55,
E-mail: Ballhausen@ipk-gatersleben.de, Internetaddress: <http://www.ipk-gatersleben.de>
Director: Prof. Dr. Andreas Graner
Contact: Dr. Helmut Knüppfer

Description:

The 'Institut für Pflanzengenetik und Kulturpflanzenforschung' collects, conserves and provides genetic resources of cultivated plants and related wild plant species. It focuses on collection and utilisation-related research. There is no geographical limit to its work, i.e. cultivated plants from different geographical regions are found in the collection, including plants from the Austrian and Bavarian Alpine region. Conservation work is done through a genebank and by providing propagation material.

At present, the genebank cannot provide detailed information on plants from the Alpine region. In most cases, however, information about the origin of the stored material is available. The genebank contains a large collection of legumes. The following table gives an overview of the overall number of legumes :

Genus	Number of Accessions
Lens	352
<i>Phaseolus</i>	7718
<i>Pisum</i>	3260
<i>Vicia</i>	3311
<i>Vigna</i>	479

Type of organisation: governmental, foundation under public law

Active since: 1942

Members of staff: 80

Databank: yes

Additional protection: partially, duplicates in other genebanks

Long-term conservation: yes

Bundesanstalt für Züchtungsforschung an Kulturpflanzen - Federal Centre for Breeding Research on Cultivated Plants (BAZ) – Genebank

Address: Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, L.Frese@bafz.de

Description: The BAZ genebank conserves many legumes some of which are also cultivated in the Alpine region. The Alpine region is, however, not given particular attention. A more detailed description on this institution can be found in the chapter on fruit. The following table gives an overview of legumes stored in the genebank (status: 2000)

Genus	Number of Accessions
Lens	69
<i>Phaseolus</i>	909
<i>Pisum</i>	2092
<i>Vicia</i>	2006
<i>Vigna</i>	34

Type of organisation: governmental

18.5. Cereals

18.5.1. Background

Apart from some exceptions, cereals are not an indigenous species. Cereal cultivation in the Alps is some thousand years old, which means that there are more genes from cultivated plants. Some related wild forms exist such as *Avena fatua* or *Agropyron spp.*. The origin of most material stored in the genebanks are highly diverse. The material includes samples from expeditions carried out in the 1930s in the Alpine region. Of all field crops, spring barley is cultivated at the highest altitudes. Rye grows at a higher altitude than wheat (in the Alps up to 1850m). Maize was brought to Europe by Columbus. In the 1970s, the cultivation area was considerably extended due to the development of varieties which also grow in colder regions.

18.5.2. Traditionally cultivated cereals in the Bavarian Alpine region

Dinkel and rye are the most important cereals cultivated traditionally. Buckwheat is, strictly taken, not a cereal but a type of snakeweed and is relatively widely distributed in the Alpine region. It is also called 'Heineken' as it was brought in to the country from the East. In Germany, 330,000 ha were planted with buckwheat around 1800. However, the cultivation area decreased rapidly with the increasing potato cultivation. In the 1930s, only 900ha of cultivated area were left. Buckwheat cultivation was never of considerable importance in the south German region.

In the Medieval, sorghum was also widely distributed. During the last 200 years, the crop was increasingly replaced by the potato. Sorghum is mostly used to prepare mash.

A survey of different literature sources gives hints on which varieties may previously have been cultivated in the Alpine region:

Maize varieties for rougher locations:

Chiemgau silage maize, Pfarrkirchen silage maize, Rottal silage maize

Rye varieties for mountain locations:

Pirnaer, Meusselsdorfer, Fichtelgebirge rye

Winter wheat for mountain and rougher locations:

Mauerner begrannter Dickkopf, Langs Weihestephaner Tassilo, Crieuener 192, H.S.

Siegerländer new for mountain sites, Langs Trubilo, Stauderers Markus, Stauderers Tarzan, Rottweiler Frühkorn, Bauländer Spelz, v. Rechbergs Brauner Winterspelz

Spring barley:

Firlbecks Weihestephaner Mehлтаuresistente II, Hauters, Breuns

Winter barley:

Freidrechswerther Berg, Vogels Agaer

18.5.3. Current situation

In the genebanks, cereals represent the largest part of the assortments because of the extension of their cultivation and the incomparatively easy conservation. The collection of the genebank of the Federal Institute in Rinn/Tyrol includes some old varieties from collection tours in 1920 and 1939. A very large collection of cereals is also available in the genebanks of Gatersleben and Braunschweig. During a recently conducted collection tour, buckwheat was discovered but not the tartarian one. 30 years ago, it still occurred in abundance.

18.5.4. Overview on organisations and institutions

	NGOs	Private	Governmental Institutions	Total
Cereals General	2			2
Oats			3	3
Barley			3	3
Rye		1	3	4
Wheat		2	3	5
Sorghum			1	1
Buckwheat			2	2
Maize			2	2
One-grained wheat			1	1
Dinkel			1	1
Emmer		1	1	2

18.5.5. Need for action

The search for old wheat, barley, rye, emmer and dinkel varieties can be considered to be complete. Their *ex situ* conservation is secured in both genebanks and on-farm or *in situ* at private organisations and NGOs which conserve old varieties. Networking between the different actors and the exchange of reproduction material is very well organised. There are a lot of conservation initiatives for cereals as it has a high economic value. The genepool of old local varieties is repeatedly used for breeding purposes. Therefore, the long-term conservation of old cereal varieties is given special attention. Because of these numerous and effective conservation initiatives, there is no need for action.

18.5.6. Actors

NABU-Landesverband Baden-Württemberg

Address: Tübinger Str. 15, 70178 Stuttgart, Tel.: 0049-711/ 96 67 20, E-mail: NABU.BW@t-online.de, Internetaddress: <http://www.NABU-BW.de>

Director: Herr Uwe Prietzel

Description:

With its agricultural campaign “Landwirtschaft schmeckt“, the Nature Protection Federation, NABU, is at present trying to show the public that economic, ecological and social aims are compatible in an environmentally-friendly agriculture. The NABU-Project ‘Diversity of Cultivated Plants’, is financially supported by the European Commission, DG XI (Environment). Within the framework of the project, the NABU coordinates and informs farmers who conserve old cultivated plants and it aims to stop the disappearance of old cultivated varieties. The conservation work consists mainly of PR-work and information dissemination.

Type of organisation: NGO

Members of staff: ca. 15

Verein zur Erhaltung und Rekultivierung von Nutzpflanzen in Brandenburg e.V. VERN

Address: Burgstrasse 20, 16278 Greiffenberg, Tel.: 0049-333 34/702 32, Fax: 0049-33334/851 02, E-mail: vern_ev@01019freenet.de, InternetAddress: www.vern.de

Contacts: H. Lohner, R. Vögel

Description:

VERN's conservation work has already been presented in connection with vegetables. The Alpine region is not given special attention. The assortment contains 30 cereal varieties from the Alpine region (altogether there are 600 cereal varieties). They are presently conducting a project which deals with the reintroduction of old bred varieties into cultivation.

Type of organisation: NGO

Verein für Pflanzenzucht Hof Grub e.V.

Address: Gruber 1, 83567 Unterreit, Tel.: 0049-8073/17 84, Fax: 0049-8073/17 88

Director: Eckart Irion

Contact: Eckart Irion

Description: The Verein für Pflanzenzucht Hof Grub carries out bio-dynamic breeding research on cereals, mainly winter rye, winter wheat and spring emmer. The geographical area covered is the upland. Conservation work is done *in situ*.

Type of organisation: private association

Active since: 1990

Members of staff: 4

Number of members: 30

Databank: no

Additional protection: no

Long-term conservation: yes

Institut für biologisch-dynamische Forschung, Zweigstelle

Address: Holzhausenweg 7, 61118 Bad Vilbel-Dortelweil, Tel.: 0049-6101/-63 85, Fax: 0049-6101/79 48

Contact: Dr. habil. Hartmut Spiess, E-mail: spiess@ibdf.de

Description: The 'Institut für biologisch-dynamische Forschung' deals with the bio-dynamic breeding of cereals and vegetables. Work concentrates mainly on winter and spring wheat, winter rye, sugar maize, tomatoes, cucumbers and small radishes. The *in situ*/ on-farm conservation of cultivated plants is not actually linked to the Alpine region as the geographical area covered is Hesse. Mr Speiss has, however, close contacts with Peter Kunz (CH-Hombrechtikon) and Eckart Irion (Pflanzenzucht Grub/Gars am Inn) within the framework of the 'Arbeitsgemeinschaft biologisch-dynamischer Pflanzenzüchter'.

Information is also exchanged with Peer Schilperoord (CH-Alveneu), so that wheat types from the Alpine region are also found in the assortment.

Type of organisation: private enterprise

Active since: 1980

Databank: no

Additional protection: through breeding

Long-term conservation: yes

Bavarian State Research Centre for Agronomy

Address: Vöttinger Strasse 38, 85354 Freising, Tel.: 0049-8167/71 36 50, Fax: 0049-8161/71 -43 05, Internetaddress: <http://www.LBP.Bayern.de>

Director: Dr. Keydel

Contact: Dr. Stephan Hartmann, Abteilung Futterpflanzenbau und Züchtung, E-mail:

Stephan.Hartmann@LBP.Bayern.de

Description: In the Bavarian Landesanstalt für Bodenkultur und Pflanzenbau, activities have been concentrated for many years on the breeding of cereals and root crop cultivation. The focus of the activities is on the breeding of new varieties. Old local varieties serve as a basis. The institute has an assortment of old cereal species such as emmer, one-grained wheat and dinkel. It also exchanges relevant information with other institutions such as open air museums and show gardens.

Type of organisation: governmental

Active since: 1902

Members of staff in the departments fodder plant production and breeding: 7

Databank: currently being set up

Additional protection: as long as varieties are still cultivated and reproduced, they are also conserved by the respective conservation breeder.

Long-term conservation: yes

Institut für Pflanzengenetik und Kulturpflanzenforschung - Institute for Plant Genetics and Crop Plant Research, IPK - Gatersleben

Address: Correnstr. 3, 06466 Gatersleben, Tel.: 0049-39482/51 09, Fax: 0049-39482/51 55,

E-mail: Ballhausen@ipk-gatersleben.de, Internetaddress: <http://www.ipk-gatersleben.de>

Director: Prof. Dr. Andreas Graner

Contact: Dr. Helmut Knüpfner

Description: The genebank Gatersleben is described in the chapter on legumes. A collection of old Alpine local cereal varieties was conducted in 1920 and was described by MAYE (1964). With 190 samples it is, at present, one of the oldest parts of the Gatersleben collection of cultivated plants.

The following table gives information on cereals stored in the genebank. More detailed information on the original locations of the plants was not available. However, many local Austrian cereal varieties are included.

Cereal Species	Number of Accessions
<i>Avena</i> (Oats)	2906
<i>Hordeum</i> (Barley)	13097
<i>Secale</i> (Rye)	2049
<i>Triticum</i> (Wheat)	14357
<i>Panicum</i> (Sorghum)	180
<i>Zea</i> (Maize)	1408
<i>Fagopyrum</i> (Buckwheat)	110

Type of organisation: governmental, foundation under public law

Bundesanstalt für Züchtungsforschung an Kulturpflanzen - Federal Centre for Breeding Research on Cultivated Plants (BAZ) - Genebank

Address: Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, L.Frese@bafz.de

Description: The Federal Centre for Breeding Research on Cultivated Plants has Plant Genetic Resources from the whole of Europe for nutrition and agriculture with a focus on Beta-turnips and oats. Conservation work is mainly done through the genebank with 46,000 samples (state: June 2001) of different genera. Moreover, the BAZ also provides consulting services for the German agricultural ministry (BMVEL). Another task is the provision of reproduction

material: an average of 7000 samples /year during the last ten years. The BAZ is involved in the following GENRES projects: Avena, Beta, Brassica, Daucus, Hordeum. For cereals and Beta, national projects are being conducted. A more detailed description on the BAZ and the BAZ genebank may be found on the Internet under <http://www.bafz.de> res. <http://www.fal.de/bgrc/bgrc-g.html>.

The following table shows the entire stock of the genebank in February 2000:

Crop Species	Number of Accessions
Forage plants	2
Vegetable species	2069
Stimulant plants	43
Cereals and pseudocereale	22436
Grasses	4082
Medicinal plants and spices	818
Small-grained leguminous plants	1313
Root and tuber crops	2134
Leguminous plants (large-grained)	7244
Oil and forage plants	2654
Others	18
Wild species	1171
Total	43984

The BAZ genebank was never active in or for the Alpine region. Therefore, only very few samples from the Alpine region can be found in the genebank. The original collections do not contain any plants from the Alpine region. Case material from the Alpine region is in the genebank, was supplied from other institutions. A comprehensive cereal assortment, for example, from Changin and Reckenholz, Switzerland, is included in the genebank. Responsibility for its conservation will be transferred completely to Changin (Dr. G. Kleijer) in the near future. The following table gives an overview of cereals stored in the BAZ genebank:

Cereal Species	Number of Accessions
<i>Avena</i> (Oats)	1845
<i>Fagopyrum</i> (Buckwheat)	8
<i>Hordeum</i> (Barley)	7333
<i>Secale</i> (Rye)	393
<i>Triticum</i> (Wheat)	11118
<i>Zea</i> (Maize)	72

Type of organisation: governmental

Active since: 1970

Permanent members of staff: 6

Databank: yes

Additional protection: Beta and Brassica duplicates were deposited at the CGN (Wageningen, The Netherlands).

Long-term conservation: yes

Zentralstelle für Agrardokumentation und –information - German Centre for Documentation and Information in Agriculture (ZADI) Abt. Informationszentrum Genetische Ressourcen – Information Centre for Genetic Resources (IGR)

Address: Villichgasse 17, D - 53177 Bonn, Tel: 0049-228/954 82 02, Fax: 0049-228/954 82 20, E-mail: igr@zadi.de / begemann@zadi.de, InternetAddress: <http://www.zadi.de/igr/>

Description: The German Centre for Documentation and Information in Agriculture is described in detail in chapter 1.2.6. Governmental Institutions for the Conservation of cultivated Plants in Bavaria. Its project on cereals is: 'Entwicklung eines Nationalen Evaluierungsprogrammes pflanzengenetischer Ressourcen bei Getreide' – "Development of a National Evaluation Program of Plant Genetic Resources of Cereals (EVA II)".

The overall coordination is done by the Federal Centre for Breeding Research on Cultivated Plants. The evaluation data of the national network is going to be recorded and assessed in a dynamic information system and then made available via the internet. The IGR is responsible for the coordinating the setting-up of the cooperation network and developing the information system.

Type of organisation: governmental

18.6. Medicinal plants & herbs

18.6.1. Background

Cultivated medicinal plants which are often grown in house gardens are differentiated from the wild ones collected in nature. The wild relatives of medicinal plants and herbs are frequently found. There has been less breeding than for other groups of cultivated plants.

Wild groups are therefore easily integrated into controlled breeding.

Hundreds of representatives of medicinal plants and herbs are still cultivated today.

Knowledge about them is, however, poor.

18.6.2. Traditionally cultivated medicinal plants

Kitchen herbs belong to the medicinal plants. Cultivated kitchen herbs often serve as spice plants, for example rosemary which, with light protection in the winter, may be cultivated up to 1200m a.s.l.. Without protection, the plant is still to be found at 1100m.

Horse radish (*Armoracia rusticana*) is called 'Kren' in southern Germany. The plant was traditionally cultivated here and is still utilised today. Many species of artemisia were also traditionally cultivated as spice and medicinal plants. Old kitchen books contain drawings of the originally cultivated and collected medicinal plants.

18.6.3. Current situation and need for action

The genebank Gatersleben has a very comprehensive collection of medicinal plants. Material not stored here is not found anywhere else. Hundreds of species of medicinal plants and herbs are still cultivated today. Representatives of this plant group are found practically in every house garden. Knowledge about them is, however, very poor. A collection tour would definitely be worth the effort. The chance of finding rare species and varieties is considerable. There is a need for action in order to fill in the gaps in knowledge and implement a broadly-based collection tour.

18.6.4. Actors

Bretschneider Eike – Perennial Cultures, Herbs and Vegetable Plants

Address: Nelkenweg 5, 40699 Erkrath-Hochdahl, Tel./Fax: 0049-2104/339 62

Contact: Eike Bretschneider

Description: Eike Bretschneider offers seed for bio-dynamic enterprises. The precise origin of medicinal plants is unknown.

Type of organisation: private enterprise

Allerleirauh / Kultursaat e.V. – Initiativkreis für biologisch-dynamisches Gemüsesaatgut

Address: Auguste Victoria Str. 4, 61213 Bad Nauheim

Contact: Christina Henatsch, Adelsgrasse 3, 44892 Bochum, Tel./Fax: 0049-234 /927 19 71,

E-mail: Christina-Henatsch@gmx.de

Description: Kultursaat has approx. 100 species of herbs and flowers in its assortment, some originate from the Alpine region.

Type of organisation: NGO

Institut für Pflanzengenetik und Kulturpflanzenforschung-Institute for Plant Genetics and Crop Plant Research, IPK - Gatersleben

Address: Correnstr.3, 06466 Gatersleben, Tel.: 0049-39482/51 09, Fax: 0049-39482 /51 55,

E-mail: Ballhausen@ipk-gatersleben.de, Internetaddress: <http://www.ipk-gatersleben.de>

Director: Prof. Dr. Andreas Graner

Contact: Dr. H. Knüpfner

Description: Many samples of medicinal plants are included in the IPK Gatersleben genebank. Particularly for medicinal plants, a precise origin cannot always be identified. It can, however, be assumed that part of the stored material originates from the Alpine region.

Type of organisation: governmental, foundation under public law

Bundesanstalt für Züchtungsforschung an Kulturpflanzen - Federal Centre for Breeding Research on Cultivated Plants BAZ - Genebank

Address: Bundesallee 50, 38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, L.Frese@bafz.de

Description: The BAZ genebank collection contains 818 samples of medicinal and spice plants (state: 2000) including samples of varieties from the Alpine region. A more detailed description on this institution can be found in the chapter on cereals.

Type of organisation: governmental

18.7. Oil-, fibre- and forage plants

18.7.1. Background

A considerable number of the grasses and forage plants are indigenous and *in situ* conservation measures are therefore very important. Collected and characterised material is conserved in the genebank if it can be used for breeding purposes. *Ex situ* conservation for the mostly perennial allogam species requires considerable effort as they are often short-lived. Only a few wild relatives of oil and fibre plants exist in Germany. Local varieties have not been cultivated for a long time. The genebank material comes mainly from other countries.

18.7.2. Traditionally cultivated oil-, fibre- and forage plants

In the Alpine region, different grasses, oil plants of the crucifer family, leguminous plants and several vegetables were cultivated for fodder production purposes. The most frequent fodder

plant species were the following: meadow fescue, common meadow grass, *Poa Supina*, cocks, foot, white clover, red clover, oat-grass, yellow oat grass, creeping red fescue and perennial grass. Selected varieties are planted at favourable locations.

Some flax (*Linum usitatissimum* L.) varieties are good fibre producers but provide less oil, whereas others produce mainly oil. The cultivation of this plant in Germany dates back a long time and because of flax, Germany was one of the most important producers of fibres.

However, the more flexible and easier to colour cotton fibre increasingly replaced flax. The various uses of flax led to a considerable diversity of forms, many of which have only been conserved in genebanks. The collection of the wild origins of flax (*Linum usitatissimum* L. ssp. *Angustifolium*) serves to clarify the evolution of flax and provides a reservoir for breeding. Winter flax has, until recently, been cultivated in remote Bavarian Alpine valleys.

18.7.3. Overview on organisations and need for action

Four governmental bodies are involved in the conservation of oil, fibre and forage plants. NGOs and private individuals working in this area could not be evaluated within the framework of this study. Both genebanks keep some oil- and fibre plants from the Alpine region in their assortment. The most important institutions for forage plants are the Bayerische Landesanstalt für Bodenkultur und Pflanzenbau and the IPK branch in Nord Malchow. There is a need for action for the collection and description of grasses, whereby special consideration has to be given to ecotypes. As *in situ* conservation has a high priority for fodder plants, cooperation with farmers should be enhanced and they should be offered an information service. For this purpose, nature reserves such as the one in the Berchtesgarden Alps could be integrated into conservation work. The collection of local varieties of vegetables and cereals utilised as fodder plants should be given particularly urgent attention.

18.7.4. Actors

Bayerische Landesanstalt für Bodenkultur und Pflanzenbau - Bavarian State Research Centre for Agronomy (LBP)

Address: Vöttinger Strasse 38, D85354 Freising, Tel.: 0049-8167/71 36 50, Fax: 0049-8161/1 –4305, Internetaddress: www.LBP.Bayern.de

Director: Dr. Keydel

Contact: Dr. Hartmann, Abteilung Futterpflanzenbau und Züchtung, E-mail:

Stephan.Hartmann@LBP.Bayern.de

Description: The LBP breeds grasses and small-grained leguminous plants, in the develops and provides selection methods and works on genetic questions for this group. The geographical area covered consists of Bavaria and bordering areas. The focus of activities is on:

Provision of regionally adapted material in all development stages (from rebreeding to variety licensing). Emphasis is on: perseverance, resistance against biotic and abiotic damages, the development of tests for these characteristics and contributions to the protection of relevant genetic resources.

Research projects:

- Development of hardy red clover varieties with special suitability for sites in Saxony and Bavaria, (basis: ecotype collection; started 1999).

- Genetic changes of new Perennial Ryegrass varieties and mixtures in permanent grassland under special consideration of the development of concepts for in situ protection (pending application).

Pure ecotype collection from Bavaria and Switzerland as a basis for breeding work: At present, 3 varieties of the Perennial Ryegrass (*Lolium perenne* L.) are being licensed. The already licensed varieties Weigra and Arabella originate from the Alpine region.

3 varieties of meadow fescue (*Festuca pratensis* L.) are licensed at present, including the variety Leopard from the Alpine region.

2 varieties of cock's foot (*Dactylis glomerata* L.) are licensed at present, including the variety Weidac from the Alpine region.

1 variety of common meadow grass (*Poa pratensis* L.) is presently licensed. The previously licensed variety Jori comes from the Alpine region but is no longer registered in the descriptive variety list. The "Bavarian State Research Centre for Agronomy" has already been described in the chapter on cereals.

Type of organisation: governmental

IPK-Genebank, Branch North Malchow

Address: Inselstr. 9, 23999 Malchow/Poel, Tel.: 0049-38425/203 16, Fax: 0049-38425/42 98 08, Internetaddress: <http://www.mws.ipk-gatersleben.de/malchow/index.html>.

Director: Evelin Willner

Contact: Evelin Willner, E-mail: e.willner@so.hs-wismar.de

Description: The IPK genebank branch North Malchow collects, characterises, evaluates and documents Plant Genetic Resources. Conservation work consists of maintaining and managing the collection of oil and fodder plants. At present, altogether 6634 plants are listed in the genebank from Germany and other parts of Europe. The collection contains fodder plants from the Alpine region, e.g. from Allgäu, Linz and the banks of the Rhone. 53 local varieties of oil plants from the crucifer family, 31 grassland varieties and 54 local varieties of leguminous plants such as lucerne and red clover are stored. Furthermore, 1382 brassica plants are included in the collection. A project in the genebank deals with the primary evaluation of grasses according to species and another one in the provision of material for a European core collection of rape.

Type of organisation: governmental

Active since: the start of the sixties as a part of the GDR-institute for oil and fodder plants, has belonged to the IPK since 1992.

Members of staff: 3 plus 3 associates

Databank: yes, see internetaddress mentioned above.

Additional protection: yes, duplicates in the IPK-genebank, Gatersleben.

Long-term conservation: yes, as active and basis collection

Institut für Pflanzengenetik und Kulturpflanzenforschung- Institute for Plant Genetics and Crop Plant Research, IPK - Gatersleben

Address: Corrensstr. 3, 06466 Gatersleben, Tel.: 0049-39482/51 09, Fax: 0049-39482/51 55, E-mail: Ballhausen@ipk-gatersleben.de, Internetaddress: <http://www.ipk-gatersleben.de>

Director: Prof. Dr. Andreas Graner

Contact: Dr. Helmut Knüpfner

Description: The IPK Gatersleben was already described in the chapter on legumes. The genebank contains 1676 entries of the genus *linum*. Many of these plants originate from the Alpine region as flax was particularly intensively collected.

Type of organisation: governmental

Bundesanstalt für Züchtungsforschung an Kulturpflanzen- Federal Centre for Breeding Research on Cultivated Plants (BAZ) - Genebank

Address: Bundesallee 50, D-38116 Braunschweig, Tel.: 0049-531/596 23 02, Fax: 0049-531/596 24 57

Director: Dr. Lothar Frese

Contact: Dr. Lothar Frese, L.Frese@bafz.de

Description: The Braunschweig genebank does not concentrate particularly on the Alpine region. The collection includes 2654 samples of oil and forage plants and 4084 samples of

grasses and fodder plants some of which were probably cultivated in the Alpine region. A more detailed description of this institution can be found in the chapter on cereals.
Type of organisation: governmental

19. General report on livestock breeds in the German Alpine region (Bavaria)

19.1. National and regional laws

The conservation of endangered livestock breeds in Germany is to date not anchored in legislation. The national animal breeding law, however, names the conservation of genetic diversity as one of its main aims. Regional laws for the protection of endangered livestock breeds in Bavaria do not exist.

19.2. Efforts of non-governmental organisations

19.2.1. Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen – Society for the Conservation of Old and Endangered Livestock Breeds

The GEH – Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen (Society for the Conservation of Old and Endangered Livestock Breeds) has been active since 1981 at the national level for the live conservation of endangered livestock breeds. Conservation measures for each breed are coordinated by the so-called ‘Rassebetreuer’.

A further central element of the GEH is the Ark Farm Project. Its aim is to integrate agricultural enterprises into active conservation work for endangered livestock breeds. The Ark Farm Project was called into life in 1995 by the GEH. Today, more than 760 farms are actively involved. These farms, either agricultural main or supplementary income enterprises, consciously integrate endangered livestock breeds into their farming schemes. The name “Arche-Hof” is protected as a patent. The farms and the GEH have agreed on meeting certain recognition criteria. The already existing net of Ark Farms is continuously expanding.

Address: GEH, Am Eschenbornrassen 11, 37213 Witzenhausen, Tel: 0049-5542/18 64, Fax: 0049-5542/725 60, business manager: Antje Feldmann, publication organ: Arche Nova, E-Mail: geh.witzenhausen@t-online.de, URL: <http://www.g-e-h.de>
Red list of endangered livestock: <http://www.genres.de/tgr/geh-allg/rotemlist.htm>

19.3. Governmental conservation efforts

19.3.1. Financial support in Bavaria

In 1981, the first contributions for keepers of endangered cattle breeds were paid. In 1987, this support was offered to sheep and horse breeders, too. In the guideline for the support of animal breeding of the Bavarian Federal Ministry for Food, Agriculture and Forestry dating from 30.8.1999, the support of Bavarian breeds is newly regulated in part C: ‘Förderung von Massnahmen zur Erhaltung gefährdeter einheimischer landwirtschaftlicher Nutztier rasse’ (support of measures for the conservation of endangered indigenous agricultural livestock breeds).

Address: Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten, Postfach 22 00 12, 80535 München, Tel: 0049-89/218 20, contact: Dr. Beck

General information on the support of endangered breeds in Germany may be taken from <http://www.genres.de/tgrdeu/foerderung/index-titel.htm>

19.3.2. Support of endangered breeds in Bavaria

Measures for the conservation of animal genetic resources in Germany are mainly supported by the individual federal states at the official level. In 1975, the federal state of Bavaria was the first to take measures for the conservation of endangered livestock breeds in Bavaria. Endangered cattle breeds of Bavaria and Forest Sheep are conserved *ex situ* via a long-term semen storage contract with 3 artificial insemination stations. The state Bavaria keeps, amongst others, gene reserve herds on its state-owned estates for selected breeds.

19.3.3. IGR - Informationszentrum Genetische Ressourcen- Information Centre for Genetic Resources

The Informationszentrum Genetische Ressourcen is part of the ZADI - Zentralstelle für Agrardokumentation und Information (German Centre for Documentation and Information in Agriculture). Since the end of 1998, the project TGRDEU - Entwicklung der zentralen Dokumentation Tiergenetischer Ressourcen in Deutschland (development of a central documentation for animal genetic resources) has been coordinated by the IGR. Data existing in research organisations, breeding federations and umbrella organisations, in other organisations active for the conservation of livestock breeds as well as data available from the Federal Government and the individual states are collected and made available for consulting and coordination measures. Furthermore, information on *in situ* conservation, *ex situ* conservation, support and conservation measures of governmental and private institutions and scientific studies is collected. Objects of study are the animal species horse, cattle, pig, sheep and goat. It is planned to include poultry and rabbit breeds in future.

Collected data are stored in the database TGRDEU. An important gap is thus closed and national data input to the already existing European international databanks is guaranteed. Amongst them is the EAAP-databank, managed by the School of Veterinary Medicine Hannover (Institute for Animal Breeding and Genetics) by order of the EAAP - European Association for Animal Production and the DAD-IS - Domestic Animal Diversity Information System, of the FAO. Essential information of common interest is available in the databank 'TGRDEU' in the internet within the framework of GENRES - Information System Genetic Resources.

Address:

ZADI - Zentralstelle für Agrardokumentation und –information, IGR – Abteilung
Informationszentrum Genetische Ressourcen

Villichgasse 17, 53177 Bonn, Tel.0049-228/95 48-0, Fax 0049-228/ 95 48-111, E-Mail
zadi@zadi.de, URL: <http://www.zadi.de>

Contact animals: Jörg Bremond, bremond@zadi.de

Databank TGRDEU in the Internet: : <http://www.genres.de/tgrdeu>

19.3.4. Implementation of the National Plan of Action

A national Fachprogramm Tiergenetische Ressourcen (National Experts' Program for Animal Genetic Resources) was set up in March 2002. It will implement the National Plan of Action.

19.4. Conservation measures at the European level

19.4.1. Regulation 2078/92 (new: 1257/99)

The following breeds are supported through regulation 2078/92 in the German Alpine region:
Cattle Breeds: Murnau-Werdenfels, Original German Brown Mountain, Pusteria old type, Pusteria

Horse Breeds: South German Coldblood

Sheep Breeds: Bayerwaldschaf, Alpine Steinschaf, Brown Mountain, Carinthian

19.4.2. Regulation 1467/94

Contacts in Germany for the EU-regulation 1467/94:

Dr Wilbert Himmighofen, Bundesministerium für Ernährung, Landwirtschaft und Forsten, Rochusstrasse 1, D-53123 Bonn, Tel 0049- 228/529 35 50, Fax 0049-228/529 43 18, E-Mail: BN3967@bml.bund400.de

Germany participates in the following projects of EU-regulation 1467/94 (more detailed information on EU-regulation 1467/94 may be taken from the introduction)

- **GENRES 083 - farm animals**
Contacts: Dr. H. Neumann, Bundesforschung für Landwirtschaft, FAL, Institut für Tierzucht und Tiervershalten, Holtzstrasse 10, O.T. Mariensee, D - 31535 Neustadt
- **GENRES 118 - cattle**
Contacts: Dr. G. Erhardt, Justus-Liebig University Giessen, Dept. of Animal Breeding and Genetics, Ludwigstrasse 21B, D - 35390 Giessen
- **GENRES 012 - pig**
Contacts: Dr. Wilhelm Wemheuer, Georg-August-Universität. Veterinary Institut, Groner Landstrasse 2, D - 37073 Göttingen

19.4.3. Regulation 2081/92

In Germany, endangered breeds originating from the Alpine region are not supported through EU-regulation 2081/92. Outside the Alpine region, products of both the Diepholzer Moorschnucke and the Lüneburger Heideschnucke are protected by the EU quality seal PDO –Protected Designation of Origin

19.5. Breeding and herdbook organisation

Cattle

The breeders' organisations for cattle in Bavaria are linked in the Arbeitsgemeinschaft Süddeutscher Rinderzuchtverbände. The main tasks of this working association are to coordinate breeding work and represent the breeds taken care of. The herdbooks are either kept by the single breeders' organisations or by the Allgäuer Herdebuchgesellschaft (Allgäu herdbook association).

Addresses:

- ASR - Arbeitsgemeinschaft Süddeutscher Rinderzuchtverbände, Haydnstrasse 11, 80336 München, Tel: 0049-89/53 57 17, Fax: 0049-89/53 55 40
- Allgäuer Herdebuchgesellschaft, Kotternerstrasse 36, 87435 Kempten/Allgäu, Tel: 0049-831/522 44 21

Sheep

The herdbooks of Bavarian sheep breeds are kept by the Bavarian herdbook association. Dr. Christian Mendel, as a breeding director, is responsible for all endangered sheep breeds in Bavaria.

Addresses:

- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27
- Dr. C. Mendel, Zuchtleiter, Tierzuchtamt Pfaffenhofen, Amt für Landwirtschaft und Ernährung Pfaffenhofen/Schrobenhausen, Postfach 1441, 85264 Pfaffenhofen

Horses

Contacts:

- Bayerisches Landesamt für Pferdezucht und Pferdesport, Landshamer Strasse 11, 81929 München, Tel: 0049-831/52 24 40

General address:

Bayerische Landesanstalt für Tierzucht Grub, Prof.-Dürrwaechter-Platz 1, 85580 Poing, Tel: 0049-89/99 14 10, Fax: 0049-89/99 14 11 05, E-Mail: info@blt.bayern.de, URL:

<http://www.blt.bayern.de>

19.6. Overview of the need for action

The need for action for the individual species and breeds is stated in the portraits of each breed.

General situation

The need for action in Germany is covered sufficiently at the private as well as at the national level. Most breeds have their own breeding organisations which take care of their conservation.

Support to ensure the economic efficiency of endangered breeds

Supporting the products of endangered breeds would increase their economic efficiency and indirectly support their conservation. The GEH published a study on the topic in 1999: 'Produkt alter und gefährdeter Haustierrassen – ein Einkaufsführer' (products of old breeds – a shopping guide). Launching a corresponding label could decisively support conservation efforts.

Support of pure breeding

For the cattle breeds Murnau-Werdenfels und 'Pinzgau Old Type' controlled support of the breeding of purebred animals is urgently needed.

20. Portraits of livestock breeds in Bavaria/Germany

The portraits of the individual breeds are intended to complete the first study on Agricultural Genetic Resources of the Alps. More detailed descriptions of the individual breeds are given in the first 1995 study.

20.1. Overview of endangered livestock breeds

In the following table, endangered breeds from the Bavarian Alpine region are listed, extinct breeds are not included. Listing follows the risk status.

Breed	Stock**	Risk Status	Trend	Initiatives*
Pusteria / Pustertaler Schecken	123 f/m OP (2000)	Critical	↑	++
Murnau-Werdenfels /Murnau-Werdenfelser Rind	<550f/m OP (2001)	Endangered	↓	+
Original German Brown Cattle / Orig. Dt. Braunvieh	559f/m OP (1999)	Endangered	↑	++
Pinzgau Old Type /Pinzgauer Rind(alte Zuchtrichtung)	2800f/m OP (1999)	Endangered	→	+
South German Coldblood /Süddeutsches Kaltblut	2027f HB (1997)	Vulnerable	?	++
Alpines Steinschaf	117f/m OP (2000)	Critical	↑	++
Bovec Sheep / Krainer Steinschaf	65f/m OP (2000)	Critical	↑	++
Carinthian / Kärntner Brillenschaf	348f HB (2000)	Endangered	↑	++
Waldschaf/ Forest Sheep	Approx. 800f/m GP (2000)	Endangered	↑	++
German Brown Mountain /Braunes Bergschaf	1600f/m OP (2000)	Vulnerable	↑	++
Böhmentaube	800f/m OP (1993)	Endangered	?	++

* ++ (existing with success), + (existing), - (non-existent)

** f = female animals, m = male animals, HB = herdbook, OP = Overall Population

20.2. Cattle

20.2.1. Endangered cattle breeds in Bavaria

Murnau-Werdenfelser Rind

Synonyms: Oberländer, Rote, Murnauer

Distribution: Bavaria-Weilheim (Murnauer Moos, district Garmisch-Partenkirchen, Mittenwald)

Initiatives:

- Murnau-Werdenfels cattle are conserved by the GEH in cooperation with the Murnau-Werdenfels Breeders' Association. Since 1999, 11 enterprises have participated in the federation, which is also responsible for herdbook keeping. Controlled mating is given special attention in order to counteract the narrowing of blood lines.
- The breed is supported by the Federal state of Bavaria. Since 1981, enterprises have been supported for keeping this breed. Today, a keeper's premium of 88 EUR/animal/year and a rearing premium of 150 EUR/animal/year is paid. Premiums are linked to a keeper's contract of at least 10 years.
- 'Bayerische Genreserve' – Bavarian gene reserve: long-term conservation of semen and embryos by the Bavarian Ministry of State.
- Long-term conservation of embryos as a gene reserve by the Institute for Animal Breeding at the Technical University of Munich (Department for Veterinary Medicine).
- In the 1990s, the BLT Grug was assigned by the Bayerischen Staatministerium für Ernährung, Landwirtschaft und Forsten (Bavarian Ministry for Nutrition, Agriculture and Forestry) to set up a suckler cow herd as a gene reserve. The herd is today located in the district of Neuburg-Schrobenhausen. The Bavarian audit division suggested at the end of the 1990s that the herd should be sold to save costs. At present, the herd is still maintained. Its future remains, however, uncertain.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Dr. Klaus Schedel, Bergstrasse 22, 87700 Memmingen, Tel: 0049-8331/98 02 50
- Verband für Murnau-Werdenfelsvieh, Michael Iblher, Waisenhausstrasse 5, 82362 Weilheim, Tel: 0049-881/98 99 80, Fax: 0049-882/989 98 30, E-Mail: zuchtverband.weilheim@aflue-wm.Bavaria.de, URL: <http://www.zuchtverband-weilheim.de>
- Tierzuchtamt Weilheim, Waisenhausstrasse 5, 82362 Weilheim, Tel: 0049-881/80 61
- BLT Grub, Prof.-Dürrwaechter-Platz 1, 85580 Poing, Tel: 0049-89/99 14 10, Fax: 0049-89-99 14 11 05, E-Mail: info@blt.Bavaria.de

Stock:

2001: 500-550 animals in the overall population kept by approx. 60 breeders (85% hobby breeders)

Development trend: decreasing

Assessment: endangered

Need for action:

There is need for action for the conservation of purebred animals. Since December 1999, a crossbred bull (Murnau-Werdenfels x Tarantaise) has been used at the A.I. station for regular A.I.! The decreasing stock needs to be monitored urgently.

Original Deutsches Braunvieh / Original German Brown Cattle

Synonyms: Deutsches Brauvieh alter Züchtung, Original Allgäuer Braunvieh, Original Brown

Background: The herdbook distinguishes between animals of category A (0% Brown Swiss-gene proportion) and B (maximum of 12.5% Brown Swiss gene proportion). Approx. 50 % of the animals have Brown Swiss blood. Herdbook management is with the Allgäuer Herdbuchgesellschaft.

Original German Brown cattle are also distributed in Switzerland (1999: 5700 cows in the overall population) and Austria (2000: approx. 50 animals in the overall population)

Distribution:

Federal states: Bavaria, Baden-Württemberg, main area of distribution: Allgäu

Initiatives:

- The Allgäuer Original Braunviehzuchtverein implements conservation measures for the protection of the breed. Controlled mating is supported. The association cooperates with the GEH. Semen of Original Swiss Brown cattle is sometimes used for AI.
- The breed is today supported by the Federal states of Bavaria and Baden-Württemberg. A keeper's premium of approx. 50 EUR /animal and year is paid at present. For breeding bulls used for natural service, the premium amounts to approx. 150 EUR/year. The premium for young females when partially lactating is approx. 100 EUR/year, and 150 EUR when fully lactating.
- Cryopreservation of semen and embryos is done at an A.I. station of the Federal Ministry of Agriculture.
- 'Bayerische Genreserve' – Bavarian gene reserve: long-term conservation of semen and embryos by the Bayerische Staatministerium.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Dr. Wolfgang Kustermann, Bachstrasse 9, 85354 Freising, Tel: 0049-8161/128 05
- Allgäuer Original Braunviehzuchtverein, Geschäftsstelle, Bachstrasse 9, 85354 Freising, Tel: 0049-8161/128 05
- Allgäuer Herdebuchgesellschaft, Kotternerstrasse 36, 87435 Kempten/Allgäu, Tel: 0049-831/522 44 21
- Austria: VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92
- Switzerland: Original Braunviehzuchtverband Switzerland, Josef Eggerschwiler, Gehren, 6402 Merlischachen, Tel: 0041-41/850 12 55

Stock:

1999: 559 animals in the overall population. Of these, 220 female breeding animals and 22 male breeding animals are kept by approx. 100 breeders and keepers (90% main income farmers).

1996: 430 animals in the overall population

Development trend: increasing

Assessment: Endangered

Need for action:

Various parties are active in the conservation of the breed. According to the GEH coordinator, structural changes in agriculture (decreasing meat prices, deteriorated situation of meat cattle breeds due to the BSE crisis) might lead to a situation in the near future where some animal keepers will have to give up. Inbreeding problems, mentioned in the 1995 study, do not exist any more.

Pinzgauer alter Zuchtrichtung / Pinzgau Old Type

Background: The Rinderzuchtverband Traunstein (Cattle Breeding Association) does not differentiate between purebred and crossbred animals. Such a differentiation is, however, not planned in future. Animals with more than 25% foreign blood are registered in the herdbook categories C or D. Pinzgau breeders in Bavaria participate in a joint breeding program within the Arbeitsgemeinschaft Pinzgauer Rinderzuchtverbände.

Besides the Rinderzuchtverband Traunstein, the South Tyrol cattle breeders and the Austrian breeding associations are linked up in the Arbeitsgemeinschaft Pinzgauer Rinderzuchtverbände.

In Austria, 6900 purebred cows exist (status: 2000). The population in South Tyrol amounts to 1753 animals in the herdbook (status 1999, purebred animals not registered are supported separately).

Distribution: south-eastern Upper Bavaria (districts Rosenheim, Traunstein and Berchtesgadener Land), a few animals in Saxony

Initiatives:

- The Rinderzuchtverband Traunstein is responsible for breeding issues and herdbook management. It is trying to maintain purebreeding. 80 % of the enterprises reject crossbreeding. In the remaining enterprises, animals with Red Holstein Blood (at maximum 25 %) are found.
- The GEH is particularly active in the conservation of the old purebred type.
- The Federal state of Bavaria pays an annual keeper's premium of 88 EUR per animal. Licensed sires are supported with up to 150 EUR per year.
- Cryopreservation of semen and embryos is done in an A.I. station by the Ministry of Agriculture.
- Taking care of a suckler cow herd of the old type through the BLT grub. In the year 2000, the herd comprised 40 cows, including offspring. Special emphasis is given to pure breeding (old type).
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Elisabeth Gillitz-Sieber, Reuten 10, 83313 Siegsdorf, Tel: 0049-8651/30 11
- Bavaria: Rinderzuchtverband Traunstein, Dr. Binser, Kardinal-Faulhaber-Strasse 15, 83278 Traunstein, Tel: 0049-861/700 20
- Saxony: Rinderzuchtverband Saxony, Bahnhofstrasse 32, 39576 Stendal, Tel: 0049-3931/696 40
- BLT Grub, Prof.-Dürrwaechter-Platz 1, 85580 Poing, Tel: 0049-89/99 14 10, Fax: 0049-89/99 14 11 05, E-Mail: info@blt.Bavaria.de
- Austria: Arbeitsgemeinschaft der Pingauer Rinderzuchtverbände, Mayerhoferstrasse 12, 5751 Maishofen, Tel: 0043-6542/682 29-15, E-Mail: rinderzuchtverband@sbg.at
- South Tyrol: Nat. Grauvieh-Vereinigung, Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen

Stock:

1999: 2800 animals in the overall population (2700 in Bavaria). Of these, 349 in the herdbook. Note: the herdbook includes purebred and crossbred animals.

Development trend: stable

Assessment: endangered

Need for action:

Pinzgau cattle are not endangered worldwide. There is great need for action, however, with regard to the controlled conservation of purebred animals. In Germany, too, some of the animals are crossbred with Red Holstein. The need for action for the conservation of the purebred type is partially taken care of by the Rinderzuchtverband Traunstein and the GEH. A separate herdbook management for purebred and crossbred animals is urgently needed.

Pustertaler Schecken /Pusteria

Background: Pusteria is not an autochthonous Bavarian breed. They are listed here because the GEH has been conserving a small population scattered throughout the whole republic. In 1988, a small group of animals was imported from South Tyrol to Bavaria. In the same year, some animals were brought to the Austrian Zillertal (Tyrol). Pusteria originate from South Tyrol. Today, they are seriously endangered in their area of origin – in the year 2000, the South Tyrol population comprised 128 animals. The stock numbers in South Tyrol are

increasing slightly. In Austria, there have been some animals since 1998 (2000: 30 animals in the overall population).

Initiatives:

- Conservation efforts of the GEH
- Because the breed occurs across borders, SAVE Foundation, the European umbrella organisation, coordinates conservation efforts between countries.
- Financial support through the EU regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Eva Schwaab, Rheinstrasse 62, 65185 Wiesbaden, Tel: 0049-611/33 31 37
- Austria: VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0049-463/21 93 92
- Address South Tyrol: South Tyroler Fleckviehzuchtverband, Markthalle 1, 39030 St. Lorenzen
- SAVE Foundation, Paradiesstrasse 13, 78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 123 animals in the overall population

Development trend: increasing (annual increase of approx. 10%)

Assessment: critical

Need for action:

Various groups are active in the conservation of the breed. In South Tyrol, blood renewal with animals from Bavaria should be done.

20.2.2. Cattle breeds with high stock numbers

In addition to the breeds mentioned below, the following cattle breeds occur in Bavaria in numbers worth mentioning: Simmental, Black Pied, Scotch Highland and Galloway.

Braunvieh / Brown Mountain

Initiatives:

- Cryopreservation of semen by the Ministry of Agriculture.

Contacts:

- Zuchtverband Braunvieh, Eduard Orterer, Waisenhausstrasse 5, 82362 Weilheim, Tel: 0049-881/98 99 80, Fax: 0049-881/989 98 30, URL: <http://www.zuchtverband-weilheim.de>
- Arbeitsgemeinschaft Deutsches Braunvieh, Kotternerstrasse 36, 87435 Kempten, Tel: 0049-8315/224 40
- Herdbook Management: Allgäuer Herdebuchgesellschaft, Kotternerstrasse 36, 87435 Kempten/Allgäu, Tel: 0049-831/522 44 21

Stock:

1999: 524,360 animals in Germany. Out of these 385,000 are in Bavaria (Stat. Jahresbericht Bavaria).

Assessment: not endangered

Deutsches Fleckvieh /German Pied

Initiatives:

- Cryopreservation of semen by the Ministry of Agriculture.

Contacts Bavaria:

- Zuchtverband für Fleckvieh, Waisenhausstrasse 5, 82362 Weilheim, Tel: 0049-881/98 99 80, Fax: 0049-881/989 98 30, URL: <http://www.zuchtverband-weilheim.de>

Stock:

1999: >4 million animals in Germany, out of these 3.37 million in Bavaria

Assessment: not endangered

Gelbvieh / German Yellow

Initiatives:

- Cryopreservation of semen by the Ministry of Agriculture.

Contacts:

- Rinderzuchtverband Würzburg, Friedrich Röder, Von-Lux-Strasse 4, 97074 Würzburg, Tel: 0049-931/790 48 00, Fax; 0049-931/790 48 13, E-Mail: rzv.wuerzburg@aflue-wu.Bavaria.de, URL: <http://www.rzv-wuerzburg@Bavaria.de>
- Arbeitsgemeinschaft Deutsches Gelbvieh, Veitshöchheimerstrasse 14, 97080 Würzburg, Tel: 0049-931/552 06

Stock:

1999: 35,270 animals in the German overall population. Out of these 35,000 are in Bavaria, 6718 animals are entered in the herdbook.

Assessment: not endangered

20.3. Horse breeds

20.3.1. Authochtonous horse breeds

Süddeutsches Kaltblut / South German Coldblood

Distribution: South Germany (Bavaria, Baden-Württemberg, Hesse)

Initiatives:

- The breed is supported by the Federal States of Baden-Württemberg and Lower Saxony
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Mathias Vogt, Finkenstrasse 6, 37170 Uslar, Tel: 0049-5573/99 99 10
- Bayerisches Landesamt für Pferdezucht und Pferdesport, Landshamer Strasse 11, 81929 München, Tel: 0049-831/52 24 40
- Bayerisches Haupt- und Landesgestüt Schwaiganger, 82441 Ohlstadt

Stock:

1997: 2027 mares and 86 stallions in the herdbook

Assessment: vulnerable

Need for action:

Yes, covered.

Haflinger/Hafling Mountain Pony

Synonyms: Avelignese

Background:

In Bavaria, Hafling Mountain Ponies have been bred since the mid 20th century.

Hafling Mountain ponies are also bred in Austria (1998: 7153 mares in the herdbook) and Italy (1995: 5025 mares in the herdbook) in larger stocks. In Switzerland, a small population is registered in the herdbook.

Distribution: throughout the whole country

Contacts:

- Arbeitsgemeinschaft der Haflingerzüchter und –halter in der BRD, Dr. Uvo A. Wolf, Ringstrasse 20, 82432 Walchensee, Tel: 0049-8858/253

- Landesverband Bayerischer Pferdezüchter, Landshamerstrasse 11, 81929 München
- Switzerland: Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08
- Austria: Zentrale Arbeitsgemeinschaft Österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Italy: ANACRA - Ass. Naz. Allev. Cavalli Razza Avelignese, Viale Lavagnini, 50129 Firenze, Tel/Fax: 0039-55/57 18 67, E-Mail: anacra@haflinger.it

Stock:

1998: 12,869 animals in the overall population, of these, 3443 in Bavaria

Development trend: decreasing

Assessment: not endangered

Need for action:

The conservation of the breed is taken care of.

20.4. Sheep

20.4.1. General information

Conservation efforts in the 1990s were successful, considerable breeding populations could be restored from small stocks.

20.4.2. Endangered sheep breeds in Bavaria

Waldschaf/Bayerwaldschaf/ Bavarian Forest Sheep

Synonyms: Sumavka Schaf, Ciktaschaf, Böhmerwaldschaf,

Background: The Bavarian Forest sheep does not directly originate from the German Alpine region. It is, however, directly related to the extinct Zaupelschaf of the Alps.

As a genetic study from 1991 shows, Cikta, Forest and Böhmer sheep are closely related.

They can be significantly differentiated from other breeds. With the population of the Bavarian Forest sheep, 2 subtypes can be differentiated - a larger type and a smaller type with mixed wool. The latter one is almost genetically identical with the examined Bohemian animals. Today, there are 8 different Bavarian ram lines and three Bohemian ram lines in Bavaria.

There are also populations in the Czech Republic (2000: 2569 ewes in the overall population), Austria (1999: 396 breeding sheep) and Hungary (1999: 350 ewes in the overall population).

The population in the Czech Republic is seriously endangered because of economic restructuring.

Distribution: Bavarian Forest, Lower - Upper Bavaria

Initiatives:

- The Arbeitskreis Waldschaf was founded in 1990. In cooperation with the GEH, it is active in the conservation of the Bavarian Forest sheep. Stock increase is one of its objectives. It is planned to standardize the phenotype whilst maintaining the large genetic range.
- The breed has been supported by the Federal state of Bavaria – a keeper's premium has been paid since 1987. The herdbook is kept by the Bayerische Herdbuchgesellschaft (Bavarian Herdbook Society).
- Cryopreservation of semen is done in an A.I. station by the Ministry of Agriculture.
- The city of Munich conserves 50 sheep in a gene reserve herd.
- Because the breed occurs across borders, SAVE Foundation, the European umbrella organisation, coordinates conservation efforts between countries.

- The DAGENE – Donauländerallianz für Genreserven –will in future take care of the international subordinate coordination of conservation measures.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Peter Neugebauer, Weisleithen 6, 94166 Stubenberg, Tel: 0049-8571/89 58
- Arbeitskreis Waldschafe, Alex Schwinghammer, Amt für Landwirtschaft und Ernährung Landshut, Klötzlmüllerstrasse 3, 84034 Landshut
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27
- Austria: Dipl. Ing. Hans Kjær, Kriegswald 18, 4162 Julbach
- Czech Republic: Züchterverband Brno, Svaz chovatelů ovci a koz v ČR, Ing. Vit Mares, Palackého 1-3, 61242 Brno
- Hungary: Dr. Lazlo Radnóczy, Országos, Mezőgazdasági Minisztérium Intézet, Keleti Karoly u. 24, 1024 Budapest
- SAVE Foundation, Paradiesstrasse 13, 78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: approx. 800 animals in the overall population, out of these 620 ewes and 39 rams in the herdbook kept by approx. 70 breeders

1992: approx. 300 animals in the overall population

Development trend: increasing

Assessment: endangered

Various groups are active in the conservation of the breed. Problems because of inbreeding do sometimes occur – an exchange with animals from other countries has to be initiated urgently.

Alpines Steinschaf / Alpine Steinschaf

Synonym: Dachsteinschaf (Austria)

Background: Alpine Steinschafe are also found in the Austrian states Salzburg (2000: 30 animals in the overall population) and Tyrol (2000: 10 animals in the overall population kept by one breeder). Exchange of animals between Bavaria and Tyrol exists.

In north-western Slovenia, a small remnant of the population exists. The Slovenians could not provide any information on the subject.

The breeds, Krainer Steinschaf /Bovec (Slovenia), Montafon sheep (Austria) and Tyrol Steinschaf (Austria), are closely related to the Alpine Steinschaf.

Distribution: Federal states Bavaria and Carinthia

Initiatives:

- The Arbeitskreis Alpines Steinschaf was founded in 1990 for the conservation of the Steinschaf. It cooperates with the GEH.
- The breed is supported by the Federal state of Bavaria – a premium for animal keepers has been paid since 1987
- In the National Park of Berchtesgaden, Steinschafe are utilised for grazing.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Dr. Christian Mendel, Arbeitskreis Wald- und Steinschaf, Berg 35, 85402 Kranzberg, Tel: 0049-8166/92 65
- Arbeitskreis Alpines Steinschaf, Georg Palme, Amt für Landwirtschaft und Ernährung Mühldorf, Am Kellerberg 11, 84453 Mühldorf am Inn
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27

- Austria: Landesschafzuchtverband Tirol, Karl Krachler (only breeder), Brixnerstrasse 1, 6020 Innsbruck
- Austria: Salzburger Landesverband der Schafzüchter, Günter Jaritz, Schwarzstrasse 19, 5024 Salzburg

Stock:

2000: 117 animals in the overall population, of these, 85 herdbook animals kept by 6 breeders and keepers.

Development trend: slightly increasing

Assessment: critical

Need for action: There is great need for action! Various groups are active in the conservation of the breed. It has to be clarified urgently if there are still animals in Slovenia. An exchange of these animals in order to broaden the genetic base would be desirable.

Krainer Steinschaf/Bovec

Synonyms: Krainer Schaf, Bovska, Trentarka, Plezzana

Background: Bovec sheep are not an autochthonous breed from the Bavarian Alpine region.

At the beginning of the 1990s, a gene conservation group with animals from the original area of distribution in north-west Slovenia was set up. The stock of purebred animals is thus safe.

In Slovenia, the breed is repeatedly crossbred with East Friesian sheep.

In Slovenia, a stock of 300 purebred animals was reported to the SAVE Foundation. Public organisations, however, estimate the overall population of purebred animals to amount to 1500. In the Italian Region Friuli-Venezia Giulia (2000: 40 - 50 animals) and Austria (2000: 250 purebred animals), animals of this breed are also found.

Initiatives:

- Conservation efforts of the GEH
- The Bavarian state supports Bovec sheep in connection with the support of the indigenous Steinschaf.
- The herdbook is kept by the Bavarian Herdbook Society.
- Because the breed occurs across borders, SAVE Foundation, the European umbrella organisation, coordinates conservation efforts between countries.

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: : Dr. Christian Mendel, Berg 35, 85402 Kranzberg, Tel: 0049-8166/92 65
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27
- Austria: Dr. R. Seibold, Laufenberg 20, 9545 Radentheim
- Italy: ARA Friuli Venezia Giulia, Via G. Ferraris, 20/a, 33170 Pordenone Tel: 0039-434/54 15 11
- Slovenia: Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, 1230 Domzale, Tel: 00386-61/71 78 65, Fax: 00386/61/724 10 05, E-Mail: drago.kompan@bfro.uni-lj.si
- SAVE Foundation, Paradiesstrasse 13, 78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 65 animals in the overall population – all of them registered in the herdbook

Development trend: slightly increasing

Assessment: critical

Need for action: Various groups are active in the conservation of the breed. Krainer Steinschafe are, compared to other breeds, economically inefficient. Projects aiming at supporting products of Krainer Steinschafe economically are urgently needed. A program for product support is running in Austria.

Braunes Bergschaf / Brown Mountain

Synonyms: Fuchsfarbenes Engadiner Schaf (Switzerland), Besch da Pader (Switzerland), Val d'Ultimo, Ultnerschaf (Italy), Rotes Bergschaf

Background: The Brown Mountain also occurs in Switzerland (2000: 1281 ewes and 147 rams in the herdbook), South Tyrol (1998: 800 ewes and 170 rams) and Austria (1999: 464 ewes and 52 rams in Salzburg and Lower Austria).

Distribution: Bavaria, Baden-Württemberg, Hesse, Mecklenburg-Vorpommern

Initiatives:

- The breed is supported by the Federal state of Bavaria – a premium for animal keepers has been paid since 1987.
- The Arbeitskreis Braunes Bergschaf is active in the conservation of the breed.
- The cooperation between the breeders' organisations of the different countries has intensified during recent years. In November 2000, the 'Vereinigung der Bergschafzüchter' – Association of Mountain Sheep Breeders – was founded. The new association has the objective to support Bavarian mountain sheep breeding and husbandry in the Alpine region. In 2001, the Bayerische Herdbuchgesellschaft had the chair of the association.
- Because the breed occurs across borders, SAVE Foundation, the European umbrella organisation, coordinates conservation efforts between countries.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Josef Grasegger, Arbeitsgemeinschaft Braunes Bergschaf, Schlossweg 10, 82467 Garmisch-Partenkirchen, Tel: 0049-8821/525 23, Fax: 0049-8821/94 59 25
- Arbeitskreis Braunes Bergschaf, Georg Palme, Amt für Landwirtschaft und Ernährung Mühldorf, Am Kellerberg 11, D-84453 Mühldorf am Inn
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, D-80366 München, Tel: 0049-89/53 62 27
- Italy: Verband South Tyroler Kleintierzüchter, Frau Barbara Mock, Via Galvani, 40, 39100 Bolzano, Tel: 0039-471/20 28 39
- Austria: Tiroler Schafzuchtverband, Herr Jaufenthaler, Brixner Strasse 1/Zi 12, A-6020 Innsbruck
- SEZ, SEZ, Kathrin Krieg, Sonnental, 8712 Stäfa, Tel: 0041-1/920 06 55
- SAVE Foundation, Paradiesstrasse 13, 78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 1600 animals in the overall population. Of these, 635 animals in the herdbook are kept by 120 keepers and breeders.

Development trend: slightly increasing

Assessment: vulnerable

Need for action:

Various groups are active in the conservation of the breeds. The largest threat is inbreeding. Bloodlines of both female and male offspring are very narrow because of intensive breeding work. There is furthermore a need to protect the black-woollen type of the Brown Mountain.

Kärntner Brillenschaf/ Carinthian

Synonyms: Spiegelschaf, Villnösser Schaf, Jezersko-Solcavsca, Seeländer Schaf, Jezersko Schaf

Background: The breed also occurs in Austria (2000: approx. 1000 animals in the overall population), Slovenia (1999: approx. 4500 purebred animals) and Italy (2000: approx. 900 animals in the herdbook). For blood renewal purposes, some animals from South Tyrol were imported to Bavaria.

Distribution: South-eastern Upper Bavaria (districts of Berchtesgaden and Traunstein)

Initiatives:

- The breed is supported by the Federal state of Bavaria – a premium for animal keepers has been paid since 1987
- Because the breed occurs across borders, SAVE Foundation, the European umbrella organisation, coordinates conservation efforts between countries.
- Financial support through EU-regulation 2078/92 (new: 1257/99)

Contacts:

- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: 1) Manfred Ludewig, Breitenloh 11, 83416 Saaldorf, Tel: 0049-8654/38 57, 2) Jakob Wiesheu, Scheideringerstrasse 5, 83083 Riedering, Tel: 0049-8036/18 84
- Bayerische Herdbuchgesellschaft für Schafzucht, Haydnstrasse 11, 80366 München, Tel: 0049-89/53 62 27
- Italy: Verband South Tyroler Kleintierzüchter, Frau Barbara Mock, Hörtenbergstrasse 1b, M. Tondo, 39100 Bolzano
- Austria: Verein der Kärntner Brillenschafzüchter Alpen-Adria, Friedhelm Jasbinschek, Sponheimerplatz 1, Postfach 44, 9170 Ferlach
- Slovenia: Mag. D. Kompan, Groblje 3, Biotehniska Fakulteta, SLO-1230 Domzale
- SAVE Foundation, Paradiesstrasse 13, 78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net, URL: <http://www.save-foundation.net>

Stock:

2000: 348 female breeding animals and 14 male animals in the herdbook

Development trend: increasing

Assessment: endangered

Need for action: Various groups are active in the conservation of the breed.

20.5. Pigeons

20.5.1. Autochthonous pigeon breeds

Böhmentauben

Outdated synonym: Bayerische Strasser

Distribution: Upper- and Lower Bavaria, Bavarian Forest, partially also Hesse and Baden-Württemberg

Contacts:

- Koordinator at tue GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen:
1) Dietmar Fennes, Arbeitskreis Tauben, Flurstrasse 8, 42477 Radevormwald, Tel: 0049-2191/673 12, 0049-2191/66 03 48
2) Ernst Meckerstock, Am Butterbusch 13, 40882 Ratingen 1, Tel: 0049-2102/84 17 97
- Verein für Böhmentauben, Franz Maschke, Hasmoning 68, 83301 Traunreut

Stock:

1993: approx. 800 animals in the overall population

Assessment: endangered

Need for action: The need for action is taken care of.

20.6. Bees

20.6.1. Autochthonous bee breeds

Dunkle Biene / Mellifera

Synonyms: Nordrasse, Nordbiene, Braune deutsche Biene,

Background: The breed Mellifera is nearly extinct in Germany. Thanks to conservation activities of local beekeepers, Mellifera populations could be conserved in France, Scandinavia, England and Austria. Some German ecotypes still exist in the neighbouring countries. Preconditions for a reintroduction of the Mellifera in Germany are large and closed air spaces in order to ensure pure breeding. The reestablishment of the bees is not, however, supported by the Federal Institute for Bee Breeding. After the Second World War, beekeepers in Germany decided to support the Carinthian bee only. The Bavarian Federal Institute for Bee Breeding does not consider the reestablishment of Mellifera to be useful. Crossbreeds from Mellifera and the widely spread Carinthian bee (*Apis mellifera carnica*) showed greater aggressiveness.

Initiatives:

- In 1994, the Gemeinschaft zum Erhalt der Dunklen Biene – GEDB (Association for the Conservation of Mellifera) was founded. Its objective is to give Mellifera a chance in Germany. The GEDB is also actively working towards the reestablishment of the breed in Bavaria and talks with the Tiroler Imkerverband (Tyrol Beekeepers Federation) have taken place. The Salzburger Alpenland Biene (an ecotype of Mellifera from Austria) could be suitable for reestablishment in the Bavarian Alpine region.
- Since the year 2000 the GEDB and the GEH have cooperated as well as with the Verein zur Erhaltung der Schweizer Landrassebiene (Association for the Conservation of the Swiss Local Bee).
- On the international level, the SICAMM - Internationale Gesellschaft zur Erhaltung der Dunklen Biene- is actively supporting of the breed.

Contacts:

- GEDB - Gemeinschaft zur Erhaltung der Dunklen Biene, Wolfgang Kunzfeld und Gerhard Glock, Grabenweg 3, 07940 Ingelfingen, Tel: 0049-7940/21 94, Fax: 0049-7940/91 58 60, E-Mail: kunzfeld@t-online
- Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Gerhard Glock, Mühlstrasse 6, 74653 Ingelfingen, Tel: 0049-7940/80 68
- SICAMM, Societas Internationalis pro Conservatione Apis melliferae melliferae, Nis Drival, Kvelland, N-4400 Flekkefjord, E-Mail: drivdal@online.no
- Bayerische Landesanstalt für Bienenzucht, Burgbergstrasse 70, 91054 Erlangen, Tel: 0049-9313/78 73 22, E-Mail: poststelle@lbi.Bavaria.de, URL: <http://www.lbi.Bavaria.de>

Kärntner Biene /Carinthian Bee

Synonyms: Graue Krainerbiene, Natur-Carnica

Background: Professional beekeepers are today mainly active with the Buckfast bee. The purebred Carinthian bee, which dominated at the beginning of the 1990s, is also endangered because of crossbreeding with the Buckfast Bee.

Contacts:

- Bayerische Landesanstalt für Bienenzucht, Burgbergstrasse 70, 91054 Erlangen, Tel: 0049-9313/78 73 22, E-Mail: poststelle@lbi.Bavaria.de, URL: <http://www.lbi.Bavaria.de>

21. General report on cultivated plants in the Austrian Alpine region

21.1.1. General information

The previous focus in the conservation of cultivated plants in Austria was on *ex situ* conservation. *In situ* conservation is not considered to be very important and is mainly used when the emphasis is not on commercial interest, e.g. in extensive orcharding and in ornamental and medicinal plant cultivation.

21.1.2. Ex situ conservation in Austria

In Austria, there are 5 independent variety collections (genebanks) at 5 federal and provincial institutes. The collections were established within the framework of an official assignment on the conservation and development of genetic resources. There are links to the network coordinated by the FAO and IPGRI.

The first common publication on Austrian variety collections, the so-called “Index Seminum Austriae“, was published in 1992. The paper includes a register of all varieties collected by the various institutions. The individual federal and provincial institutes have each set a different emphasis on their collection activities.

The individual collections are described in this chapter. The addresses of the current institutions are listed in the section on organisations.

Collections at the beginning of the 20th century

First approaches in *ex situ* conservation in Austria date back to the turn of the 20th century. TSCHERMARK-SEYSENEGG and PAMMER defined the framework for the first plant breeding activities and collected the indigenous material as a basis for further collections., The next step followed in the 1920s when MAYR not only collected the material but also conserved it *ex situ*. Conservation activities only continued after the Second World War, however with a clear emphasis on *ex situ* conservation. After 1945, private initiatives also started collections, such as the private collection of maize and millet in Styria or the collection of the Upper-Austrian Landessaatbaugenossenschaft (State Seed Development Cooperative). The first official genebanks developed at the same time in Wies, Vienna and Linz and partially took over breeders collections. The range of cultivated plants and varieties which still existed in the 1950s and 1960s has thus been recorded and conserved at least with its genetic archetypes.

Today, there is a general tendency in the genebanks to concentrate activities on the adjustment of material and the transfer of duplicated seed back to their areas of origin. This, however, involves considerable efforts. Ideally, the name and the gene material is the same. It happens, However, the same name is sometimes used for different forms or that different names exist for the same gene material. This has to be verified mainly through comparative planting.

The collection of the Bundesamtes für Agrarbiologie Linz (BAB)- Federal Office for Agrobiology

The set-up of the genebank in Linz was started in 1968 as a result of the incentives of WERNECK. The activities at the genebank include of the management of the largest Austrian plant genetic collection of local varieties, their representation in international experts' committees for Plant Genetic Resources and the management of the European Phaseolus database within the framework of the European Cooperative Programme on Genetic Resources ECP/GR.

Until 1975, activities were concentrated on the local assortment of the western Alpine uplands. In 1970, the local poppy assortment was collected in the Lower Mühlviertel and the bordering Waldviertel, and in the middle of the 1980s, the indigenous Styrian bean assortment was collected. At the same time, a genebank for must and commercial fruit was set up, which has meanwhile become one of the most important collections and which is maintained as individual genebank within the BAB in three arboreta in Upper Austria.

A large German modern variety assortment is also included in the collection, with an emphasis on Bavarian varieties which have had a considerable influence on the Austrian region.

Long-term conservation is carried out together with the HBLVA for Horticulture in Schönbrunn, which is also responsible for the documentation and processing of the material. The BAB Linz also houses the second store of the BFL (Federal Institute for Agronomy and Crop Science) for medicinal plants and spices which can be reproduced from seed.

There are contacts to the botanical gardens of the Town of Linz and the University of Salzburg with regard to seed storage.

The cooperation of the BAB with NGOs at national level should also be mentioned.

The collection of the Bundesamts und Forschungszentrums für Landwirtschaft (BFL) - Federal Institute for Agronomy and Crop Sciences Wien

The BFL maintains two collections:

- medicinal and spice plants of the former agricultural chemical Federal Research Institute,
- agricultural cultivated plants of the former Federal Institute for Plant Cultivation

The research station is, from a vegetation-ecological point of view, entirely located in the Pannonikum.

The collection of agricultural seed

The variety collection for cereals was set up in spring 1974 at the research station Fuchsenbigl of the Bundesanstalt für Pflanzenbau. Originally, 212 cereal varieties with focus on wheat and barley were included in the collection which was enriched by the transfer of 288 accessions from the Institute for Plant Breeding at Vienna University and by the field bean assortment from the breeding program of the Federal Institute.

The collection of medicinal plants and spices

The research station in Korneuburg, founded around the turn of the century, forms the core of the collection with 150 to 200 varieties. The importance of medicinal plants was reduced by the success of chemically synthesised medicines, however, interest has increased again over the last few years.

The collection of the Tyrol Federal government

(formerly: Landesanstalt für Pflanzenzucht und Samenprüfung, Rinn - Federal Institute for Plant Breeding and Seed Testing, Rinn)

The foundation of the genebank of the Landesanstalt für Pflanzenzucht und Samenprüfung in Rinn dates back to collection activities of the institutes' founder Prof. Dr. Mayr in 1939. One objective of the foundation was sustainable *in situ* conservation, and it aimed to conserve and describe local varieties. Furthermore, adapted varieties were to be developed at Inner Alpine locations through combination and improvement breeding. Following that, species or rather origin assortments of the species winter and spring wheat and spring barley were to be established. Thus, a representative collection for the western Alpine Austrian region developed. The collection was extended after the Second World War by maize, millet and flax. The emphasis is on varieties of the Inner Alpine region, from valley floor to the cropping

line. A small assortment of buckwheat was set-up in the 1970s. The plant was of little importance in North and East Tyrol, but often used as a second crop after winter rye. Later on, species such as poppy, field bean and peas were added. Only in the 1980s were local varieties of winter rye were included in the collection. The collection of local varieties in the side valleys only started in the 1990s. It was initiated by private individuals, whereby the Land- und forstwirtschaftliche Versuchszentrum Laimburg served as a main coordination point. Particularly important were winter and spring rye as well as spring barley. The collection also includes buckwheat, diverse beans, flax and special cultures ranging from Krautrüben, poppy, headed cabbage and gold of pleasure. Because of the long cooperation in agricultural field trials, this material was integrated into the genebank of the Federal Institute Rinn in 1993. This meant that a genebank of the European region Tyrol developed which covered the central western Austrian region. Besides the varieties bred by the institutions several old varieties were integrated which had over decades proved their worth in the Alpine region. The National Institute was closed in 1999, in order to continue conservation breeding and to maintain the Tyrol genebank, the Department for Agricultural Experimentation has been set up by the Tyrol government, as part of the Department of Agricultural Training.

Research Station for Special Crops – branch Wies

In 1966, the “Landes-Versuchsanlage für Spezialkulturen –Research Station for Special Crops (LVA)“ was founded and, after restructuring in July 1966, managed as a branch of the “National Research Centre Styria“. The focus here is not on scientific basic research but on practical research for smallholders and commercial gardeners. The 3 areas of activities are vegetable gardening, commercial cultivation of ornamental plants and cultivation of medicinal plants and spices. Testing is particularly on the cultivation of medicinal plants, spices and dye plants as the cultivation of leaf or flower drugs can provide an additional income. A show garden with more than 160 small plots gives an overview on cultivated species. A seed collection of valuable cultivated and local varieties is maintained within this framework.

The genebank of the association Arche Noah

Initially, the association Arche Noah focused on vegetables, medicinal plants, spices and ornamental plants. As other initiatives are active in the conservation of fruit, the collection of fruit only plays a subordinate role. Later on, potato, cereal, fibre, oil plants and other plants were added. At present, approx. 7000 varieties are recorded in the central variety collection in Schiltern. In 1996, the show and reproduction garden of the association Arche Noah in Schiltern, Lower Austria, was officially recognised as an organic enterprise. As a result of this, the collection is rather one of the smaller seedbanks. The activities of the association are described in a newsletter for members, a seed and plant material catalogue is published annually and garden tours, training courses, technical publications and general meetings are conducted. Collection and conservation activities are basically carried out by the members in several European countries.

The collection of Saatzucht – Seed Breeding - Gleisdorf

At present, the following cultivated species are stored in the genebank at the Saatzucht Gleisdorf (local varieties, diverse breeding lines, foreign and domestic varieties).

Field Bean (<i>Vicia faba</i>)	651 origins
Soybean (<i>Glycine max</i>)	568 origins
Pumkin (<i>Cucurbita pepo + maxima</i>)	179 origins
Buckwheat (<i>Fagopyrum esculentum</i>)	88 origins

Buckwheat (<i>Fagopyrum tataricum</i>)	4 origins
Common Millet (<i>Panicum miliaceum</i>)	45 origins
Foxtail Millet (<i>Setaria italica</i>)	22 origins

21.1.3. In situ conservation in Austria

Until the end of the 1980s, there were still smaller wheat populations of the Sipbachzell type in Atter- and Falchgau in the Graz basin. Investigations carried out during the last few years have shown that these old wheat varieties have disappeared and were mainly replaced with triticale. The Federal Institute in Rinn has reproduced old variety material from Tyrol so that seed can be transferred to interested farmers. However, there was no further activity as supporting measures were missing.

Schlägl rye is conserved *in situ* on a larger scale in the northern Mühlviertel. Despite being a modern variety (improved local variety), the widely cultivated rye has been conserved with its original genepool because seed are not often cross-fertilized and its area of distribution is relatively large but nevertheless restricted. The Lunggau Taunern rye only exists on a farm in Lunggau which conserves this rye.

Recently, organic farms have also cultivated Spelz. The assortment is of varying origin. Many of them are the secondary generation of still licensed varieties which have sometimes been improved by simple selective measures on farm, similar to other still licensed similar cereal species. *In situ* conservation as such only takes place with indigenous or adapted material which has been cultivated over a long time period so that the evolutionary aspect is of relevance.

In situ conservation of indigenous poppy material takes place in the traditional cultivation area of the Mühl and Waldviertel. As poppy is cultivated in this area on a small scale and mainly for home or regional use, there is currently no competition with modern varieties used in commercial cultivation.

There are still limited remains of the traditional Phaseolus assortment in Styria in form of *in situ* conservation. This conservation is closely connected to consumers' habits, and means that knowledge on the utilisation and food processing is kept. If this knowledge is not used any more or lost, then the one or other curiosity known about the assortment will inevitably also disappear.

Significant for varieties conserved *in situ* for a long time is their high genetic stability which is characteristic e.g. for the varieties Probus, Tassilo and Union. Despite long-term secondary cultivation, they have neither changed their habitus nor their yields but have been outdated by the breeding progress.

The public institutions cooperate increasingly with botanical gardens and natural science institutions such as museums, where *in situ* conservation is possible. Numerous projects have been initiated during the last few years.

Most of the *in situ* conservation is still done by private persons and associations. They conserve Plant Genetic Material produced on small plots and deliver it to interested people. The association Arche Noah, with its activists cultivating the entrusted plants with a lot of idealism, has carried out real pioneering work. From the beginning, the association followed the objective of collecting and *in situ* conserving endangered varieties of cultivated plants *in situ* and making them available to interested farmers or gardeners.

21.1.4. Handling of the distribution of local varieties

It was and still is usual for farmers to exchange seed in their neighbourhood. According to the Austrian Seed Act, it is, however, forbidden to distribute seed which are not licensed. This is the case for nearly all local varieties. As local varieties account only for a small part of the

whole amount (in Austria, only 100 ha are presently cultivated with local varieties), the distribution of local variety seed is tolerated by the government.

In Austria, the German BSA proposal was discussed among seed initiatives and fully supported. The proposal includes the marketing of unofficial varieties summed up under the term 'Origin', following the EU guidelines. Following the proposal, a dialogue started with the Federal Government. The result of this dialogue, which was also supported by the Federal Government, states that testing and double registration is not compulsory but that it is sufficient to notify the authorities. However, the marketers have to be registered, and the producer should be mentioned on the label.

In contrast to the BSA proposal, the Austrian proposal defines, however, that two types of original seed exist:

- seed which belongs to the well-known varieties; i.e. varieties described in genebanks or which were previously licensed. The marketer of such seed has to identify origin and name. Random samples are taken for control purposes. There is no limit to trading these varieties.
- Seed of unknown origin (also not described in a European genebank). It is subject to defined maximum amount; marketing must be registered and it has to be described. The maximum amount is defined according to species, whereby the Austrian proposal suggests defining maximum amounts according to a defined percentage of planted seed for each species. The percentage is, however, still subject to discussions.

It was important for the Austrian line of action that conservation initiatives and alternative breeders acted cooperatively at least were not divided. A positive definition of seed defined as 'original seed' is not advisable, a negative definition e.g. 'non - licensed varieties' would be preferable.

21.1.5. Legal basis for the conservation of cultivated plants in Austria

At a national and international level, the conservation of Genetic Resources is anchored in the legislation. The most important laws for Austria are:

Landwirtschaftsgesetz BGBl 375/1992 (Agricultural law)

Bundesgesetz über den Schutz von Pflanzensorten BGBl 108/1993 (Federal Law on the Protection of Plant Varieties)

Saatgutgesetz BGBl 72/1997 (Seed Act)

Bundesgesetz über Bundesämter für Landwirtschaft und landwirtschaftlichen Bundesanstalten BGBl 515/1994 (Federal Law on Federal Agricultural Offices and Federal Institutes)

Ex situ conservation is directly regulated by the Federal Law on Federal Agricultural Offices and Institutes, BGBl 515/1994; the mandate for the management of plant genebanks has been given to the BLF Vienna in § 13 paragraph 3b, in § 14 Abs. 3 to the BAB Linz, in § 15 paragraph 3 to the HBLA für Wein- und Obstbau in Klosterneuburg and in § 26 paragraph 3 to the HBLVA für Gartenbau Vienna-Schönbrunn.

21.1.6. Implementation of the National Plan of Action in Austria

The Austrian National Plan of Action is in most points similar to the Global Plan of Action, which was drawn up by the FAO for 150 countries.

The objectives of the National Plan of Action in Austria are basically:

- political and institutional support as a precondition for a national awareness of responsibility for the long-term conservation of Genetic Resources.
- responsible integration of all partners into a long-term strategy for the conservation of Genetic Resources,

- continued motivation of all partners by constant stimulation and complete flow of information about national and international activities.

The managers of the traditional Austrian collections long dealt with the question of the conservation of old local varieties and wild forms, before national plans of action and NGOs took care of the conservation of cultivated plants. It was therefore important to coordinate genebanks in Austria and to integrate NGOs.

At the end of 1995, a working group was called into life at the Ministry for Agriculture and Forestry with the objective of bringing about the close cooperation and adjustment required for dealing with the geographical and climatic environment and the mostly decentralised *ex situ* conservation. The working group considers itself a guiding institution for implementation measures on the conservation of biodiversity in agriculture and forestry: It works through the research institutes of the BMLF, universities and relevant provincial administration. The private sector, such as plant and animal breeders, botanical gardens, organic agriculture, private collectors and conservers of genetic material are integrated into the development and implementation of the national concept for the conservation and sustainable use of Genetic Resources.

The working group is divided up into the following subgroups: genebanks, fruit/wine, forest plants, livestock including fishes and bees, medicinal plants including special cultures, vegetables including ornamental plants and grassland. In the plant sector, responsibilities are taken care of by

- Agriculture and horticultural plants including their wild forms,
- Forest area,
- Medicinal plants, spices and industrial plants
- Ornamental plants if cultivated
- Useful wild plants if traditionally utilised

21.1.7. Financial support for the conservation of Plant Genetic Resources in Austria

Within the framework of the service guideline of the Federal Government, 40% of the cost of the 'Conservation of Gene Material' is supported by Federal and Provincial means as defined in the line quality improvement under point 2.7.2.4..

Applications are only then not considered when conservation breeding concerns high-yielding varieties. The use of this support is, however, very small and amounted to 7250 –14,500 Euro in the year 2000.

Cultivation of rare cultivated plants

In Austria, the cultivation of rare agricultural plants is financially supported by area support. The following list gives an overview on the individual supported cultivated plants:

A) Cereals, maize and millet varieties

- Winter Barley (*Hordeum vulgare*): Austrian naked barley (local varieties and old breeding varieties)
- Winter Rye (*Secale cereale*): Oberkärntner, Kärntner, Chrysanth Hanser rye, Jaufenthaler rye, Kaltenberger rye, Lungauer Tauern, Tschermaks veredelter Marchfelder, Waldstauden rye
- Winter Wheat (*Triticum aestivum*): Erla Kolben, Loosdorfer Austro Bankut Grannen, Attergauer Bartweizen, Ritzlhofer, Marienhofer Kolben, Rinner winter wheat, Sipbachzeller, St. Johanner winter wheat
- Winter Dinkel (*Triticum spelta*): Ostro, Bauländer Spelz, Oberkulmer Rotkorn, Ebners Rotkorn, Schwabenkorn and Steiners Roter Tiroler

- Spring Dinkel (*Triticum spelta*): all origins
- Spring Wheat (*Hordeum vulgare*): Sechszellige Pumper, Fisser barley, Austrian naked barley (local varieties and old breeding varieties)
- Spring Wheat (*Triticum aestivum*): Rubin, Tiroler Früher Binkel, Tiroler Mittelfrüher Binkel
- Oats (*Avena sativa*): Oberberger Schwarzhäfer, Austrian naked oats (local varieties and old breeding varieties)
- Spring rye (*Secale cereale*): Tiroler
- Emmer (*Triticum dicoccum*): all origins
- One-grained wheat (*Triticum monococcum*): all origins
- Buckwheat (*Fagopyrum esculentum*): Anita, Bamby, Silberkorn, Zigeunerhorn, Billy and Pyra
- Maize (*Zea mays*): Gamlitzer Gold, Gelber Silozahn, Kematener, Kundler, Pitztaler Gelb, Pitztaler Rot, all freely flowering Austrian local varieties and old Austrian breeding varieties
- Foxtail millet (*Setaria italica*): Pipsi, further Austrian local varieties and old breeding varieties
- Common millet (*Panicum miliaceum*): Tyrol common millet
- Sorghum (*Sorghum bicolor*): Kornberger Körnersirk

B) Leguminous plants with small seed

- Red Clover (*Trifolium pratense*): Steirerklée
- Blue-white trigonella (*Trigonella caerulea*): Austrian origins

C) Grasses

- Yellow Oat Grass (*Trisetum flavescens*): St. Kathrein

D) Potatoe and Beta-turnips

- Potato (*Solanum tuberosum*): Ackersegen, Juligelb, Piroshka, Naglerner Kipfler

E) Oil; Fibre and commercial plants

- 4) Coffee Chicory (*Cichorium intybus*): Fredonia, Fredonia Nova
- 5) Flax (*Linum usitatissimum*): Ötztal flax
- 6) Poppy (*Papaver somniferum*): Edel-Rot, Edel-Weiß, Waldviertler Graumohn, Florian and other Austrian local varieties; Zeno

F) Vegetable species

- Red Beet (*Beta vulgaris* var. *conditiva*): Wiener Lange Schwarze
- Endive (*Cichorium endivia*): Lydia
- Cucumber (*Cucumis sativus*): Sensation, Präsident, Zitronengurke
- Garden Bean (*Phaseolus vulgaris*): Rotholzer, Schwarze Majo
- Climbing Bean (*Phaseolus vulgaris*): Frima, Forellenbohne, Hutter's Suppenbohne, Kaiser Friedrich, Kirschbohne, Siena, Wieser Kipflerbohne, Wieser Wachtelbohne, Zuckerwachtel
- Scarlet Runner (*Phaseolus coccineus*): Bonela, Hara, Melange, Steirische Riesen
- Pea (*Pisum sativum*): Blaue Kapuziner
- Carrot (*Daucus carota*): Gelber Goliath
- Savoy Cabbage (*Brassica oleracea* convar. *capitata* var. *sabauda*): Messendorfer Kohl, Wiener Winter
- White Cabbage (*Brassica oleracea* convar. *capitata* var. *alba*): Frühes Wiener Breindl, Kärntner-Steirisches Gebirgskraut, Premstätten Schnitz, Seibersdorfer Einschnidekraut

- Red Cabbage(*Brassica oleracea* convar. *capitata* var. *rubra*): Wiener Dauerrot
- Turnip (*Brassica rapa* var. *rapifera*): all Austrian local varieties and breeding varieties
- Red and Green Peppers (*Capsicum annuum*): Neusiedler Ideal, Seewinkler Frühroter Capia, Paradeisfrüchtig Frührot, Wiener Wachs
- Cayenne Pepper (*Capsicum annuum*): Halblanger Vulkan, Milder Spiral, Wieser Milder, Ziegenhorn Bello
- Radish and Little Radish (*Raphanus sativus*): Eiszapfen, Grazer Treib, Ladenbeet, Lindegger Sommer, Riesen von Aspern, Wiener Runder Kohlschwarzer,
- Lettuce (*Lactuca sativa*): Forellenschluß, Grazer Krauthäuptel 2, Zieglers Wiener Maidivi, Unikum, Neusiedler Gelbe Winter, Winterkönig, Grüner Eishäuptel, Venezianer
- Rooted celery (*Apium graveolens*): Wiener Riesen, Wiener Markt
- Turnip-rooted Parsley (*Petroselinum crispum*): Lange Oberlaaer
- Tomato (*Lycopersicum esculentum*): Kremser Perle, Zieglers Fleisch, Siberia
- Onion(*Allium cepa*): Gelbe Laaer, Rote Laaer, Kärntner Gelbe, Schneeweiße Unterstinkenbrunner, Schoderleer Steckzwiebel, Wiener Bronzekugel, Wiro
- Shallot (*Allium ascalonicum*): Laaer Rosa Shallot
- Garlic (*Allium porrum*): Laaer Spring Garlic, Laaer Vineyard Garlic

Variety category A is supported with 145 Euro/ha.

Variety category B is supported with 291 Euro/ha.

Conservation of extensive orchards

Extensive orchards are supported with 109 Euro/ha in Austria. The following preconditions have to be fulfilled in order to be entitled to financial support:

- The cutting and removal of the material has to be carried out at least once/year.
- The fruit trees have to be kept unless they are too old or diseased, and the extensive orchard character is to be maintained.
- The tree stock should at least amount to 30 trees/ha of extensive orchard.
- The distances between trees in the row should be 20 m at least and the stock should be at least 5 trees.
- The minimum size of the area should be 0.1 ha.

21.1.8. NGOs active at national level

The following most important NGOs are active in Agricultural Genetic Resources: Arche Noah in the collection and cultivated plant conservation of field crops, vegetables, fruit, herbs and medicinal plants and the Ökokreis Waldviertel (Stift Zwettl), the museum village Niedersulz and diverse nurseries and fruit and gardening associations in conservation work. Conservation work of some of these institutions is listed in more detail in the section on organisations.

21.1.9. Overview on governmental organisations active for the conservation of cultivated plants

This chapter contains an overview on public institutions dealing with biodiversity at a national level. Some of these institutions are described in detail in the section on organisations and in section 21. “*Ex situ* conservation in Austria”. The addresses of the institutions are also included in the section on organisations.

Institutions at a federal level:

Bundesministerium für Land- und Forstwirtschaft (Federal Ministry for Agriculture and Forestry):

- -coordination for agriculture, forestry and water management
- working group for a national program on the conservation of Genetic Resources

- research on conservation of biodiversity in the area agriculture, forestry and water management
- support measures
- international integration
- coordination of activities for the implementation of the Strassburg resolution, the Helsinki resolution, strategies within the framework of possible climatic changes,
- implementation of relevant EU-guidelines

Bundesamt für Agrarbiologie (Federal Office for Agrobiology):

- ICARDA security store (leguminous plants).
- Genebank (livestock, seed, fruit)
- Research
- International cooperation

Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau (Federal School and Federal Institute for Wine and Fruit Growing):

- Genebank (fruit, wine)
- Research
- International cooperation

Höhere Bundeslehranstalt und –versuchsanstalt für Gartenbau (Federal School and Research Station for Gardening):

- Joint genebank (vegetables)
- Research

- **Bundesamt und Forschungszentrum für Landwirtschaft – Federal Office and Centre for Agriculture** Genebank (seed)
- Research
- International cooperation

Federal Office for Environmental Affairs:

- Environmental control
- Management of environmental registers
- Assessment of release and product applications of GVOs
- 'National Focal Point' for the agreement on biological diversity and 'clearing-house mechanism', for Infoterra as well as for EEA.

Historical Museum:

Documentation of biological diversity

Other institutions:

Botanical gardens in different hands (e.g. Botanical Garden of the Vienna University, Botanical Garden of the University of Salzburg, Alpine Garden Belvedere, Botanical Garden of Carinthia, Botanical Garden of the Town of Linz) are actively involved in programs for species conservation, particularly ex situ conservation, and participate in international seed exchange.

21.1.10. Index Seminum Austriae

In 1991, the 'Arbeitsgemeinschaft der Österreichischen Genbanken für Kulturpflanzen (working group of the Austrian genebanks for cultivated plants)' published the first "Index

Seminum Austriae“ which contains information on all collections of the Federal and Provincial institutions set up during the last decades.

The Index Seminar Austriae unites *ex situ* collection efforts in Austria and is composed of 5 governmental institutions and one NGO. A general platform of these genebanks is found in the internet under <http://www.agrobio.bmlf.gv.at/GENBANK>.

The addresses of the institutions may be taken from the section on organisations. The following institutions participate in the Index Seminar Austriae:

- Bundesamt für Agrarbiologie BAB Linz (Federal Office of Agrobiology)
- Landesanstalt für Pflanzenzucht und Samenprüfung Rinn (National Institute for Plant Breeding and Seed Testing)
- Bundesamt und Forschungszentrum für Landwirtschaft BFL-Pflanzenbau (Federal Institute for Agronomy and Crop Sciences)
- Landwirtschaftliches Versuchszentrum Steiermark LVZ Wies (National Research Center Styria Research Station for Special Crops)
- Bundesamt und Forschungszentrum für Landwirtschaft (Federal Office and Centre for Agriculture)
- Arche Noah (NGO)

Data from the Arche Noah is not yet in the Index Seminar Austriae. It is hoped that Arche Noah will be integrated as a partner, and that it is able and wants to include its data into the Index Seminar Austriae.

21.1.11. Integration of Austria into the ECP/GR

National coordination of the ECP/GR in Austria:

Hedwig Wogerbauer, Bundesministerium für Land- und Forstwirtschaft (BMLF), III/3, Stubenring 1, A-1012 Wien, Tel.: 0043-1/ 711 00 67 66/28 82, Fax: 0043-1/711 00 28 92. This is also the head office responsible for implementation.

Austria as a member of the ECP/GR On-Farm Conservation and Management Task Force:

Partner in Austria: DI Paul Freudenthaler, Bundesamt für Agrarbiologie, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 82 61/260, Fax: 0043-732/38 54 82, E-mail: freudenthaler@agrobio.bmlf.gv.at or genbank@agrobio.bmlf.gv.at

Austria is at present represented in the working groups ‘Allium’, ‘Brassica forage plants’, ‘grain leguminous plants’ and in the ‘Malus’ group in the fruit network by the following institutions:

Allium working group:

Partner in Austria: DI Wolfgang Palme, Höhere Bundeslehr- und Versuchsanstalt (HBLA) für Gartenbau, Grünbergstr. 24, A-1131 Wien, Tel.: 0043-1/813 59 50-331, Fax: 0043-1/813 59 50-99, E-mail: gemuese@gartenbau.bmlf.gv.at

Avena working group:

Partner in Austria: Michael Oberforster, Bundesamt und Forschungszentrum für Landwirtschaft, Spargelfeldstrasse 191, A-1220 Wien, Tel.: 0043-1/732 16-0, Fax: 0043-1/732 16-3107, E-mail: michael.oberforster@relay.bfl.at

Brassica working group:

Partner in Austria: NGO DI Helmut Reiner, Grünentorgasse 19/12, A-1090 Wien, Tel./Fax: 0043 1/310 59 62, E-mail: helmut.reiner@teleweb.at

Forage plants working group:

Partner in Austria: Herr Bernhard Krautzer, Bundesanstalt für Alpine Landwirtschaft (BAL), Gumpenstein, A-8952 Irdning, Tel.: 0043-3682/224 51, Fax: 0043-3682/246 14 88, E-mail: bal.gump@computerhaus.at

Barley working group:

Partner in Austria: DI Paul Freudenthaler, Bundesamt für Agrarbiologie, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 82 61/260, Fax: 0043-732/38 54 82, E-mail: freudenthaler@agrobio.bmlf.gv.at or genbank@agrobio.bmlf.gv.at

Potato working group:

Partner in Austria: Beate Koller, Arche Noah – Gesellschaft zur Erhaltung der Kulturpflanzen und deren Entwicklung, Obere Strasse 40, A-3553 Schloss Schliltern, Tel.: 0043-2734/86 26/ 10, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at

Grain Legumes working group:

Partner in Austria:

Dr. Rudolf Schachl, Bundesamt für Agrarbiologie, Linz, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 82 61/259, Fax: 0043-732/38 54 82, E-mail: schachl@agrobio.bmlf.gv.at
DI Paul Freudenthaler, Bundesamt für Agrarbiologie, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 82 61/260, Fax: 0043-732/38 54 82, E-mail: freudenthaler@agrobio.bmlf.gv.at or genbank@agrobio.bmlf.gv.at

Malus/Pyrus working group:

Partner in Austria: Siegfried Bernkopf, Abteilung Pflanzenbiologie, Bundesamt für Agrarbiologie, Linz, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/38 12 61/0, Fax: 0043-732/38 54 82, E-mail: bernkopf@agrobio.bmlf.gv.at

Prunus working group:

Partner in Austria: Stefan Mader, Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau, Wienerstrasse 74, A-3400 Klosterneuburg, Tel.: 0043-2243/379 10, Fax: 0043-2243/267 05, E-mail: direktion@hblawo.bmlf.gv.at

Umbelliferae working group:

Partner in Austria: DI Wolfgang Palme, Höhere Bundeslehr- und Versuchsanstalt (HBLA) für Gartenbau, Grünbergstr. 24, A-1131 Wien, Tel.: 0043-1/ 81359 50-331, Fax: 0043-1/813 59 50-99, E-mail: gemuese@gartenbau.bmlf.gv.at

Wheat working group:

Partner in Austria: DI Paul Freudenthaler, Bundesamt für Agrarbiologie, Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 82 61/260, Fax: 0043-732/38 54 82, E-mail: freudenthaler@agrobio.bmlf.gv.at or genbank@agrobio.bmlf.gv.at

Phaseolus databank:

The Federal Office of Agrobiological in Linz was asked to set up and manage the European Phaseolus databank at the first meeting of the Grain-Legume-Network which took place from 13th to 17th July in Copenhagen. In Europe, 35 genebanks have collections of Phaseolus beans, The samples number between 30,000 and 35,000. The 3 species *Phaseolus vulgaris*, *Phaseolus coccineus* and *Phaseolus lunatus* have been entered into the databank. First the passport data is recorded and documented, whereby 3 to 4 additional botanical basic data facts (principal attitudes) are also recorded allowing fast identification of the material. It is furthermore planned to set up an information system for Phaseolus, where general information such as e.g. literature is also available.

Further information can be found at the website.

<http://www.agrobio.bmlf.gv.at/phaseolus/>

Contact: Ing. Wolfgang Kainz, Bundesamt für Agrarbiologie, Wieningerstrasse 8, A-4021

Linz, Tel.: 0043-732/38 12 61/260, Fax: 0043-732/38 54 82, E-mail:

kainz@agrobio.bmlf.gv.at

21.2. EU – measures for the conservation of cultivated plants in Austria

21.2.1. Regulation 2078/92 (new: 1257/99) in Austria

Even before joining the EU, Austria gave farmers a financial incentive for extensive management practices through the Austrian program for the support of an environmentally friendly and extensive agriculture (ÖPUL). The support of biological management practices also has positive effects on the conservation of rare cultivated plants. By joining the EU, Austria could extend the support of organic farmers within the framework of regulation 2078/92. The following rare agricultural plants are supported according to EU-regulation 2078/92 and ÖPUL 2000:

Species	Name of the variety
Winter Rye	Chrysanth Hanserroggen
	Jaufenthaler
	Waldstaudenroggen
Winter Wheat	Rinner Winterweizen
	St. Johanner Winterweizen
Winter Dinkel	Steiners Roter Tiroler
Spring Barley	Sechszeilige Pumper
	Fisser Gerste
Spring Wheat	Tiroler Früher Binkel
	Tiroler Mittelfrüher Binkel
Oats	Obernberger Schwarzhäfer
Spring Rye	Tiroler
Maize	Kematner
	Kundler
	Pitztaler Gelb
	Pitztaler Rot
	Local and old Austrian varieties
Common Millet	Tiroler Rispenhirse
Flax	Öztaler Lein
Garden Bean	Rotholzer
White Cabbage	Kärntner-Steirisches Gebirgskraut
Naked Barley	Local and old varieties
Naked Oats	Local and old varieties
Emmer	All origins
One-grained Wheat	All origins
Blue-white Trigonella	Austrian origins
Poppy	Austrian local varieties
Turnip	All Austrian local and old varieties

21.2.2. Regulation 1467/94 in Austria

Contact in Austria for Regulation 1467/94:

DI Sonja Schantl, Bundesamt u. Forschungszentrum für Landwirtschaft, Spargelfeldstrasse 191, Postfach 400, A-1226 Wien, Tel.: 0043-1/73 216 41 70, Fax: 0043-1/732 16 42 11, E-mail: sschantl@bfl.at

Austria is involved in the following projects of the EU-regulation 1467/94 (more detailed information on regulation 1467/94 may be taken from the introduction):

GENRES 081 - Vines

Contact: Dr. H. Kaserer, Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau, HBLA u. BA für Wein, Wienerstrasse 74, A - 3400 Klosterneuburg

GENRES 034/045 - Potato

Contact: Arche Noah, Obere Strasse 40, A - 3553 Schloss Schiltern

GENRES 104 - Barley

Contact: Dr. Claus Einfelt, Saatbau Linz reg. GenmbH, Plant Breeding Station Reichersberg, Reiche Inn Nr. 86, A - 4981 Reichensberg

21.2.3. Regulation 2081/92 in Austria

The following species/varieties of cultivated plants are protected by the EU quality seal Protected Designation of Origin (more detailed information on regulation 2081/92 may be taken from the chapter 'Introduction').

Wachau Apricot (g.U.)

The fruit is cultivated in the regions Wachau - Krems – Mautern.

Waldviertel Grey Poppy (g.U.)

Cultivation is carried out in the Waldviertel.

21.2.4. LEADER-projects in Austria

Austria is participating in the following LEADER-project on the support of agrobiodiversity (more detailed information in the EU Initiative LEADER is included in the chapter 'Introduction').

Extensive orchard initiative – support of old apple varieties

Old apple varieties are supported through this program. Besides Austria, the countries Germany and France are also involved, too.

Contact in Austria:

Wieseninitiative - Verein zur Erhaltung und Förderung ländlicher Lebensräume, Raiffeisenstr. 24/2, A - 7540 Güssing (Burgenland), Tel.: 0043-3322/430 26, Fax: 0043-3322/430 73

21.3. Need for action with regard to the conservation of cultivated plants in Austria

The conservation of cultivated plant diversity has reached a very high standard through the efforts of the private organisation Arche Noah, particularly with regard to on-farm conservation. Many cultivated plants are conserved by private persons or have found a niche in ecological agriculture. Organic agriculture should be supported to fulfill the EU-regulation 2078/92. Honorary work should be professionalised and paid. Marketing of old varieties

should increasingly be supported. The existing variety gardens do not particularly cater for the Alpine region. Alpine variety gardens should be founded.

As far as the five governmental genebanks which collect special species are concerned, conservation measures in different areas are planned for the future. Absolute priority should be given to vegetables and forage plants. For vegetables, a historical inventory would also be useful. This should include all varieties previously collected. For grasses and clover species, the question of gene flow has to be clarified first. There is no certainty about the conservation of vegetables.

Expectations are that local varieties for certain species of cultivated plants (e.g. Allium) could still be found. Collection activities for grassland and ornamental plants, particularly traditional farmers' plants, have until now been seriously neglected, and there is also a need for collections to be done in the Inner Alpine side valleys. It is often difficult to name varieties originating from the Alpine region. The genebank should, in future, define the origins more clearly.

An important point of conservation work is the conservation of existing collections. Through lack of personnel, conservation work is even endangered in collections which aim to conserve cultivated plants. It is therefore necessary to employ additional personnel for the evaluation of varieties as well as for continuous activities in the documentation of characterisation and for evaluation in the working group 'Gen Res'.

It is difficult to differentiate cultivated plants of the Austrian Alpine region from others varieties which have been cultivated for many years..

Conservation of indigenous cultivated plants in the Austrian Alpine region			
Crops	Active Institutions	Collection area in the Alpine region	Need for action exists
Fruit			
Apples	4	Countrywide	X
Pears	4	Countrywide	X
Cherries	1	Countrywide	XX
Damson	2	Countrywide	XX
Berries	1	Countrywide	XXX
Nuts	2	Countrywide	XX
Garden and Field Crops-			
Cereals	5	Countrywide	X
Potatoes	2	Countrywide	XX
Vegetables	5	Countrywide	XXX
Legumes	5	Countrywide	X
Medicinal Plants and Spices	4	Countrywide	X
Industrial Plants	1	Countrywide	X
Forage plants	2	Countrywide	XX

Wine			
Wine	3	Countrywide	XX

Explanations:

X: need for action is not urgent.

XX: action should be initiated in the near future.

XXX: urgent need for action, measures have to be taken immediately.

22. Portraits of organisations and institutions active for the conservation of cultivated plants in the Austrian Alpine region

This chapter portrays actors dedicated to the conservation of cultivated plants in the Austrian Alpine region. The description of the plants is subdivided up into fruit, vines, vegetables, potatoes, legumes, cereals, medicinal plants and herbs, forage plants, poppy and flax. The information has been obtained through questionnaire responses, personal contacts, Internet and literature searches. The list does not claim to be complete.

22.1. Fruit

22.1.1. Traditional fruit cultivation in the Austrian Alpine region

In the Austrian Alpine region and the Alpine upland, all types of stone and pome fruit were cultivated. They were utilised in many different ways: for commercial and private use, for must production and for drying. Apples were the most important fruit for commercial cultivation, followed by pears. Many *Prunus* varieties were traditionally cultivated: cherries, damson, bullace plum and peaches at milder sites. Strawberries, raspberries, red and black currant, gooseberries and elder were found in house gardens, mainly cultivated for private use.

22.1.2. Current situation

In the Bundesanstalt für Agrarbiologie -Federal Office for Agrobiolology - (BAB) in Linz, 240 pear and apple varieties, mainly from the Austrian region, have been collected. The focus should absolutely be on the collection of local Austrian varieties. Amongst them, varieties are interesting which existed before the so-called 'Pomological Age', i.e. before the 19th century, in Austria. Styria, with the largest part of fruit cultivation in Austria, is well covered by the activities of the Versuchsstation für Obst- und Weinbau (research station for fruit and vine growing) in Haidegg. Meanwhile, many variety gardens were set up which also deliver propagation material.

22.1.3. Overview of organisations and institutions

Fruit	NGOs	Public institutions	Governmental institutions	Total
Apples (<i>Malus domestica</i>)	2	1	2	5
Pears (<i>Pyrus communis</i>)	2	1	2	5
Blackberries (<i>Rubus</i> sp.)	1			1
Strawberries (<i>Fragaria</i> sp.)	1			1
Bilberry (<i>Actinium myrtillus</i>)	1			1
Raspberries (<i>Rubus</i> sp.)	1			1
Elder (<i>Sambucus nigra</i>)	1			1

Cherries (<i>Prunus avium</i>)	2			2
Apricot (<i>Prunus armeniaca</i>)	2			2
Mulberries (<i>Morus</i> sp.)	1			1
Medlar (<i>Mespilus germanica</i>)	1			1
Peach (<i>Prunus persica</i>)	2			2
Cranberries (<i>Vaccinium macrocarpum</i>)	1			1
Red and blackcurrant (<i>Ribes rubrum</i>)	1			1
Quinces (<i>Cydonia oblonga</i>)	1			1
Gooseberries (<i>Ribes uva-crispa</i>)	1			1
Sour Cherry (<i>Prunus cerasus</i>)	1			1
<i>Prunus</i> spp.	2	1	2	5
Hazelnut (<i>Corylus avellana</i>)	1			1
Walnut (<i>Juglans regia</i>)	1			1

22.1.4. Need for action

The variety diversity of must fruit is partially determined by the special characteristics needed for must processing. Collections have mainly been carried out in Upper Austria, Lower Austria and Styria through the orchard mapping of the Bundesanstalt für Agrarbiologie (BAB) Federal Office for Agrobiological Sciences in Linz. Further action is needed to extend collection activities to the other Federal states.

Since 1968, the Austrian fruit tree stock has been reduced by half, the other part is in danger of becoming overaged and dying during the next decades as it is not utilised any more.

According to estimations, there are more than 200 apple, pear, plum, apricot and peach varieties which have only been rudimentarily scientifically identified. At present, the Versuchsstation für Obst- und Weinbau (Research Station for Fruit and Vine Growing) in Haidegg is searching intensively for apples, pears and bullace plums – an archetype of the plum. (80% of the entire Austrian fruit cultivation area is located in Styria). Conservation activities concentrate on pome fruits. There is need for action for a systematic collection tour for stone fruit. Rare fruits such as quinces, apricots, peaches, cornelian cherries, mirabellas, medlar and wild fruit have, up to date, barely been systematically collected. There is an urgent need to collect rare fruit including wild fruit.

Nuts have only marginally been considered until now. They should be collected. Variety gardens should be set up.

Governmental bodies have not yet contributed to the conservation of old berry varieties.

Arche Noah has some old varieties from the Alpine region in its assortment. As berries do not reach the same age as fruit trees, it will be difficult to track down old stock. Launching a call to the public would be worth the effort.

22.1.5. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27,
E-mail: info@arche-noah.at, internet address: <http://www.arche-noah.at>, director and contact:
Beate Koller
Description:

The association Arche Noah has approx. 500 members today and has been actively conservating old cultivated plants for more than 10 years and. Most of them come from Bavaria and Austria. The area of activities ranges from seed delivery, consulting, management of seminars to reproduction support for old varieties. The association mainly works Germany and Austria, but other regions in Middle and Eastern Europe, are also covered. Species and varieties offered in the annual catalogue do not only originate from the Alpine region. Many varieties originate from other European countries as well as from South and North America. At present, the assortment includes approx. 6900 origins focusing on vegetables and agricultural species from Middle and Eastern Europe, amongst other local varieties and old breeding varieties. It is difficult to exactly define which varieties originate from the Alpine region. Many varieties from other countries have been cultivated as so-called indigenous varieties for a long time.

Conservation is done on farm by members, so-called 'ErhalterInnen' (conservationists) who plant seed over several years in their gardens. The pool of 'ErhalterInnen' includes not only numerous active individuals, but also diverse plant breeding organisations and associations from organic farmers' associations. There is also a broad cooperation with partner organisations and genebanks. With PR-work and political activities, the association tries to raise awareness on the conservation of old cultivated plants. Arche Noah has a show garden in Schiltern where hundreds of old varieties and herbs are presented to the wider public.

In 1991, Arche Noah was awarded the 'Niederösterreichische Umweltpreis' and the 'Österreichische Umweltschutzpreis 1991' ("Conservation Award") for its contribution to the conservation of old plant varieties.

In its support endangered fruit varieties, Arche Noah procures scion and annual grafts of rare varieties as well as providing consulting services for variety definition and literature. Some of the fruit varieties originate from the Bavarian and Austrian Alpine region. The following table shows an overview on fruit species taken care of by Arche Noah:

Apple(<i>Malus domestica</i>)	98 Varieties
Pear (<i>Pyrus communis</i>)	30 Varieties
Blackberry (<i>Rubus</i> sp.)	4 Varieties
Strawberry (<i>Fragaria</i> sp.)	14 Varieties
Bilberry (<i>Vaccinium myrtillus</i>)	1 Variety
Raspberry (<i>Rubus</i> sp.)	12 Varieties
Elder (<i>Sambucus nigra</i>)	7 Varieties
Red and blackcurrant (<i>Ribes nigrum</i>)	7 Varieties
Cherry (<i>Prunus avium</i>)	13 Varieties
Apricot (<i>Prunus armeniaca</i>)	1 Variety
Mullberry (<i>Morus</i> sp.)	2 Varieties
Medlar (<i>Mespilus germanica</i>)	2 Varieties
Peach (<i>Prunus persica</i>)	4 Varieties
Cranberry (<i>Vaccinium macrocarpum</i>)	1 Variety
Red/whitecurrant (<i>Ribes rubrum</i>)	19 Varieties
Quince (<i>Cydonia oblonga</i>)	3 Varieties
Gooseberry (<i>Ribes uva-crispa</i>)	7 Varieties
Sour cherry (<i>Prunus cerasus</i>)	5 Varieties
Damson, plum, 'Ringlotte', 'Kriecherl' (<i>Prunus</i> spp.)	22 Varieties
Hazelnut (<i>Corylus avellana</i>)	1 Variety
Walnut (<i>Juglans regia</i>)	1 Variety

Type of organisation: NGO

Active since: 1990

Members of staff: 13

Databank: yes

Additional protection: yes, by means of an own variety register and duplicates.

Long-term conservation: yes

Ökokreis Waldviertel – Gesellschaft zur Förderung biologischer und ökologischer Initiativen (Association for the Support of Organic and Ecological Initiatives)

Address: A-3910 Stift Zwettl 17, Tel.: 0043-2822/537 85, Fax: 0043-2822/537 85-15, E-mail: Oeko.kreis.buero@wvnet.at, Director: Emmerich Krtek, Contact: DI Ute Blaich

Description:

The Ökokreis does conservation work on pome and stone fruit in the areas Waldviertel and Weinviertel. Conservation work is done on farm in two variety gardens and by trading local varieties. An overall list of varieties maintained by the Ökokreis are installed in a database within the framework of a countrywide recording of pome and stone fruit. The databank is at present being established. Contact person is Dr. Bernkopf at the Institute for Agrobiologie in Linz. All varieties conserved by the Ökokreis have been available on the market within the last 10 years and are mainly cultivated in the Wald- and Weinviertel. Nurseries are linked up to the Ökokreis Waldviertel:

- 1) Some fruit varieties of the assortment of the organic nursery in the Museumsdorf Niedersulz are marketed. Further information on the fruit project Ökokreis may be taken from the internet on <http://www.museumsdorf.at>.

Apples	55 Varieties
Pears	23 Varieties
Cherries and sour cherries	4 Varieties
Damson	6 Varieties
Apricots (<i>Prunus armeniaca</i>)	6 Varieties
Peaches	5 Varieties
Elsbeeren (<i>Sorbus torminalis</i>)	1 Variety
Sorb tree (<i>Sorbus domestica</i>)	1 Variety
Walnut	1 Variety

- 2) The following fruit varieties are marketed close to Stift Zwettl/ Waldviertel:

Apples	98 Varieties
Pears	6 Varieties
Cherries	3 Varieties
Damson	5 Varieties

Type of organisation: NGO

Active since: 1988

Databank: yes, at present set up within the framework of IPGRI

Additional protection: yes

Long-term conservation: yes

Versuchsstation für Obst- und Weinbau Haidegg (Research Station for Fruit and Wine growing)

Address: Ragnitzstrasse 193, A-8047 Graz, Tel.: 0043-316/30 46 10, Fax: 0043-316/30 46 10-9, E-mail: post@lvzhai.stmk.gv.at, Internetaddress: <http://www.haidegg.at>, Director: DI Leonhard Steinbauer, Contact: Univ. Prof. Dr. Herbert Keppel

Description: The Versuchsstation für Obst- und Weinbau Haidegg is linked up to the Landwirtschaftlichen Versuchszentrum Steiermark (LVZ). It is active in the area of fruit and

wine cultivation with a focus on pome fruit in the region Styria, where 80% of the entire fruit cultivation area of Austria is located. The conservation work is on farm through a variety garden. It also does PR work and provides reproduction material. The research station participates with a working group in a project within the framework of the ARGE Streuobst. At present, 133 apple and 22 pear varieties are kept in the assortment which is continuously extended. All of them were cultivated in the Alpine region. At present, an evaluation of different fruit species is being performed which also uses genetic fingerprints for comparison. It is often noted that apples show different phenotypes but belong to the same variety which is cultivated at different locations. Molecular-biological analysis methods are being used to define duplicates with different names. There is collection activity for bullace plums which are mainly used for spirit production is running. This archetype of damson is widely distributed in Styria. Extensive collection activities are presently being conducted for apples and pears. A variety list of the entire fruit assortment has been made and was due to be complete in autumn 2001.

Type of organisation: public institution, subordinated to the regional government.

Active since: 1974

Members of staff: 20

Databank: yes, being set-up.

Additional protection: partially also conservation in other variety gardens

Long-term conservation: yes

Bundesamt für Agrarbiologie (BAB) –Federal Office for Agrobiology

Address: Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/3 81 26 12 59, Fax: 0043-732/38 54 82, E-mail: genbank@agrobio.bmlf.gv.at, Internetaddress: <http://www.agrobio.bmlf.gv.at>, Director: Dr. Josef Wimmer, Contact: Dr. Rudolf Schachl

Description:

The Bundesamt für Agrarbiologie has provided an important contribution to the conservation of Plant Genetic Resources since 1968. A more detailed description may be taken from the chapter on legumes, activities for fruit are mentioned here. In 1981, conservation activities were extended to fruit coppices. This became necessary in order to counteract the decrease of variety diversity caused by the clearing of farm orchards for economic reasons. Initially, grafting and raising of trees was carried out in its own nursery. Later on, reproduction was carried out in an Innviertel nursery. In 1986, planting continued around the Federal Office. In 1987/88, planting continued in the HBLA Elmberg and from 1990 – 1998 on the Landesgut Ritzlhof. The focus was on must and commercial varieties. Most of these varieties were recorded during orchard mapping in Upper Austria and bordering regions of Styria and Lower Austria. It is difficult to define varieties originating from the Alpine region as varieties from southern Germany are also to be found in the collection, too. Overlapping to neighbouring regions occurs and the displacement of local varieties has covered up the tracks back to the areas of origin. It is possible to have fruit varieties determined at the Bundesamt and to purchase scions of old fruit varieties. In the future, the focus for fruit will be as follows: maintaining the genebank, research and extension of the archive containing variety documentation, national and international cooperation with other institutions following the same objectives.

Type of organisation: governmental

Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau – Federal School and Federal Institute for Wine and Fruit Growing

Address: Wienerstrasse 74, A-3400 Klosterneuburg, Tel.: 0043-2243/379 10 DW 250, Fax: 0043-2243/267 05, internetaddress: <http://www.hblawo.bmlf.gv.at>

Director: DI Karl Vogl

Contact: DI Stefan Mader, E-mail: mader@hblawo.bmlf.gv.at

Description: The Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau has a fruit genebank and a vine variety collection. The focus in the area of fruit is on pome and stone fruit from the whole of Austria. Conservation work is done in a genebank, on farm with variety gardens, *in situ* and by providing propagation material. At present, 120 local varieties of Malus, approx. 10 local varieties of Pyrus and approx. 50 local varieties of Prunus are in the assortment. They all originate from the Alpine region. As the Bundeslehranstalt und Bundesamt für Wein- und Obstbau is the only governmental institute active in the area of fruit conservation, it deals with all indigenous fruit species and has a fairly comprehensive assortment for each of these species. There is a project on the collection and sorting of old fruit varieties.

Type of organisation: governmental

Active since: 1860

Members of staff: 120

Databank: yes

Additional protection: genebank

Long-term conservation: yes

22.2. Vines

22.2.1. Background

Recent investigations have shown that particularly in the main wine growing areas such as Burgenland, there are hardly any old wine varieties left. It is in these areas that commercial pressure has supported the fast spreading of performance varieties. There has been a large-scale clearance of vineyards which have been replanted with modern varieties. It has been estimated that there are still 20 to 30 old varieties in Austria, up to date, Only some of these old vines have been additionally conserved by cutting young shoots to start new vines.

22.2.2. Traditionally cultivated vines

Grape varieties from the Austrian federal states are listed in a wine book from the year 1876. The following number of varieties were then available:

- Krain with coastal areas: 10 vine varieties
- Lower Austria: 8 vine varieties
- Styria: 47 vine varieties
- Tyrol: 16 vine varieties

The development of Styrian wine production started in Marburg. During the Austrian-Hungarian monarchy, some Slovenian regions also belonged to Styria. Large wine growing areas later became Slovenian territory. Thus, Slovenia owns today 25 000 ha and Styria only 4000 ha of wine growing area. In this wine growing area, individual age-old vineyards are found which have not been replanted. Here, vines more than 100 years old can be found.

22.2.3. Current situation

The collection of vine varieties has been one of the tasks of the Höheren Bundeslehranstalt und Bundesamt für Wein- und Obstbau since its foundation in 1860. For its vine breeding, it uses biotechnological methods to identify varieties which are of relevance to the conservation of diversity. The institution participates in the research project "Grapevine Genetic Resources Network" (1997-2001) within the framework of the implementation of the EU-regulation 1467/94 'Conservation, Description, Collection and Use of Agricultural Genetic Resources'.

At the Höheren Bundeslehr- und Versuchsanstalt für Wein- und Obstbau in Klosterneuburg, a collection of local Austrian vine varieties has been started. The focus of the collection is on vines from Styria. In higher altitudes of Carinthia and Tyrol, individual vines are found up to an altitude of 650m. Arche Noah currently has 14 vine varieties in its collection.

22.2.4. Overview of actors and need for action

In Austria, 3 institutions (one NGO, one public and one governmental) take care of the conservation of old vine varieties. Altogether, very little research has been done on conservation of old vine varieties. It is difficult to precisely define the varieties precisely as little is known about them. Therefore, there is a need for action for research institutes and other responsible institutions to fill in these information gaps. It cannot be ruled out that particularly in remote areas there may be some old varieties, for example on house walls. Besides in Styria, only few collection tours have been conducted. There is also need for action to search the other Federal states for old vine varieties.

22.2.5. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at, Internetaddress: <http://www.arche-noah.at> , Director und Contact: Beate Koller

Description: Arche Noah has already been described in the chapter on fruit. It has 14 grapevine varieties. Some of them have been cultivated in the Austrian Alpine region in milder locations.

Type of organisation: NGO

Versuchsstation für Obst- und Weinbau Haidegg - Research Station for Fruit and Wine Growing

Address: Ragnitzstrasse 193, A-8047 Graz, Tel.: 0043-316/30 46 10, Fax: 0043-316/30 46 10-9, E-mail: post@lvzhai.stmk.gv.at, Internetaddress: <http://www.haidegg.at>, Director: DI Leonhard Steinbauer, Contact: Univ. Prof. Dr. Herbert Keppel

Description:

The Versuchsstation für Obst- und Weinbau in Haidegg cultivates fruit and vines. Several collection tours are presently being conducted in Styria and in Slovenian wine growing areas. The research station looks for typical indigenous Styrian varieties which can be reproduced and grafted. The propagated material is then passed on to farmers. There are currently approx. 40 interesting types available from this clone material. These are archetypes which have rarely been subject to selection processes. The most important representatives are Traminer and Salvager. An overall list of these vine varieties is presently being compiled. It was due to be completed by the end of 2001.

Type of organisation: public institution, administered by the regional government

Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau - Federal School and Federal Institute for Wine and Fruit Growing

Address: Wienerstrasse 74, A-3400 Klosterneuburg, Tel.: 0043-2243/379 10 DW 250, Fax: 0043-2243/267 05

Director: DI Karl Vogl

Contact: DI Stefan Mader, E-mail: mader@hblawo.bmlf.gv.at

Description:

The Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau is described in the chapter on fruit. It collects vine varieties with a focus on Vitis. At present, approx. 400 varieties of Vitis are included in the assortment. Furthermore, the Höhere Bundeslehranstalt für Wein- und Obstbau is involved in the EU-project Regent 081. (Vitis). More information may be taken from the Internetaddress.

<http://www.hblawo.bmlf.gv.at>.

Type of organisation: governmental

22.3. Vegetables

22.3.1. Background

Local vegetable varieties have nearly completely been replaced by modern varieties as a result of the quick development of the seed trade in the 20th century. The fact that vegetables have barely been bred in Austria has been detrimental. A large part of the traditional local vegetable varieties formerly planted in the farm gardens in Austria seems to be lost. New collection efforts can barely be successful and can only be modest contributions to the already existing collections.

22.3.2. Actual vegetables

The vegetable varieties conserved by the Höheren Bundeslehr- und Versuchsanstalt für Gartenbau in Wien are stored and registered at the Austrian genebank in Vienna. In the Bundesanstalt Linz, some old Austrian varieties are stored under the category “wild plants/special cultures” and others under “non-hybrid vegetables”. A large and important part of the old vegetables collections is taken care of by Arche Noah, another part is in the seed store of Arche Noah and is reproduced at regular intervals. According to Arche Noah, nearly all vegetables have to be categorised as 'endangered'. Until now, systematic vegetable collection activities have not been carried out. A collection tour organised by Gatersleben (Germany) was also conducted in Styria, and vegetable varieties were registered. Altogether, 1200 varieties were conserved, amongst them 120 potato varieties. It is also difficult to precisely define the origin of a certain variety.

22.3.3. 'Forgotten vegetables'

'Forgotten vegetables' as a fixed expression are difficult to grasp. In the genebanks, they are, amongst others, categorised as 'others'. In the annual catalogue of Arche Noah, they are listed under 'rare garden and field crops'. The 'forgotten vegetables' are cultivated plants which were usually grown in Austria. These plants have been forgotten or are barely traded or bred in Austria. Some of them were originally wild plants and then cultivated in the garden. In the course of time, higher yielding garden varieties developed. Examples for 'forgotten vegetables' are: different dock species (*Rumex* spp.), teasel, angelica, corky-fruit water dropwort, chufa, edible burdock, edible vetchling, smarant, common sorrel, garden oracle, allgood, salsify, Hirschhornsalat, tuberous chervil, Japanese artichoke, cress, sea kale, Mougri, sea kale, rampion, quinoa, seed hempnettle, Schnittknoblauch, asparagus pea, Speisechrysantheme, anis chevril, skirret and evening primrose. The modern function of these 'forgotten vegetables', not to be underestimated, lies in the popularity of some of those varieties. They may well be used as a figurehead in order to draw attention to the situation of old cultivated plants in general. Arche Noah does not list these plants separately. Many of these varieties come from outside Austria and thus cannot be called 'indigenous'.

22.3.4. Overview of actors and need for action

	NGOs	Private	Paragovernmental institutions	Governmental institutions	Total
Vegetables	1	1	2	1	5

Action is urgently required for vegetables. Most of the formerly cultivated plants have already disappeared. The effort and expense of large-scale collection tours are almost too high as the chance of tracking down obsolete plants is very low. However, it is possible that there are still local varieties of certain plant species (e.g. Allium). Collection activities should therefore be well planned. In order to search systematically for vegetables, it first has to be determined which varieties were formerly traded and cultivated. The inventory of formerly cultivated vegetables could serve as a basis for well organised collection tours or public appeals. Breeding should be emphasised in order to conserve vegetables in the long term. This could reintroduce the cultivation of local varieties, specially adapted to local conditions. It is vital that vegetable breeding receives government support.

22.3.5. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at, Internetaddress: <http://www.arche-noah.at>, Director and Contact: Beate Koller

Description: Arche Noah has already been described in the chapter on fruit. Diverse varieties which were formerly cultivated in the Alpine region are found in the vegetable assortment. Further information may be taken from the internet or the variety handbook can be ordered directly at Arche Noah.

Type of organisation: NGO

DI Helmut Reiner, Plants – Food – Quality

Address: Grünentorgasse 19/12, A-1090 Wien, Tel./Fax: 0043-1/310 59 62, E-mail: helmut.reiner@teleweb.at

Description:

Helmut Reiner's one-man business is active in investigates and provides consultation services for small and medium-sized enterprises in the food sector. The area of activities stretches from biodiversity of food plants and variety identification with an emphasis on cereals and vegetables, particularly Brassicaceae (*Brassica rapa*) and spices. Austria and neighbouring countries are covered, and for Brassica Rapa, the whole world is included. Conservation work is done by means of a genebank and PR-activities. Helmut Reiner takes care of many varieties of *Brassica rapa ssp. rapa* (turnip, Halmrüben, turnips and navets). The genotypes originate entirely from genebanks. A Halmrübe from Villgarten in East Tyrol which was originally cultivated in the Alpine region is stored in the genebank Tyrol. Brassica-turnips were an important food for the inhabitants of the Alps before the introduction of the potato.

At present, a project on *Brassica nigra* (black mustard) is underway and another one with basic rapa is planned.

Type of organisation: private enterprise

Active since: approx. 10 years

Databank: yes, private Access databank

Long-term conservation: yes, through a project for evaluation and conservation breeding.

Versuchsstation für Spezialkulturen –Research Station for Special Crops

Address: Gaisseregg 5, A-8551 Wies, Tel.: 0043-3465/-24 23, Fax: Tel.: 0043-3465/28 44, E-mail: post@lvzwie.stmk.gv.at

Director and contact: Ing. Helmut Pelzmann

Description:

The Versuchsstation für Spezialkulturen collects of local vegetable varieties and medicinal and spice plants (vegetative and generatively) from the whole of Styria. Conservation work is done on farm by means of a variety garden, a genebank, through trade with local varieties and by delivery of propagation material. In 2000, trials were carried out with the following vegetable varieties: tomatoes, cucumber, pole bean, green and red pepper, lettuce (Krachsalat, Butterhäuptel, Blattsalat, radicchio, endive, Krauthäuptel), zucchini, squash, oil squash, eggplant, Chinese cabbage, kohlrabi and white cabbage.

Amongst others, the research station takes care of three local varieties of lettuce whereby the variety 'Unikum' was cultivated in the Alpine region.

Type of organisation: governmental, belongs to the state of Styria

Active since: 1980

Members of staff: 12

Databank: no

Long-term conservation: yes

Bundesamt für Agrarbiologie (BAB) –Federal Office for Agrobiology

Address: Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/38 12 612 59, Fax: 0043-732/38 54 82, E-mail: genbank@agrobio.bmlf.gv.at, Internetaddress: <http://www.agrobio.bmlf.gv.at>;

Director: Dr. Josef Wimmer; Contact: Dr. Rudolf Schachl

Description:

The Federal Office for Agrobiology also maintains old vegetable varieties. All local breeds were cultivated in the Alpine region. A more detailed description may be taken from the chapter on legumes.

Type of organisation: governmental

Amt der Tiroler Landesregierung – Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508 39 70, Fax: 0043512/508 –39 75, E-mail: landw.schulwesen@tirol.gv.at; Director and contact: DI Kaspar Holaus

Description:

The administration of the Tyrol regional government focuses on variety certification, field cropping, grassland, conservation breeding and the management of the Tyrol genebank. 6 varieties of turnip and one variety of cabbage is included in the genebank. Most of them were cultivated in the Alpine region.

Type of organisation: paragovernmental

A more detailed description of this institution is found in the chapter on cereals.

22.4. Potatoes (*Solanum tuberosum*)

22.4.1. Background

The potato only gained importance in Austria after 1800. It was then cultivated in the Alpine region for basic food supply and many local varieties originated in the different ecological

niches. A problem is the infestation with viruses which limits the lifetime of local assortments.

A collection tour has not yet taken place for potatoes. Dr. Schuler, however, has systematically collected all varieties since 1940.

22.4.2. Overview of actors and need for action

At present, only two actors conserve potatoes in Austria. In the branch Gross Lawsuits of the genebank Gatersleben, many samples from the Austrian Alpine region are stored. Despite preceding search activities, many existent varieties have certainly not yet been recorded. Therefore, there is a need for further search activities for potatoes. Furthermore, a variety garden for potatoes should be set up.

22.4.3. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at, Internetaddress: <http://www.arche-noah.at>, Director and Contact: Beate Koller

Description: Arche Noah keeps some old varieties in its assortment, such as e.g. Blaue Osttiroler, Enestaler Alpe, Gruss aus Osttirol, Scheckerl etc. Altogether, 35 potato varieties have been registered some of which originated in the Austrian Alpine region. Further information on the Arche Noah may be found in the chapter on fruit.

Type of organisation: NGO

Amt der Tiroler Landesregierung- Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508 –39 70, Fax: 0043-512/508 –39 75, E-mail: landw.schulwesen@tirol.gv.at; Director und Contact: DI Kaspar Halaus

Description: The administration of the Tyrol regional government is described in detail in the chapter on cereals. With regard to potatoes, seven varieties are conserved *ex situ* in the Tyrol genebank, all of which were formerly cultivated in the Austrian Alpine region.

Type of organisation: paragonovernmental

A more detailed description of this institution may be found in the chapter on cereals.

22.5. Legumes

22.5.1. Background

Legumes never played an important commercial role in Austria. They were mainly produced for the farmer's own use. Therefore, a lot more local varieties developed compared for example to cereals which were traditionally cultivated. More than 80 Phaseolus types are known.

22.5.2. Traditionally cultivated legumes

The field bean was a widely spread food in Medieval times until it lost its importance relatively quickly after the introduction of the Phaseolus bean at the end of the 17th century. It then was 'degraded' to fodder. The field bean was formerly not only cultivated for fodder purposes in the Alpine region. Three samples of the 'Lungauer Field Bean' have been included in the genebank collections.

Pea cultivation, however, became increasingly important. In the year 1866, ALEFELD still described 102 pea varieties. The loss of this broad local assortment was caused by the success of modern plant breeding.

The lentil continues to play a certain role as foodstuff, but was never as important as the pea. BECKER-DILLINGEN mentioned the widely spread cultivation of the plant in Central and Southern Germany in the 1920s, without mentioning the Austrian Alps. After the Second World War, however, lentils disappeared completely, along with the local assortment of varieties.

Phaseolus vulgaris und *Phaseolus coccineus* were limited to the warmer regions of East and Southeast Austria. The entire Styrian local assortment was recorded in a collection tour between 1982 and 1984. A later comparison of these local varieties proved to be identical with the varieties offered at the free farmers' market in Budapest. It can be assumed that the Slovenian local assortment of *Phaseolus* beans is identical with the local Austrian assortment. This seems plausible considering the free trade, exchange of information and personal contacts at the time of the Austrian-Hungarian Monarchy.

At the first meeting of the Grain-Legumes network in Copenhagen in 1995 the Bundesamt für Agrarbiologie, Linz, was entrusted with the setting-up and managing the European *Phaseolus* databank. More detailed information is given in the chapter 'Integration of Austria in the ECP/GR'.

22.5.3. Overview of organisations and need for action

Species	NGOs	Private	Paragovernmental institutions	Governmental institutions	Total
Bush Bean (<i>Phaseolus vulgaris</i> var. <i>nanus</i>)	1			1	2
Lima Bean (<i>Phaseolus lunatus</i>)	1				1
Pole Bean (<i>Phaseolus vulgaris</i> var. <i>vulg.</i>)	1		1	2	4
Scarlet Runner (<i>Phaseolus coccineus</i>)	1			1	2
Field Bean (<i>Vicia faba</i>)	1	1		1	3
Pea (<i>Pisum sativum</i>)	1		1	1	3
Lentil (<i>Lens culinaris</i>)	1			1	2
Vetchling (<i>Lathyrus sativus</i> u.a.)	1			1	2
Horse Bean (<i>Macrotyloma uniflorum</i>)			1		1

In Austria, there are some collections of legumes whereby *Phaseolus* beans are the best represented. Collection tours have mainly been conducted in Styria, and in Burgenland. There is a need to collect in other countries, too. The official opinion is that the local forms of field bean, pea and lentil have to be considered lost.

22.5.4. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/ 86 26, Fax: 00432734/86 27, E-mail: info@arche-noah.at, Internetaddress: <http://www.arche-noah.at>, Director and Contact: Beate Koller

Description: A more detailed description of the activities of Arche Noah is provided in the chapter on fruit. Arche Noah takes care of the following species of legumes:

Species	Number of varieties
Bush Bean (<i>Phaseolus vulgaris</i> var. <i>nanus</i>)	53
Lima Bean (<i>Phaseolus lunatus</i>)	3
Pole bean (<i>Phaseolus vulgaris</i> var. <i>vulg.</i>)	90
Scarlet runner (<i>Phaseolus coccineus</i>)	21
Broad Bean (<i>Vicia faba</i>)	18
Pea (<i>Pisum sativum</i>)	35
Lentil (<i>Lens culinaris</i>)	3
Vetchling (<i>Lathyrus sativus</i> u.a.)	5

Type of organisation: NGO

Seed breeding enterprise Hans Gahleitner

Address: Eckersberg 4, A-4122 Arnreit, Tel.: 0043 7282/70 07, Fax: 0043-7282/70 07 10

Description:

Hans Gahleitner's one-man enterprise produces seed. Field beans are sometimes included in the breeding and the field bean variety 'Bioro', for example, is also part of the assortment. This variety is currently licensed in Austria. The basis material for breeding originates from Switzerland, Germany and Austria. The seed varieties produced by Hans Gahleitner are in the first line suited for organic agriculture. The enterprise is an approved and controlled farm with the quality seal 'Erde Saat' for organic agriculture.

Type of organisation: private enterprise

Active in seed breeding since 1982

Databank: no

Long-term conservation: The aim is long-term conservation for the purpose of variety breeding.

Bundesamt für Agrarbiologie – Federal Office for Agrobiology

Address: Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 26 12 59, Fax: 0043-732/38 54 82, E-mail: genbank@agrobio.bmlf.gv.at, Internetaddress: <http://www.agrobio.bmlf.gv.at>;

Director: Dr. Josef Wimmer; Contact: Dr. Rudolf Schachl

Description: The Linz Genebank currently has approx. 3500 accessions (varieties, etc.). The collection also includes garden beans, too. The Federal Institute is, today, the largest European genebank. Its task is the conservation of genetic resources of plant and livestock, whereby the focus is on agricultural and gardening plants and livestock. The geographical area covered is the whole country, with an emphasis on Upper Austria and Salzburg. Conservation work is done on-farm through an arboretum. In addition to the genebank, the work includes the management of the largest Austrian plant genetic collection of local varieties, representation in international experts' committees and the initiation and management of the European Phaseolus databank within the framework of the European Cooperative Programme on Genetic Resources ECP/GR. Presently, 628 entries are registered in the Phaseolus databank, all local varieties were cultivated in the European Alpine region. This is the result of intensive collection activity in Lower Styria and in Burgenland. Propagation material is only supplied for scientific purposes in accordance with the Material Transfer Agreement of Convention on Biological Diversity (CBD).

Type of organisation: governmental

Active since: 1968

Members of staff: 150

Databank: yes

Additional protection: yes, in the genebanks of Wageningen (NL) and Gatersleben (D).

Long-term conservation: yes

Versuchsstation für Spezialkulturen –Research Station for Special Crops

Address: Gaisseregg 5, A-8551 Wies, Tel.: 0043-3465/24 23, Fax: 0043-3465/28 44, E-mail: post@lvzwie.stmk.gv.at; Director: Ing. Helmut Pelzmann; Contact: Ing. Helmut Pelzmann

Description:

The Versuchsstation für Spezialkulturen has already been described in the section on vegetables. In 2000, trials for conservation breeding of wattle-, bush-, pole- und Käferbohne were carried out. At present, 6 varieties of bush beans (Trockenkoch), 11 varieties of pole bean (7 Trockenkoch) and 4 pole bean varieties are taken care of at the Versuchsstation für Spezialkulturen. They all are local varieties from Styria. Of these, the following were cultivated in the Alpine region: Wachtel (Trockenkoch)-bush bean „Rotholzer“, 6-er Kipfler-pole bean und pole bean „Kaiser Friedrich“.

Type of organisation: governmental, belongs to the state administration of Styria.

Amt der Tiroler Landesregierung- Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508 39 70, Fax: 0043-512/508 39 75, E-mail: landw.schulwesen@tirol.gv.at; director and contact: DI Kaspar Holaus

Description: The administration of the Tyrol regional government is described in detail in the chapter on cereals. The following table provides an overview of the legume collection of local varieties of the former Landesanstalt in Rinn (safeguarded varieties, in 1999), whereby most of them were cultivated in the Alpine region.

Species	Number of Varieties
Horse Bean	8
<i>Phaseolus</i> -bean	10
Peas	4

Type of organisation: paragonovernmental

22.6. Cereals

22.6.1. Background

A large collection of Alpine local cereal varieties was started in 1920 and has been described by MAYR (1964). The collection with 190 samples is today one of the oldest collection of cultivated plants in Gatersleben (Germany).

SCHACHL showed clearly in his work the variety replacement of the Alpine Bartweizen by the Sipbachzeller wheat. With increasing altitude, mainly the most resistant types were selected in the Alpine region. When a local had to compete against a modern variety, the better adapted local varieties nearly always performed better. Mountain farmers therefore carried out a 100% change of seed, but mixed purchased seed with their own. This led to a thorough mixing of varieties. At higher altitudes, only those with a selection advantage could withstand the rough climate. The main cause for the replacement of local varieties clearly lies in changes brought about by breeding (disease resistance, enhanced stability, better quality criteria, and partially also higher yields). This was especially true for spring varieties. Winter varieties did not change so fast because of their higher winter resistance, frost resistance and snow resistance when compared to breeding varieties. In the Austrian genebanks, numerous

local varieties are stored. During the 1920s, collection was systematic, but then became more sporadic.

22.6.2. Traditionally cultivated cereals

Wheat (*Triticum* sp.):

The oldest stone-age discoveries of wheat in Austria date back to the times of the Lake dwellers at the Mondsee. Winter wheat and spring wheat have traditionally been cultivated in the Austrian Alpine region. If the variability of the different local origins of wheat is reduced to a few dominantly inherited characteristics, only the two groups of local varieties of the Alpine Bartweizen and the Sipbachzeller Wheat can be identified. The genepool of these varieties includes a number of more or less identical local varieties or local origins. It seems therefore justified to talk about groups of local varieties. Besides these groups, remains of other local wheat varieties or wheat forms such as the Spelz- and dinkel are mainly found in the Tyrol Alpine region. The latter ones cannot be related to the above mentioned groups and originate probably from early replacement processes.

Rye (*Secale cereale*):

Winter rye and spring rye were traditionally cultivated in the Austrian Alpine region. Diverse local rye varieties have been conserved completely, but in their improved forms (by selection). These are the types Schlägler Roggen, Kaltenberger Roggen, Petroneller Tyrnauer, Chrysanth-Hahserrogen, der Lungauer Tauernroggen und Tschermaks veredelter Machfelder. In addition, there are different local origins with local variety character which cannot always be clearly identified. 6 to 8 groups of local varieties are differentiated. The 'brandroogen' from Styria is considered to be extinct (these were often alternating 'Johannisroggen'). They were often cultivated after complete cutting and subsequent burning. There is also Schlägler rye, from the breeding station Schägl, which has been replaced the Johannis rye.

Barley (*Hordeum vulgare*):

The loss of local varieties was particularly large for spring barley as adaptation was less required and breeding progress brought fast improvements. A further cause for the disappearance of many local barley varieties was the downy mildew epidemics in the second half of the 19th century, which threatened the entire spring barley crop. Only after finding resistant varieties was it possible to cultivate new local varieties. Genetic diversity was dramatically reduced by this epidemic which led to increasing uniformity of the range of local varieties. In spite of this, the Rinn collection includes a large assortment of local varieties from the first half of the 20th century. Amongst them two row and compound row forms, Fisser barley, one Imperial type and a six row Pumpergerste should be mentioned here. Besides some older origins, some of those barley forms are stored in the collection of Linz which were introduced around 1928 either from Lunggau or Franconia.

There is only one remaining variety of winter barley which is, however, not very important for agriculture. The number of local varieties was probably much larger in former times, but there has been a constant loss of individual varieties. The replacement process in agricultural crop production has led to a quick reduction of local varieties.

Naked barley represents a special case. MAYR could secure some origins whilst dealing with the Alpine region and integrate them into the Rinn collection. These are the only existing naked barley samples from the Austrian Alpine region. Naked barley was mentioned by WERNECK for the entire Alpine region, but his, and BURGASSER's, search for seed at the beginning of the 1920s remained unsuccessful.

Oats (*Avena* sp.):

Oats were traditionally cultivated in the Austrian Alpine region, whereby the variety losses are similar to those of spring barley. Through variety transfer from certain areas such as the Mühl- and Waldviertel to the Alpine upland and into the Alpine valleys, and through the replacement of the old assortment by a new and higher yielding one, the old local varieties have been nearly entirely replaced. At the beginning of the 1920s, there was still a broad assortment of local varieties including Black oats (*Avena sativa nigra*) still existed. The assortment was probably influenced by the soldiers of the First World War, who brought home seed from elsewhere. Evidence for this assumption is provided by names such as 'Polish Oats' or 'Russian Oats'. Around 1920, a Tartarian oats spread from Linz-Wels into the different parts of Upper Austria. Naked oats was also traditionally cultivated in the Austrian Alpine region. At the end of the 1950s, a naked oats variety was found by M.SCHACHL in Attergau. The bristle cat (*Avena strigosa*) has meanwhile been degraded to a weed in the Lower Mühlviertel and Waldviertel. It was brought to the country in the 19th century as a forage oats and started to turn wild. Thanks to its robustness, bristle cat has accompanied oats populations until today.

Millet (*Panicum* sp., *Setaria* sp.):

The official side assumes there is no longer any millet in the Austrian Alpine region. The cultivation of millet for food started to decrease in the 16th century. Until the 17th century, millet remained important as a popular source of food but it was finally replaced by the potato in the 19th century. In the Austrian Alpine region, *Yellow millet* and common millet were traditionally cultivated.

Maize (*Zea mays*):

As a tropical plant, maize was for a long time limited to the 19°C. June isotherme following the 45th parallel. Through later breeding the plant could push ahead into colder regions. Cultivation remained limited to more favoured local locations in Vorarlberg, Tyrol, Lower Austria, Burgenland and Styria. At the end of the 19th century, maize had not reached the status of a basic food stuff in these regions neither did the plant spread on a large scale. Only hybrid breeding in the 1950s and 1960s allowed a fast expansion to less favourable locations. Freely flowering local varieties disappeared, however, fast. The official side was slow to recognise. The very comprehensive local assortment could, however, be collected and conserved together with millet varieties still cultivated at that time.

Buckwheat (*Fagopyrum esculentum*):

Buckwheat is sometimes considered to be a cereal despite not belonging to the grasses. Within the present frame, it is mentioned in the chapter on cereals. Buckwheat was imported by the Venetians from the Black Sea region in the Medieval and then cultivated in Lombardy and Dalmatian. Further spreading took place from here to Styria, South Tyrol and Carinthia. The broadest distribution of buckwheat cultivation took place in the 17th and 18th century. The plant was used for fodder as well as for food purposes. Buckwheat flour is not particularly suited for baking, even when mixed with wheat flour. The bread becomes crumbly. Therefore, buckwheat is mostly used for mashie food in the regions where it lasted for the longest time, e.g. Sterz in Styria.

22.6.3. Overview of organisations and institutions

The following table provides an overview on conservation initiatives existing at present:

			paragovernmental	governmental	
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Cereal Species	NGOs	Private	Institutions	Institutions	Total
Dinkel	1	1			2
One-grained wheat	1	1			2
Emmer	1				1
Barley	1		1	1	3
Oats	1		1	1	3
Maize	1		1		2
Rye	1		1		2
Wheat	2		1	1	4
Millet	1		1		2
Buckwheat			1		1

22.6.4. Need for action

There are currently three collections in Austria at Linz, Rinn/Tyrol and Vienna which conserve a considerable number of Alpine local cereal varieties *ex situ*. Arche Noah criticises that mainly those varieties are registered in the genebanks which show high yield prospects, disease resistances, or multiple utilisation possibilities. It can therefore be assumed that, particularly in the mountain regions, wheat, emmer and rye could still be found. These is need to be systematically collected. Furthermore, it would be useful to set-up a variety garden in the Alpine region in order to conserve cereals *in situ*. Marketing of rare cereal varieties and special bread cakes, could help to support the cultivation of old varieties again.

22.6.5. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at, Internetaddress: , Director and contact: Beate Koller

Description: In the section on fruit, Arche Noah has already been presented. It has many old cereal varieties which were originally cultivated in the Alpine region. The following table shows an overview on cereals which are maintained by Arche Noah:

Dinkel (<i>Triticum spelta</i>)	10 Varieties
One-grained wheat (<i>Triticum monococcum</i>)	13 Varieties
Emmer (<i>Triticum dicoccon</i>)	18 Varieties
Barley (<i>Hordeum vulgare</i>)	17 Varieties
Oats (<i>Avena sativa</i>)	12 Varieties
Foxtail millet (<i>Setaria italica</i>)	8 Varieties
Common millet (<i>Panicum miliaceum</i>)	7 Varieties
Sorghum (<i>Sorghum</i> sp.)	6 Varieties
Maize (<i>Zea mays</i>)	26 Varieties
Rye (<i>Secale cereale</i>)	11 Varieties
Johannis rye (<i>Secale monticule</i>)	1 Variety
Common wheat (<i>Triticum aestivum</i>)	49 Varieties
Hard Wheat(<i>Triticum durum</i>)	7 Varieties

Other wheat varieties (<i>Triticum</i> sp.)	11 Varieties
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Type of organisation: NGO

Seed breeding enterprise Hans Gahleitner

Address: Eckersberg 4, A-4122 Arnreit, Tel.: 0043-7282/70 07, Fax: 0043-7282/70 07 10

Description:

Hans Gahleitner's seed production company of has already been presented in the chapter on vegetables. The cereals seed production concentrates on dinkel and one-grained wheat. The one-man enterprise also has the dinkel variety 'Ebners-Rotkorn' in its assortment. This variety which is officially licensed in Austria was originally cultivated in the Alpine region. The basis seed for breeding originates from Switzerland, Germany and Austria.

Type of organisation: private enterprise

Amt der Tiroler Landesregierung – Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508.39 70, Fax: 0043-512/508 39 75, E-mail:

landw.schulwesen@tirol.gv.at; Director und Contact: DI Kaspar Halaus

Description:

The Landesanstalt für Pflanzenzucht und Samenprüfung in Rinn/Tyrol has already been in existence since 1939, but the registration of local Alpine coral varieties such as winter and spring wheat and spring barley had already taken place from 1922 to 1934. After the Second World War, collecting was extended to the species oats, millet, buckwheat, flax, poppies and winter rye from the Alpine region. This institution was closed at the end of 1999, to continue some activities, the Department of Agricultural Experimentation was set up at the administration of the Tyrol regional government. Activities in the area of the conservation of Plant Genetic Resources concentrate on conservation breeding and the management of the Tyrol genebank. The focus is on licensing, field cropping and grassland and it works within the Eastern Alpine region. Furthermore, the institution also provides propagation material. The following table provides an overview of the local cereal varieties collection of the former Provincial Centre in Rinn (secured varieties, in 1999), whereby approx. 80 % were cultivated in the Alpine region.

Species	Number Varieties
Winter wheat	70
Winter rye	29
Spring wheat	161
Spring barley	144
Spring rye	3
Oats	19
Maize (incl. Psalter)	24
Millet	10
Buckwheat	21

Type of organisation: paragonovernmental

Active since: 1922

Members of staff: 4

Databank: no, presently set up.

Additional protection: no, mainly conservation in a genebank, back-up system has to be set up

Long-term conservation: yes

Bundesamt für Agrarbiologie (BAB) – Federal Office for Agrobiology

Address: Wieningerstrasse 8, A-4020 Linz, Tel.: 0043-732/381 26 12 59, Fax: 0043-732/38 54 82, E-mail: genbank@agrobio.bmlf.gv.at, Internetaddress: <http://www.agrobio.bmlf.gv.at>; Director: Dr. Josef Wimmer; Contact: Dr. Rudolf Schachl

Description:

Description: In 1968, the Federal Institute (now the Federal Office) for Agrarbiology in Linz received 80 tribes of old Austrian varieties of wheat, barley and oats from a seed production company. At the time, the change from local varieties with long straw to the high yielding varieties with short straw had already taken place in most parts of Austria. It was only in the climatically rough valleys that the old local varieties continued to be cultivated for many years, because high yielding varieties failed in these locations as their resistance was not sufficiently developed. Until approx. 1980, the focus was on the collection, description and conservation of old cereal varieties. The Linz cereal collection is therefore one of the most valuable collections conserving cereal diversity. All local varieties originate from the Alpine region.

The Bundesamt for Agrobiology is described in the chapter on legumes.

Type of organisation: governmental

Bundesamt und Forschungszentrum für Landwirtschaft (BFL) – Federal Institute for Agronomy and Crop Sciences)

Address: Spargelfeldstrasse 191, P.O. Box 400, A-1226 Wien, Tel.: 0043-1/732 16 41 70, Fax: 0043-1/732 16 –42 11; Director: DI Josef Hinderholzer; Contact: DI Sonja Schantl, E-mail: sschantl@bfl.at

Description: The area of activities of the Bundesamtes und Forschungszentrums für Landwirtschaft is the management of a genebank and networking with national and international committees. Cereals are given special attention in conservation work. Further activities are PR-work and political work. Conservation work covers the Eastern Austrian area. The databank of the Bundesamt is linked up to the other public databanks in Austria.

Access is possible under <http://www.agrobio.bmlf.gv.at>.

At present, 1068 entries are registered in the databank, some of which do originate from the Alpine region.

Type of organisation: governmental

Active since: 1970

Databank: yes

Additional protection: partially

Long-term conservation: yes

22.7. Medicinal plants and herbs

22.7.1. Background

Medicinal plants have been collected in Austria in the wild and then been cultivated and developed. A broad diversity of mint has developed. The Corinthian mint, e.g. has been traditionally important. Blue-white trigonella is used as spice in the Austrian Alpine region. There is a larger collection of medicinal plants in the Bundeslehranstalten in Wies and Korneuburg; a smaller one in Linz. The collection is used particularly for plant medicine research.

22.7.2. Need for action

Medicinal plants and herbs seem at first sight to be less endangered than other cultivated plants as they are cultivated in botanical gardens, in demonstration and educational gardens,

in monasteries, house gardens and farm gardens. The broad distribution of this group of plants has certainly contributed to the conservation of many medicinal plants and herbs until now. Action needs to be taken to ensure future collection tours. Attention should increasingly be directed to spices and tea plants. Differentiation from wild plants is not very easy, many plants have changed from wild plants to garden plants. An inexhaustible diversity can probably still be found in old gardens.

22.7.3. Actors

Arche Noah

Address: Obere Strasse 40, A-3553 Schliltern, Tel.: 0043-2734/86 26, Fax: 0043-2734/86 27, E-mail: info@arche-noah.at, Internetaddress: <http://www.arche-noah.at>, Director and Contact: Beate Koller

Description:

A more detailed description of the association can be found in the chapter on fruit. The Arche Noah Variety Handbook 2001 offers more than 140 varieties of spices, tea and medicinal plants. Some originate from the Alpine region, but it is difficult to precisely define the origin.

Type of organisation: NGO

Versuchsstation für Spezialkulturen - Research Station for Special Crops

Address: Gaisseregg 5, A-8551 Wies, Tel.: 0043-3465/24 23, Fax: 00433465/28 44, E-mail: post@lvzwie.stmk.gv.at; Director: Ing. Helmut Pelzmann; Contact: Ing. Helmut Pelzmann

Description: The Versuchsstation für Spezialkulturen in Wies is described in the chapter on vegetables. The station collects local medicinal plants and spices (generative and vegetative), from Styria. At the research station, the following trials were conducted with medicinal and spice plants in 2000:

- demonstration cultures of various tea and spice herbs for fresh plant harvest and dry plant harvest, particularly sunflower, common bearberry and common milkwort.
- Cultivation trials of various wild herbs for seed production, e.g. Greek marjoram, perforated St. Johns wort, catmint, sweet chamomile and many others.
- Collection of various medicinal, spice and aroma plants, some organic, on 180 plots for stock protection, seed production, sample material, demonstration purposes.

Additionally, trials were conducted in the in-vitro laboratory on depositing of valuable genotypes of medicinal and spice plants. The collection of medicinal plants of the research station included 161 medicinal plants in the year 2000, amongst them 10 peppermint varieties. The Carinthian Brown mint 'Marienblatt' (*Chrysanthemum balsamita*), French tarragon (*Artemisia dracuncululus*), gold of pleasure (*Camelina sativa*) and the weavers' teasel (*Dipsacus sativus*) were cultivated in the Alpine region.

Type of organisation: governmental

Bundesamt und Forschungszentrum für Landwirtschaft (BFL) - Federal Office and Research Centre for Agronomy and Crop Sciences

Address: Spargelfeldstrasse 191, P.O. Box 400, A-1226 Wien, Tel.: 0043-1/732 16 –41 70, Fax: 0043-1/732 16 –42 11; Director: DI Josef Hinderholzer; Contact: DI Sonja Schantl, E-mail: sschantl@bfl.at

Description:

The collection of medicinal and spice plants of the former agricultural chemical Bundesanstalt has been integrated in the collection of the BFL. It has already been in existence since 1898 and has mainly been used for fertiliser trials with cultivated plants. Medicinal plant research became important later. The collection of medicinal plants includes 339 varieties altogether, with 245 varieties originating from Austria.

Type of organisation: governmental

Amt der Tiroler Landesregierung –Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508 39 70, Fax: 0043-512/508 39 75, E-mail:

landw.schulwesen@tirol.gv.at; director and contact: DI Kaspar Holaus

Description: The Amt der Tiroler Landesregierung focuses on grassland and conservation breeding. The Tyrol genebank includes two varieties of 'Brotklee' which were also cultivated in the Alpine region.

Type of organisation: paragovernmental

22.8. Forage and industrial plants

22.8.1. Background

Forage plants

Forage plant cultivation is relatively young from a historical point of view. SCHUBART wrote a paper in the middle of the 18th century bearing the title "Die verschiedenen Eigenschaften und der vorteilhafte Anbau der Futterpflanzen – the different characteristics and the advantageous cultivation of forage plants", and in 1784, his two-volume publication called "Ökonomisch kameralistische Schriften" was published which was, according to his own words, meant to be an 'advice for all farmers suffering from forage shortage'.

SCHUBART's publication became so important that he was made a member of the nobility ("Edler vom Kleefeld") by the Emperor Kaiser Joseph II because of his merits in the introduction of field crop cultivation. Red clover and blue-white trigonella were traditionally cultivated in the Austrian Alpine region, as well as oats, naked oats and field beans.

As grasses and red clover are exclusively cross-fertilised, it has to be assumed that there is a very high gene flow between those groups. The risk of extinction for forage plants is therefore not very high, because the gene flow between modern varieties and wild forms was effective in both directions.

Industrial plants

Poppy was traditionally cultivated in the northern Upper and Lower Austria and in Styria. A broad variability is particularly found in the Mühlviertel and the Waldviertel. There are still some basic types of poppy. At the beginning of the 1980s, most of the still existing local assortment was collected. A thorough collection of flax was carried out as its commercial utilisation is important.

22.8.2. Need for action

There has not yet been a large-scale collection activity for forage plants. The existing material is less threatened by acute losses than field crops were during the basic changes in agriculture during the 1960s and 1970s. Valuable material can still be expected, mainly in the Alpine region. Since in the late 1930s, modern varieties were increasingly introduced and it can be assumed that new populations developed through adaptation and bastardisation. A collection tour does not seem very important at the present stage as other questions have to be clarified first, such as for example the extent of gene flow between modern varieties and local varieties. Forage plants from the grassland belt are best conserved on farm in their natural location.

22.8.3. Actors

DI Helmut Reiner, Plants- Food - Quality

Address: Grüentorgasse 19/12, A-1090 Wien, Tel./Fax: 0043-1/310 59 62, E-mail: helmut.reiner@teleweb.at

Description: The work of DI Helmut Reiner is described in the chapter on vegetables. As many forage plants belong to the vegetables, he is mentioned here. The central part of his work is the family of Brassicaceae. Brassica-turnips were particularly important as forage plants in the Alpine region.

Type of organisation: private enterprise

Amt der Tiroler Landesregierung – Administration of the Tyrol Provincial Government

Address: Abteilung landw. Schulwesen, Bereich landw. Schulwesen, Valiergasse 1, A-6020 Innsbruck, Tel.: 0043-512/508 –39 70, Fax: 0043-512/508.39 75, E-mail:

landw.schulwesen@tirol.gv.at; Director und Contact: DI Kaspar Holaus

Description: The Tyrolean genebank stores 17 poppy varieties, 11 flax varieties and one variety of Leindotter. The majority of these forms was cultivated in the Alpine region.

Type of organisation: paragovernmental

Bundesanstalt für alpenländische Landwirtschaft (BAL) Gumpenstein – Federal Office for Alpine Agriculture

Address: Raumberg 14, A-8952 Irdning, Tel.: 0043-3682/224 51-0, Fax: 0043-3682/246 14 88, E-mail: office@bal.bmlf.gv.at; Director/ Contact: Dir. Dr. Kurt Chytil

Description: The Bundesanstalt für alpenländische Landwirtschaft in Gumpenstein is concerned with grassland plants, with particular attention being paid to fodder plant breeding, production of adapted seed, replanting and landscape gardening. The work concentrates on the Inner Alps and on higher altitudes. The institution presently takes care of local varieties of the following species: *Trifolium pratense* (Gumpensteiner, local variety Steirerklee), *Lolium x bocheanum* (Gumpensteiner), *Dactylis glomerata* (Tandem), *Lolium perenne* (Guru), *Trisetum flavescens* (Gusto, local variety Kathrein), *Agrostis capillaris* (Gudrun, ecotype), *Cynosurus cristatus* (ecotype), *Anthyllis vulneraria* (ecotype).

Mixtures of ecotypes of the following species are bred, reproduced and conserved at the BAL Gumpenstein: *Poa alpina*, *Phleum alpinum*, *Festuca nigrescens*, *Festuca supina*, *Festuca pseudodura*, *Festuca varia*, *Trifolium nivale*, *Trifolium badium*, *Phleum hirsutum*, *Briza media*, *Deschampsia cespitosa*, *Festuca ovina*.

Of these varieties, the red clover “Steirerklee” and the yellow oat-grass “St.Kathrein” were traditionally cultivated in the Alpine region. At present, there are neither projects nor working groups on selected groups of cultivated plants at the Bundesanstalt für alpenländische Landwirtschaft.

Type of organisation: governmental

Active since: 1989

Members of staff: 130

Additional protection: no

23. General report on livestock breeds in the Austrian Alpine region

23.1. Private conservation efforts

23.1.1. VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen

The VEGH tries, and foremost, to find old livestock breeds and to conserve living stocks of them. Activities cover the whole country. The association has been active since 1986. The so-called ‘SpartenbetreuerInnen’ coordinate conservation efforts for at least one breed. The ‘Archehof’ project has been running now for several years. One of its objectives is to raise public awareness of the problems of conserving old livestock breeds. The journal ‘ARCHE-Zeitschrift für Viehfalt’ is published quarterly. The following species are conserved: cattle, sheep, goats, donkeys, chicken, dogs, geese, ducks and turkeys. Conservation activities for horse breeds have been stopped. For bees, rabbits and pigeons, no activities have taken place to date. More detailed information may be taken from the portraits of the breeds.

Address:

VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>

23.2. Important University institutions

23.2.1. Institute for Animal Breeding and Genetics

The Institut für Tierzucht und Genetik (Institute for Animal Breeding and Genetics) at the Vienna University of Veterinary Medicine, Vienna, is involved in studies on the following breeds: swallow-bellied Mangalitsa, Alpine Steinschaf and Montafon Steinschaf.

Address: Institut für Tierzucht und Genetik, Veterinärmedizinische Universität, Veterinärplatz 1, 1210 Wien, Tel: 0043-1/250 77 –56 25, Fax: 0043-1/250 77 56 93, Contacts: Dr. Simone Müller

23.3. Government conservation efforts

23.3.1. ÖNGENE- Nationalvereinigung für Genreserven

ÖNGENE was founded in 1982. With the support of the Bundesministerium für Land- und Forstwirtschaften (Federal Ministry for Agriculture and Forestry), it elaborated a catalogue of measures for the conservation of endangered livestock breeds. Gene conservation measures have involved mainly setting up living gene reserve herds and deep-freezing semen and embryos. A cooperation between ÖNGENE and the VEGH exists.

Address: ÖNGENE, c/o Institut für biologische Landwirtschaft und Biodiversität, Austrasse 10, Thalheim, 4600 Wels, E-Mail: wels@agrobio.bmlf.gv.at, Tel: 0043-7242/470 11, Fax: 0043-7242/470 11 15, president: Prof. Dr. Gottfried Brem, business manager: Dr. Franz Fischerleitner, Director of the Department Biodiversity and Genetics: Mrs. Beate Berger, dipl.vet.

23.3.2. Financial support of endangered livestock breeds

Within the framework of the new ÖPUL program (ÖPUL 2000), endangered livestock breeds are granted government support. In return, the responsible organisations have to implement the so-called gene conservation programs (breeding programs under special consideration of the risk status of a breed). Support is only granted if certain conditions are fulfilled. For each endangered livestock breed, for example, a responsible organisation has to exist which is engaged in national breeding work. Further requirements are the indigenoussness of the breed and marking of individuals. Performance selection has to be subordinated to the aim of conserving genetic variability. ÖNGENE is responsible for the elaboration of guidelines for the acknowledgement of endangered livestock breeds.

ÖPUL 2000 provides the compulsory registration in the gene databank for all breeds with high risk status.

For the year 2001, the following financial basic support is provided:

- Cow , mares available for servicing: approx. 145 EUR
- ewe, nanny-goat: approx. 22 EUR
- breeding sow: approx. 44 EUR
- breeding bull, breeding stallion: approx. 435 EUR
- ram, billy-goat: approx. 65 EUR
- breeding boar: approx. 130 EUR

Additional support for particularly endangered breeds within a special gene conservation program:

- cattle, horse: approx. 145 EUR
- Sheep, goat: approx. 22 EUR
- Breeding pig: 6 approx. 44 EUR

In the portraits of each breed, financial support is referred to.

23.3.3. Institut für biologische Landwirtschaft und Biodiversität (Institute for Organic Agriculture and Biodiversity)

The ‘Institut für biologische Landwirtschaft und Biodiversität’ is entrusted with the following tasks:

- Monitoring the stocks of endangered livestock breeds in Austria
- Coordinating conservation measures as well as consulting and providing advice on scientific questions for organisations active in conservation
- Setting-up a central database
- Setting-up and completing a genebank for endangered livestock breeds
- Research in the area of endangered livestock breeds
- Professional representation at national meetings and international organisations (EU and FAO)

Address: Bundesamt für Agrarbiologie, Institut für biologische Landwirtschaft und Biodiversität, Auersasse 10, 4601 Wels/Thalheim, Tel: 0043-7242/470 12, Fax: 0043-7242/470 11 15

23.3.4. Tasks of the national associations

In future, the National Associations will be given the task of conserving endangered breeds in Austria.

23.4. EU Conservation measures

23.4.1. Regulation (new: 1257/99) on the development of rural areas

Through regulation 2078/92, the following breeds are supported in the Austrian Alpine Region:

Cattle:

Bergscheck /Ennstaler Bergschecken, Grey Mountain /Grauvieh, Jochberg Hummel/ Jochberger Hummeln, Carinthian Blond /Kärntner Blondvieh, Murboden /Murbodner Rind, Original Brown Cattle /Original Braunvieh, Original Pinged /Original Pinzgauer, Tix-Zillertal /Tuxer-Zillertaler, Waldviertel / Waldviertler Blondvieh

Horses:

Lipitsa /Lippizzaner, Noric /Noriker, Austrian Warmblood /Österreichisches Warmblut

Sheep:

Brown Mountain / Braunes Bergschaf, Carinthian /Kärntner Brillenschaf, Tyrolean / Tiroler Steinschaf, Forest Sheep /Waldschaf, Bovec Sheep /Krainer Steinschaf, Zackel /Ungarisches Zackelschaf

Goats:

Pinzgau /Pinzgauer Ziege, Tauern Pied / Scheckige Tauernziege

Pigs, poultry, pigeons, dogs, rabbits, bees:

None

23.4.2. Regulation 1467/ 94

Contact in Austria for regulation 1467/94:

Mrs. S. SCHANTL, Bundesamt u. Forschungszentrum für Landwirtschaft, Spargelfeldstrasse 191, Postfach 400, A-1226 Wien, Tel 0043-1/732 16 41 70, Fax 0043–1/732 16 42 11, E-Mail: sschantl@bfl.at

Austria does not participate in any of the animal projects of EU regulation 1467/94 (more detailed information on 1467/94 may be taken from the introduction).

23.4.3. Regulation 2081/92

In Austria, no endangered breed from the Alpine region is supported through regulation 2081/92.

23.4.4. LEADER-Projects

There are no LEADER projects directly supporting endangered breeds..

23.5. Overview of the need for action for livestock in Austria

Need for action for the individual breeds and species is dealt with in the corresponding chapter.

General situation

The need for action is covered at the private and the national level. The majority of the endangered breeds are represented by an organisation – government support is only granted if there is a responsible organisation. ÖNGENE is, in cooperation with government bodies, mainly active for scientific questions with regard to old livestock breeds. The VEGH provides a valuable contribution to conservation work through its coordination activities in the area of *in situ* conservation in an agricultural environment.

Horse breeds

The VEGH's activities concerning horse breeds were unfortunately stopped. The need for action for the Old Hafling Type is, therefore, not covered any more.

Breeds and types with acute need for action

- Original Braunvieh / Original Brown Cattle: unsatisfactory conservation measures
- Zillertaler Rückerl (type of Pusteria): no controlled conservation of this type
- Zillertal (Red type of Tux-Zillertal): active searches and conservation measures have urgently to be initiated urgently.
- Waldviertel Blond: uptake of Carinthian Blond semen is questionable!
- Montafon Steinschaf: officially not recognised
- Salzburg Steinschaf: no support or recognition
- Alpine Steinschaf: there is no concrete conservation program
- Salzburger Strahlenziege: nothing is being done
- Steirische Scheckenziege: stock is poorly secured.
- Vierhornziege: little is being done.
- Weisse Altsteier Hühner
- Pigeon breeds: activities for the conservation of the breeds Waldviertler Kröpfer, Österreichischer Ganselkröpfer, Alt. Österreichischer Tümmeler, Wiener Kurze and Wiener Gansl.
- Rabbit breeds: the need for action for the original type of the Blauer Wiener, the dark type of the Blauer Wiener and the Black Wiener is not sufficiently covered.

Support of the economic efficiency of endangered Breeds

The support of products from endangered livestock breeds would enhance the economic efficiency of the breeds and indirectly support their conservation. Launching a respective label would indirectly support efforts to market these products.

24. Livestock breeds in the Austrian Alpine region

The portraits of the single breeds are designed to complete the first 1995 study on Agricultural Genetic Resources of the Alps. More detailed breed descriptions may be taken from this study.

24.1. Overview of endangered livestock breeds

In the following table, endangered breeds from the Austrian Alpine region are listed – not included are extinct breeds. Listing follows risk status and is alphabetical. Dog, pigeon, rabbit and bee breeds are not included in the table.

Cattle

Breed	Stock**	Risk Status	Trend	Initiatives
Bergscheck / Ennstaler Bergschecken	43f OP (1999)	Critical	?	+
Jochberg Hummel /Jochberger Hummeln	20f/m OP (2000)	Critical	↓	+
Original Brown Cattle /Original Braunvieh	56f OP (1999)	Critical	?	+
Pusteria /Pustertaler Schecken	25f/m OP (2000)	Critical	?	++
Zillertal / Zillertaler	?	Critical?	?	-
Hungarian Grey Cattle /Ungarisches Steppenvieh	15f OP (1999)	Critical	?	(+)
Carinthian Blond / Kärntner Blondvieh	800f OP (1999)	Endangered	↑	++
Murboden / Murbodner Rind	624f HB (2000)	Endangered	↑	++
Tux / Tuxer	392f OP (1999)	Endangered	↑	++
Waldviertel / Waldviertler Blondvieh	161f OP (1999)	Endangered	↓	+
Grey Mountain / Grauvieh	3870f HB (2000)	Vulnerable	↓	++
Original Pinzgau /Original Pinzgauer	6900f OP (2000)	Vulnerable	↑	++

Horses and Mules

Breed	Stock**	Risk Status	Trend	Initiatives*
Old Austrian Warmblood /Altösterreichisches Warmblut	40f OP (1999)	Critical	↓	+
Lipitsa /Lippizzaner	83f OP (1999)	Critical	↓	+
Österreichisch-Ungarischer Albinoesel	20f/m OP (1997)	Critical	?	+
Noric / Noriker	3575f HB (2000)	Vulnerable	→	++
Austrian Warmblood / Österreichisches Warmblut	2668f HB (1998)	Vulnerable	?	++
Hafling Mountain Pony /Haflinger	7153f HB (1998)	Rare	↓	(+)

Pigs

Breed	Stock**	Risk Status	Trend	Initiatives *
Swabian-Hall / Schwäbisch-Hällisches Schwein	3 breeders (2000)	Critical	?	-
Swallow-Bellied Mangalitsa / Schwalbenbäuchiges Mangalitsa	100f OP (2000)	Critical	↓	++
Turopolje / Turopolje Schwein	40f/m OP (2000)	Critical	↑	++
Styrian White Edelschwein / Steirisches Weisses Edelschwein	?	Vulnerable (1992)	?	?

Sheep

Breed	Stock**	Risk Status	Trend	Initiatives *
Black Mountain /Schwarzes Bergschaf	?	Critical?	?	?
Alpine Steinschaf / Alpines Steinschaf	30f/m OP (2000)	Critical	?	(+)
Montafon / Montafoner Steinschaf	70f OP (1999)	Critical	↑	+
Original Steinschaf	40f OP (2000)	Critical	?	(+)
Brown Mountain / Braunes Bergschaf	464f OP (1999)	Endangered	→	++
Carinthian / Kärntner Brillenschaf	900f OP (2000)	Endangered	↑	++
Bovec sheep / Krainer Steinschaf	250f/m OP (2000)	Endangered	↑	++
Waldschaf	495f OP (2000)	Endangered	?	++
Zackel /Ungarisches Zackelschaf	150f/m OP (2000)	Endangered	↑	++
Tyrolean /Tiroler Steinschaf	1314f OP (1999)	Vulnerable	?	++

Goats

Breed	Stock**	Risk Status	Trend	Initiatives *
Peacock Goat / Pfauenziege	50f/m OP (2000)	Critical	?	+
Salzburger Strahlenziege	?	Critical?	?	-
Steirische Scheckenziege	50-100f/m (2000)s	Critical	?	(+)
Vierhornziege	50f/m OP (2000)	Critical	?	-
Pinzgau / Pinzgauerziege	400f/m OP (2000)	Endangered	↑	++
Scheckige Tauernziege / Tauern Pied	200f/m OP (2000)	Endangered	→	++

Chicken

Breed	Stock**	Risk Status	Trend	Initiatives *
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Altsteirer Wildfarbige /Partridge coloured Styrian	20 breeders (2000)	Critical	?	++
Weisse Altsteirer /White Styrian	10 breeders (2000)	Critical	?	(+)
Sulmtaler	>1000f/m OP (2000)	Vulnerable	?	++

* ++ (existing with success), + (existing), - (non-existent)** f = female animals, m = male animals, HB = Herdbook, OP = Overall Population

24.2. Cattle

24.2.1. Extinct cattle breeds

The following breeds and types are today considered to be extinct:

- Donau (synonym: Danube)
- Innviertel
- Lechtaler
- Mölltaler
- Müürztal
- Österreichisches Fleckvieh / synonym: East Styrian Spotted
- Österreichisches Gelbvieh / Austrian Yellow
- Steirisches Braunvieh / Synonym: Styrian Brown
- Tiroler Braune, Wipptaler / Tyrol Brown
- Tiroler Fleckvieh / Tyrol Spotted
- Untersinntaler Fleckvieh

24.2.2. Endangered cattle breeds in the Austrian Alpine region

Ennstaler Bergschecken / Bergscheck

Synonyms: Alpenfleckvieh, Steirische Bergschecken, Enns, Helmete, Kampete

Background: The last purebred cow was slaughtered in 1986! At present, only four crossbred animals are still alive on four farms. A cow family (six animals) at the Fussli farm is considered to be very typical.

Distribution: Styria, Carinthia

Initiatives:

- The VEGH is trying to reestablish the breed. A herdbook of remaining crossbred animals has been kept since 1996.
- The Alpenfleckvieh Zuchtverband is responsible for the gene conservation program.
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- Sperm conservation in the genebank (Institut für biologische Landwirtschaft und Biodiversität)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH ‚Spartenbetreuer‘: Werner Alker, Probst 24, 8859 Murau, Tel: 0043-3532/36 06
- Alpenfleckvieh Zuchtverband Styria, Pichelmayerg. 8, 8700 Leone, contact: Franc Pircher

Stock:

1999: 43 female and 7 male animals in the overall population

Assessment: critical

Need for action:

Yes, and breeders are active. A breeding program therefore seems realistic and promising.

Grauvieh / Grey Mountain

Synonym: Tiroler Grauvieh

Background: Grey Mountain is also bred in South Tyrol (1993: 14,269 animals in the herdbook) and Switzerland (2000: 1349 cows in the herdbook).

Initiatives:

- Grey Mountain is conserved by the Tiroler Grauvieh Zuchtverband (Tyrolean Grey Mountain breeding association). A gene conservation program is carried out at present. Pure breeding is guaranteed.
- Semen cryo-preservation of 20 bulls
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Tiroler Grauvieh Zuchtverband, Brixner-Strasse 1, 6020 Innsbruck, Tel: 0043-512/57 30 94, Fax: 0043-512/58 02 16, E-Mail: grauvieh@lk-tirol.at
- South Tyrol: ANABoRa Grigia Alpina, Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen
- Switzerland: GdG - Genossenschaft der Grauviehzüchter, Ruedi Gmür, Höhe Gätziberg, 9450 Altstätten, Tel: 0041-71/755 45 51, Fax: 0041-71/755 68 73

Stock:

2000: 3870 cows und 42 bulls in the herdbook (95% of the enterprises have their animals registered in the herdbook)

Development trend: decreasing

Assessment: vulnerable

Need for action:

The Tiroler Grauvieh Zuchtverband (Tyrolean Grey Mountain Breeding Association) is active in the conservation of the breed.

Jochberger Hummeln / Jochberg Hummel

Background: Jochberg Hummel are closely related to Pinzgau cattle. They developed from a genetically polled variant of Pinzgau cattle. The first animal is recorded to have been born in 1834.

Distribution: Kitzbühl Alps

Initiatives:

- In the 1920s, only a single breeder was left. His descendants still breed Jochberg Hummel cattle at a farm in Ober-Aurach close to Kitzbühl. Meanwhile, the number of breeders has increased to three.
- Conservation measures through the VEGH
- Financial support within the framework of the ÖPUL 2000
- Financial support through EU regulation 2078/92 (new: 1257/99).

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Franz Filzer, Ober-Aurach 225, 6370 Kitzbühl, Tel: 0043-5356/45 89

Stock:

2000: approx. 20 animals kept by 3 breeders.

Development trend: decreasing

Assessment: critical

Need for action: Something is being done, but the stock and the number of breeders have, however, to be enlarged.

Kärntner Blondvieh / Carinthian Blond

Synonyms: Lavantal, Mariahof, Plava, Carinthian Blond

Background: The search for animals in Slovenia was not successful.

Distribution: Styria, Carinthia

Initiatives:

- Conservation measures through the VEGH and the Kärntner Blondviehzuchtverband (Carinthian Blond Breeding Association).
- The Kärntner Rinderzuchtverband (Carinthian Cattle Breeding Association) is responsible for the gene conservation program.
- Sperm conservation of 14 bulls in the genebank (Institute for Biological Agriculture and Biodiversity)
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- At the end of the 1990s, breeding and marketing of the unique products of Carinthian Blond were intensively promoted.

Contacts:

- Kärntner Blondviehzuchtverein, Oberer Platz, 9372 Eberstein, Tel: 0043-4264/81 81
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Dr. Werner Petschenig, Schuhmeiergasse 30, 9020 Klagenfurt, Tel: 0043-463/335 36
- Kärntner Rinderzuchtverband, Zwanzigerstrasse 4, 9020 Klagenfurt

Stock:

1999: 800 female animals in the overall population, of these, 315 cows in the herdbook

Development trend: increasing

Assessment: endangered

Need for action:

The VEGH and the Kärntner Blondviehzuchtverein are active in the conservation of the breed. The prospects of ensuring the continued existence of the breed are good.

Murbodner Rind / Murboden

Background: The brightly coloured, mostly massive and short-legged animals were also regarded as Mürztal Type.

Distribution: Lower Austria, Styria

Initiatives:

- Conservation measures through the VEGH
- Sperm conservation of 18 bulls in the genebank (Institute for Biological Agriculture and Biodiversity)
- The Murbodner Viehzuchtverband Steiermark is responsible for the gene conservation program.
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>

- VEGH Spartenbetreuer: Johann Friedl, Hohenbrunn7, 4490 St. Florian, Tel: 0043-7224/40 85
- Murbodner Viehzuchtverband Styria, Sichart 50, 8254 Wenigzell

Stock:

2000: 624 female animals (>1 year) in the herdbook

Development trend: increasing

Assessment: endangered

Need for action:

The breed's conservation is supported by several institutions. The demand for Murboden cattle has significantly increased during recent years.

Original Braunvieh / Original Brown Cattle

Synonym: Montafoner Braunvieh, Vorarlberger Braunvieh alter Zuchtichtung, Austrian Brown

Background: Today, the Brown Cattle population in Austria has an average proportion of 75% Brown-Swiss. Animals designated as Original Brown Cattle correspond with the original type and have little or no Brown-Swiss blood. The colour types 'Blüam' and 'Gurtenkuh' exist. In the herdbook, only the unicoloured brown animals are recognised.

The Original Brown cattle is also bred in Switzerland (1999: 5700 cows in der overall population) and Germany (1999: 559 animals in the overall population).

Distribution: Vorarlberg, Tyrol, Upper Austria

Initiatives:

- Conservation measures through the VEGH and ARGE Braunvieh.
- The VEGH integrates animals into a conservation breeding program.
- Gene conservation program at the Vorarlberger Braunviehzuchtverband (Vorarlberg Brown Cattle Breeding Association)
- Semen-cryoconservation of 14 bulls.
- Conservation of a small breeding group at the Tirolerhof in the 'Tierpark Schönbrunn'
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuerin: Monika Schneider, Niederbuch 83, 6863 Egg, Tel/Fax: 05512/4555
- Vorarlberger Braunviehzuchtverband, Jahstrasse 20/1, 6900 Bregenz.
- ARGE-Braunvieh, Brixnerstrasse 1, 6020 Innsbruck, Tel: 00453-512/592 92 55, Fax: 0043-512/57 74 67
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0
- Germany: Allgäuer Original Braunviehzuchtverein, Headquarters, Bachstrasse 9, 85354 Freising, Tel: 0049-8161/128 05
- Switzerland: Original Braunviehzuchtverband Switzerland, Josef Eggerschwiler, Gehren, 6402 Merlischachen, Tel: 0041-41/850 12 55
- 1999: 56 female und 3 male animals in the overall population

Development trend: stable

Assessment: critical

Need for action:

Acute, little is done in Austria. In Switzerland and Germany, the situation is much better. Blood exchange with Germany and Switzerland is urgently needed.

Original Pinzgauer / Original Pinzgau

Background: The fair type of Pinzgau cattle is called the Mölltal type, the dark type the Salzburg type. A special case is the genetically polled Jochberg Hummel (see also portrait). After crossbreeding with Red Holstein to improve milk performance, the original animal changed considerably.

Today, approx. 1.3 millions Pinzgau cattle are kept worldwide. The stock of purebred animals has, however, dramatically decreased during the last 100 years. In Germany, there are 2800 animals in the overall population (status 1999, note: the herdbook includes purebred and crossbred animals). The population in South Tyrol amounts to 1735 animals in the herdbook (status 1999, the purebred animals are not registered separately or supported).

Distribution: Salzburg, Carinthia

Initiatives:

- The Pinzgauer Rinderzuchtverband takes care of the purebred stocks and pursues a gene conservation program.
- Semen from 120 bulls is stored in the A.I. stations Klesseheim and Klagenfurt.
- The VEGH is no longer responsible for the coordination of purebred animals. Their development is, however, being observed.
- Semen cryopreservation of 200 bulls
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- South Tyrol breeders, Austrian breeding associations and Pinzgau breeders in Bavaria conserve the old Pinzgau type.

Contacts:

- Arbeitsgemeinschaft der Pinzgauer Rinderzuchtverbände, c/o Rinderzuchtverband Salzburg, Mayerhoferstrasse 12, 5751 Maishofen, Tel: 0043-6542/682 29 15, E-Mail: rinderzuchtverband@sbg.at
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- South Tyrol: Federazione Allevatori Sudtirolese Razze Bovine S.A.R.L., Raiffeisenstrasse 2, 39100 Bozen
- Bavaria: Rinderzuchtverband Traunstein, Dr. Binser, Kardinal-Faulhaber-Strasse 15, 83278 Traunstein, Tel: 0049-861/700 20

Stock:

2000: 6900 purebred Pinzgau cows, out of these 3800 are registered in the herdbook.

The entire stock of purebred and crossbreds amounts to approx. 45,000.

Development trend: increasing

Assessment: vulnerable

The ARGE Pinzgauer Rinderzuchtverbände are at present active in the conservation of the breed.

Pustertaler Schecken / Pusteria

Synonym: Sprintzen

Background: Pusteria are today mainly distributed in South Tyrol and Germany. In 1998, The VEGH brought some animals from Bavaria to the Austrian Zillertal (Tyrol) and semen was bought additionally.

The area of origin is the Puster valley and its neighbouring side valleys. The main reason for the decline of the breed was the Italian animal breeding law from 1929 which prohibited and punished the use of Pusteria for breeding.

Pusteria are today extremely endangered in Tyrol – in 1999, 98 animals were recorded in the herdbook. In Germany, approx. 100 animals were counted.

Initiatives:

- The VEGH is active in the conservation of the breed in Austria.
- Gene conservation program of the Tiroler Fleischrinderzuchtverband (Tyrol Beef Cattle Federation)
- Financial support within the framework of the ÖPUL 2000
- Because the breed occurs across borders, SAVE, the European Umbrella organisation coordinates the conservation efforts of the different countries.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Karl Mair, Gasthof Neuwirt, 6082 Ellbögen/Tirol, Tel: 0043-512/37 71 75
- Tiroler Fleischrinderzuchtverband, Brixner Strasse 1, 6020 Innsbruck, Tel: 0043-512/592 92 95, Fax: 0043-512/592 92 06
- Germany: Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Eva Schwaab, Rheinstrasse 62, 65185 Wiesbaden, Tel: 0049-611/33 31 37
- South Tyrol: Südtiroler Fleckviehzuchtverband, Bahnhofstrasse 1, 39030 St. Lorenzen, Italy, Tel/Fax: 0039-474/47 41 71
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: approx. 25 animals kept by 5 breeders, 4 bulls are available for artificial insemination, but the first male animals in Austria are too young for natural service.

Assessment: critical

Need for action:

Covered. Ambros Aichhorn (address: Hubstrasse 17, 5600 St. Johann) discovered at the end of the 1990s approx. 10 so-called Zillertal Rückerl. The animals are similar to Pusteria, but with grey speckles.

Given the limitation of this study, information about the actual location of the animals could not be obtained. It has urgently to be clarified on-site whether these animals do still exist.

Tuxer-Zillertaler / Tux-Zillertal

Background: The black type of Tux-Zillertal is also called Tux. The red Zillertal type has died out according to several sources. According to the VEGH, however, red animals do, still exist. Both colour types are white in colour on their back, A special feature is their pugnacity. During the so-called 'Kuhstechen', a popular cow fight, the winner was determined according to the knockout system. Selection for fighting characteristics became fatal for the breed – through cross-breeding with other breeds, the Tux-Zillertal was nearly completely replaced. In the former Soviet Union, a large herd of Tux cattle still exists. Embryos have already been transferred to Austria.

Distribution: Tux Alps

Initiatives:

- Conservation measures through the VEGH
- The association Tux-Zillertal is responsible for the gene conservation program.
- Sperm conservation of 17 bulls in the genebank (Institute for Biological Agriculture and Biodiversity)
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- A small breeding group is conserved at the Tirolerhof of the 'Tiergarten Schönbrunn'

Contacts:

- Vereinigung Tux-Zillertaler Züchter Tirols, c/o Tiroler Fleischrinderzuchtverband, Brixnerstrasse 1, 6020 Innsbruck, Tel: 0043-512/592 92 92, contact: Christian Moser
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Karl Mair, Gasthof Neuwirt, 6082 Ellbögen/Tirol, Tel: 0043-512/37 71 75
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0

Stock Tuxer:

1999: 392 female und 8 male animals in the overall population kept by 60 breeders

Development trend Tux: increasing

Assessment Tux: endangered

Need for action: Several organisations are active in the conservation of the breed. Whether the red animals mentioned by the VEGH actually meet the requirements for the Inertal type should urgently be clarified on-site. If yes, conservation measures have to start immediately.

Ungarisches Steppenvieh / Hungarian Grey

Background:

In Hungary, altogether 1100 cows exist today. The Hungarian Grey was formerly also distributed in Austria (Burgenland and southern Carinthia), Germany and Italy.

Initiatives:

- Efforts to reintroduce the breed in Austria are being made by the VEGH
- Financial support within the framework of the ÖPUL 2000
- The animal and nature park Schloss Herberstein has been breeding Hungarian Grey for a long time.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- Tierpark Heberstein, Buchberg 2, 8222 St. Johann close to Heberstein, Tel: 0043-3176/22 50

Stock:

1999: 15 cows and 1 bull in the overall population

Assessment Austria: critical

Need for action:

The precondition for the successful reestablishment of a population in Austria is to have breeding stock with a broader genetic basis.

Waldviertler Blondvieh / Waldviertel

Synonym: Waldviertler Vieh, Manhartsberg, Schiltern

Background: The narrow genetic base (only 3 bulls which are practically related!) is a problem. At present, semen from Carinthian Blond cattle are used. The Carinthian and Waldviertel Blond are closely related.

Distribution: Waldviertel

Initiatives:

- At the beginning of the 1990s, a conservation program to rescue the breed was started following an initiatives of the Technical School Edelhof, ÖNGENE and the Verband Waldviertler Fleckviehzüchter (Federation of Waldviertler Cattle Breeders).
- In order to conserve the genetic diversity within the breed, breeding for a combined double-purpose has been tried. Since autumn 1999, the breed has been supported through the program OPTIMATE. Mating recommendations are given.

- The Verband Waldviertler Fleckviehzüchter is responsible for the gene conservation program.
- Semen cryopreservation of an average of 700 sperm portions of 15 available Blond Cattle bulls.
- Conservation measures through the VEGH.
- The state Lower Austria supports a core breeding herd.
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Verband Waldviertler Fleckviehzüchter, c/o Landeskontrollverband Niederösterreich, Pater-Werner-Deibl-Strasse 4, 3910 Zwettl, Contact: Ing. Josef Fleischhacker, Tel: 0043-2822/535 31-0, Fax: 0043-2822/535 31 15, E-Mail: vw@neogen.at
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>

Stock:

1999: 161 female und 2 male animals in 62 enterprises

Assessment: endangered

Development trend: decreasing

Need for action: Several organisations are active in the conservation of the breed.

The uptake of Carinthian semen is questionable and has to be observed.

24.3. Horses and Donkeys

24.3.1. General Information

In Austria, 81,864 animals – horses, donkeys, mules and hinnies are kept at present (status 1.12.1999).

General addresses:

- Bundesanstalt für Pferdezucht, 4615 Stadl-Paura
- Landesverband der Pferdezüchter Oberösterreich, Auf der Gugel 3, 4021 Linz
- Zentrale Arbeitsgemeinschaft österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Landespferdezuchtverband Salzburg, Andreas Höllbacher, Dorf 96, 5751 Maishofen, Tel: 0043-6542/82 32

24.3.2. Endangered horse breeds in the Austrian Alpine region

Haflinger / Hafling Mountain Horse

Synonym: Avelignese

Background: Hafling Mountain horses are also kept in Germany (1998: 12,869 animals in the overall population) and Italy (1995: 5025 mares in the herdbook) in larger stocks. In Switzerland, a small population (1999: 506 mares in the herdbook) exists.

Distribution: Tyrol, Salzburg, Upper- und Lower Austria, Styria, Carinthia, Vorarlberg.

Initiatives:

- Since the beginning of the 1990s, the VEGH has taken care of the conservation of the old breeding type – the so-called working horse. These conservation efforts are not being continued at present.
- The Verband Niederösterreichischer Pferdezüchter is the responsible breeding organisation recognised by the National Institute of Agriculture.

Contacts:

- Central Arbeitsgemeinschaft österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Verband Niederösterreichischer Pferdezüchter zur Förderung der Pferdezucht und des Pferdeabsatzes, Wiener Strasse 64, 3100 St. Poltern, Tel: 0043-2742/259 31 03
- Haflinger Pferdezuchtverband Tirol, Ilse Benedetto-Schweisgut, 6341 Ebbs, Tel: 0043-5373/22 10
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- Switzerland: Eidgenössisches Gestüt Avenches, Case Postale 191 1580 Avenches, Tel: 0041-26/676 63 33, Fax: 0041-26/676 62 08
- Germany: Arbeitsgemeinschaft der Haflingerzüchter und –halter in der BRD, Dr. Uvo A. Wolf, Ringstrasse 20, 82432 Walchensee, Tel: 0049-8858/253
- Italy: ANACRA - Ass. Naz. Allev. Cavalli Razza Avelignese, Viale Lavagnini, 50129 Firenze, Tel/Fax: 0039-55/57 18 67, E-Mail: anacra@haflinger.it

Stock:

1998: 7153 mares in the herdbook

Development trend: decreasing

Assessment: rare

The stock of Haflinger horses is secured. Nothing is being done at present for the old type – the working horse.

Lippizzaner / Lipitsa

Synonyms: Licpica, Lipicanska Rasa

Background: In Slovenia, the area of origin of the breed, the overall population amounts up to 600 animals (1999).

Distribution: Danubia region

Initiatives:

- For the breeding programs of the Lipitsa breed, there is a close cooperation between the Federal Stud Piber and the Österreichischen Lippizzaner Union as well as the Lippizzaner-Zuchtverband. Registering of purebred Lipitsa horses was to start in 2000. The Federal Stud Piber is responsible for the gene conservation program.
- Semen cryopreservation of 26 stallions
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Bundesgestüt Piber, Dr. W. Pohl, 8580 Köflach, Tel: 0043-3144/33 23, Fax: 0043-3144/33 23 33
- Slovenia: Združenje Rejcev Lipicanca Slovenije, Lipica 5, 6210 Sezana, President: Dr. Vet. Med. G. Rajko Vojtkovsky

Stock:

1999: 83 mares and 5 stallions in the overall population

Development trend: decreasing

Assessment: critical

Need for action:

The Federal Stud Piber is at present active in the conservation of the breed- decreasing stocks have to be observed!

Noriker / Noric

Synonym: Konje Slovskie, Pinzgauer Pferd

Background: The breed of Noric horses includes a heavier type distributed in Salzburg and Upper Austria, formerly called “Pinzgauer-Noriker” and a lighter type, which occurs in Carinthia and Styria. The proportion of the 5 existing bloodlines in Austria is as follows: Vulkan-line 45%, Nero-line 28%, Diamant-line 11%, Schaunitz-line (synonym: Carinthian line) 5%, Elmar-line 2 %.

The following 6 different colour types exist: brown (24.6%), chestnut (34.3%), black (32.3%), white (3.6%), dark head (1.6%), and leopard (3.6%). Furthermore, Kuhschecken (a type of piebald) occurs within the Vulkan-line. It is a very small group.

The Abtenau type – a small, dry type – is not listed separately any more. It was merged with Noric horses. It was formerly bred in the Lammer valley and in the Tennen mountains south-east of Salzburg.

In Italy (2000: 142 mares in the herdbook, all 5 bloodlines), Slovenia (1993: 100 mares and 40 stallions, not taken care of at present) and in former Yugoslavia, a few Noric horses do exist there as well).

Initiatives:

- Support through the ARGE Norischer Pferdezüchter. Selection for colours does not take place in particular. Stallions are, however, used for mating under control and it is recommended to mate only pure colours.
- The Verband Niederösterreichischer Pferdezüchter is the responsible breeding organisation acknowledged by the National Institute for Agriculture. It is also responsible for the gene conservation program.
- Semen cryopreservation of 12 stallions.
- At the Tirolerhof in the ‘Tiergarten Schönbrunn’, the colour types dark head, leopard, ‘Plattenschecken’ (a type of piebald) and chestnut are kept.
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Arbeitsgemeinschaft der Norischen Pferdezüchter Österreichs, Kirchhamerstrasse 47, 5751 Maihofen
- Verband Niederösterreichischer Pferdezüchter zur Förderung der Pferdezucht und des Pferdeabsatzes, Wiener Strasse 64, 3100 St. Poltern, Tel: 0043-2742/259 –31 03
- Landespferdezuchtverband Salzburg, Mayerhoferstrasse 12, 5751 Maishofen
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0
- Italy: Federazione Provinciale degli Allevatori di Cavalli di razza Aveglinese dell’Alto Adige – Südtiroler Haflinger Pferdezuchtverband GmbH, Via Monterotondo 1/B, 39100 Bolzano, Tel: 0039-471/97 16 82

Stock:

1999: 3575 mares in the herdbook, approx. 10,000 animals in the overall population

Development trend: stable

Assessment: vulnerable, critical for individual bloodlines and colour types

Need for action:

The ARGE Norischer Pferdezüchter (Noric Horse Breeders) is at present active in the conservation of the breed. The development of endangered blood lines and colour types has to be observed urgently.

Österreichisches Warmblut / Austrian Warmblood

Distribution. Lower Austria und Innviertel (Upper Austria)

Background: The original type is called ‘Altösterreichisches Warmblut (Old Austrian Warmblood)’.

Initiatives:

- The Verband Niederösterreichischer Pferdezüchter is the responsible breeding organisation recognised by the National Institute for Agriculture. It is also responsible for the gene conservation program.
- Sperm conservation of the Old Austrian Warmblood in the genebank (Institute for Organic Agriculture and Biodiversity) of 5 stallions
- Starting in the middle of 2000, all breeding data have been united in an overall Austrian horse data network.
- Financial support of the Old Austrian Warmblood within the framework of ÖPUL 2000.
- Financial support of the types Furioso, Nonius and Przedswit through EU-regulation 2078/92 (new: 1257/99).

Contacts:

- Zentrale Arbeitsgemeinschaft österreichischer Pferdezüchter, Schenkenstrasse 4, 1014 Wien
- Verband Niederösterreichischer Pferdezüchter zur Förderung der Pferdezucht und des Pferdeabsatzes, Wiener Strasse 64, 3100 St. Pölten, Tel: 0043-2742/259 –31 03
- Contact für die Alt-Österreichische Warmblutrassen: Helke Wendl, Kreis der Pferdefreunde, Meldemannstrasse 19/20, 1200 Wien, Tel: 0043-1/33 39 04 4

Stock Austrian Warmblood:

1998: 2668 mares and 84 stallions in the herdbook

Stock Old Austrian Warmblood:

1999: 40 mares and 4 stallions

Development trend Old Austrian Warmblood: decreasing

Assessment Old Austrian Warmblood: critical

Need for action:

The Verband der Niederösterreichischen Pferdezüchter is active to a limited extent. A more intensive contact with the breeders in Hungary, Slovakia, and the Czech Republic is urgently needed.

24.3.3. Endangered donkey breeds in Austria

Österreichisch-Ungarischer Albinoesel / Austrian-Hungarian Albino Donkey

Background: This donkey breed from the former Austrian-Hungary is similar to a fair form of flavism because of the unpigmented skin and eyes as well as fairly yellow coloured hairs. The name Albino Donkey is also justified.

Initiatives:

- Conservation measures through the VEGH
- In the 'Tierpark Herberstein', a breeding group with Austrian-Hungarian Albino Donkeys is kept.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH 'Spartenbetreuer': Prof. Dr. F. D. Altmann, Schlossberg 36, D-99448 Kranichfeld, Tel: 0049-36/45 04 26 09
- Tierpark Heberstein, Buchberg 2, 8222 St. Johann bei Herberstein, Tel: 0043-3176/2250

Stock:

1997: approx. 20 animals

Assessment: critical

Need for action: Yes, great.

24.4. Pigs

24.4.1. Extinct pig breeds in Austria

Extinct pig breeds in Austria

Baasner Pig (synonym: Bazna, Porcul de Banat)

In former times, this breed was also represented in Austria. Today, they do not live here any more.

In Romania, however, the breed still exists.

Welser Schecken

This old pig breed died out a long time ago. In literature from the years 1926 to 1930, it is mentioned as a crossbred of Landrace and Berkshire pigs.

Kärntner Landschwein / Carinthian Landrace

The Carinthian Landrace is today considered to be extinct. It occurred in the colour types black and white.

Tullnerfelder Landschwein

In the year 1950, piglets of the Tullnerfelder pig were sold at the piglet market. The breed is considered to have been for some decades.

Morawa Pig

The Morawa pig is not bred any more in Austria. The only breeder gave up in the 1990s.

Güssinger Waldschwein

The Güssinger Waldschwein was formerly bred in the Burgenland. It is not known if any animals still exist.

24.4.2. Endangered pig breeds in the Austrian Alpine region

Schwäbisch Hällisches Schwein / Swabian-Hall

Background: Main region of distribution is the region around Swabian Hall in Germany.

Breeding is not officially supported in Austria.

Contact:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>

Stock:

2000: 3 breeders in the whole of Austria (information from the VEGH)

Assessment (only Austria): critical

Need for action:

Several organisations are active in the conservation of the breed in Germany. The few animals in Austria are all descended from the German population.

Schwalbenbäuchiges Mangalitza / Swallow-Bellied Mangalitza

Synonym: Wollhaariges Weideschwein, Wollschwein, Syrmia

Background: Mangalitza pigs are also conserved in Austria (2000: approx. 300 swallow-bellied animals), Switzerland (2000: 243 sows and 76 boars in the herdbook) and Germany

(2000: 45 red, 45 blond and 80 swallow-bellied sows). In the region of former Yugoslavia and Romania, only a few scattered animals are found. In Hungary, the breed was kept exemplarily until the governmental conservation breeding broke down because of financial problems. Today, the breed has recovered in Hungary in the hands of private breeders. It is supported by governmental subsidies.

Initiatives:

- Conservation measures and a gene conservation program through the VEGH. The establishment of a central herdbook is planned.
- The ÖPUL 2001 program has for the first time allocated some support for the old pig breed.
- Shortly, a project will be started by Vienna University in cooperation with the EU.
- Because the breed occurs across borders, SAVE, the European umbrella organisation coordinates the conservation efforts of the different countries. At regular intervals, international meetings with experts on Mangalitsa breeding are organised to coordinate breeding efforts.

Contact:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0049-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH 'Spartenbetreuer': Gerald Dunst, Neustift 31, 9272 Sebersdorf, Tel: 0043-3333/35 29
- Institut für Tierzucht und Genetik, Veterinärmedizinische Universität, Veterinärplatz 1, 1210 Wien, Tel: 0043-1/250 77 56 25
- Switzerland: SVWS – Schweizerische Vereinigung für die Wollschweinzucht, Petra Fitze und Alex Graf, Dorfstrasse 28, 8564 Wäldi, Tel: 0041-71/657 15 93
- Germany: IG Wollschwein, Jürgen Flegler, Zwetschenweg 30, 35037 Marburg
- Hungary: OMMI, Dr. Lazlo Radnoczi, Orszagos, Mezögazdasági Minösítő Intezet, Keleti Karoly u. 24, 1024 Budapest
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: 100 sows and 50 boars in the overall population kept by 60 breeders

Development trend: decreasing

Assessment: critical

Need for action:

The VEGH is active in supporting the swallow-bellied Mangalitsa. The problem of possibly not counting many animals in the growing population has been counteracted by the setting up a herdbook. The meat is of excellent quality and may be marketed as a niche product. The support of products should be started urgently.

Steirisches Weisses Edelschwein / Styrian White Edelschwein

Synonym:

Contact:

- Landesgenossenschaft steirischer Schweinezüchter, Am Triebberhof 31, 8200 Gleisdorf

Stock:

1992: > 4000 animals in the overall population

Assessment: vulnerable

Need for action:

Despite inquiries among organisations responsible, no current information on the breed could be obtained. The VEGH, also, does not have any. Probably, the need for action for the conservation of the pure type of the Styrian White Edelschwein is acute.

Turopolje Schwein /Turopolje

Background: The breed has its origins in Croatia. It probably developed from a crossbred of Sitka and black English pigs, which were imported to Austria under the reign of Maria Theresa 1777. In the following 130 years, no foreign breed was introduced into the breeding region, so that Turopolje pigs were considered to be an independent breed. Because of the management form of herding, an influence of the 'Symrian Mangalitsa' is possible. The individually occurring frizzy bristles are evidence for this assumption. In 1991, the number of Turopolje pigs in Croatia was assumed to amount to approx. 100-150 animals (information Prof. Caput, University of Zagreb). Indirect impacts of the war caused the stock in the Save floodplains close to Sisak to decrease to approx. 20-30 animals.

Initiatives:

- Conservation measures and a gene conservation program through the VEGH. The establishment of a central herdbook is planned.
- A rescue program was initiated by SAVE and Euronatur in Croatia and breeders were paid a contribution to support the population on-site. The SAVE foundation bought animals during and after the war and restructured breeding. The responsible Croatian bodies declared the Turopoljer to be an endangered breed and established a governmental gene conservation program.
- As an additional conservation measure, a breeding group of 3 boars and 3 sows was evacuated from the war zone in 1994. The entire current stock in Austria, Germany and Switzerland is descended from this breeding group.
- Storage of sperm at the Institut für Biodiversität (Institute for Biodiversity) in Wels
- Financial support within the framework of the ÖPUL 2000

Contact:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- 'Rassenbetreuer' of the VEGH: Karl Schardax jun., Mayrhofstrasse 11, 4644 Scharnstein, Tel/Fax: 0043-7615/29 59
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: approx. 40 animals kept by 15 breeders

Development trend: increasing

Assessment: critical

Need for action:

The VEGH is active in the conservation of the breed. A herdbook has to be set up. Support for special products would additionally help the breed.

24.4.3. Common pig breeds in Austria

In Austria, the 'Landrace' is the main breed utilised and bred. Common breeds are the Improved Landrace and the Edelschwein. Both are descended from German breeds. Besides these, larger stocks of the breeds White Edelschwein, Pietrain, Hampshire and Duroc exist.

24.5. Sheep

24.5.1. General information

The entire stock of sheep in Austria was 380,000 animals in 2000. White Mountain, East Friesian Milk and Merino dominate. Besides these, there are also Suffolk, Texel, Jura, Shropshire, German Heath and Blackheaded.

General addresses:

- Landesverband für Schafzucht und –haltung in Oberösterreich, Auf der Gugel 3, 4021 Linz, Tel: 0043-732/690 23 48, Fax: 0043-732/690 23 60
- Landesschafzuchtverband Tirol, Brixnerstrasse 1, 6020 Innsbruck
- Salzburger Landesverband der Schafzüchter, Günter Jaritz, Schwarzstrasse 19, 5024 Salzburg
- Niederösterreichischer Landesverband für Schafe und Ziegen, Löwelstrasse 16, 1014 Wien
- Schafzuchtverband Burgenland, Estherhazystrasse 25, 7000 Eisenstadt
- Steirischer Schafzuchtverband, Wienerstrasse 37, 8600 Bruck a.d. Mur
- Vorarlberger Schafzuchtverband, Jahnstrasse 20/1, 6900 Bregenz

24.5.2. Extinct sheep breeds in Austria

Bleiburg, Konaltal, Petzen, Gurktal, Stein

These varieties of Carinthian sheep have disappeared today.

Austrian Negretti

This crossbred from local breeds and the Spanish merino has died out today.

24.5.3. Endangered autochthonous Austrian sheep breeds

Alpines Steinschaf / Alpine Steinschaf

Synonym: Dachsteinschaf

Background: Only at one mountain farm in Pongau has the Alpine Steinschaf been conserved for centuries. It still represents the original type of Steinschaf. It is closely related to the Montafon and Bovec sheep. These 3 gene groups have, however to be conserved completely separately. The Alpine Steinschaf also occurs in Germany (2000: 117 animals in the overall population). An exchange of animals exists between Bavaria and Tyrol. In northwestern Slovenia, a small population exists, too. No information could be obtained from Slovenia.

Distribution: Upper Austria, Salzburg, Tyrol

Initiatives:

- Recognition by sheep breeding federations in 2000.
- Gene conservation program by the Salzburger Landesverband für Schafzüchter (Salzburg Federation of Sheep Breeders).
- Semen conservation of 1 ram.
- In cooperation with the Institute for Animal Breeding, a breeding program will be developed.
- In 1996, the research farm Merkenstein of the University of Vienna (Veterinary Medicine) started to set up a nucleus herd.

Contacts:

- Dr. Ferdinand Brandstätter, Strandbadstrasse 303a, 5350 Strobel
- Landesschafzuchtverband Tirol, Brixnerstrasse 1, 6020 Innsbruck

- Salzburger Landesverband der Schafzüchter, Günter Jaritz, Schwarzstrasse 19, 5024 Salzburg
- Institut für Tierzucht und Genetik, Veterinärmedizinische Universität, Veterinärplatz 1, 1210 Wien, Tel: 0043-1/250 77 56 25
- Germany: Koordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Dr. Christian Mendel, Arbeitskreis Wald- und Steinschaf, Berg 35, 85402 Kranzberg, Tel: 0049-81 66 92 65

Stock 2000: 30 animals in Salzburg und 10 animals in Upper Carinthia und Tyrol (kept by one breeder each)

Assessment: critical

Need for action: Acute. A concrete conservation project does not exist at present. It is still possible to conserve the Dachsteinschaf as a breed. Fast action is, however, required! There is a possibility that further individual animals of the original type exist in the Upper Mölltal.

Braunes Bergschaf /

Synonyms: Fuchsfarbenes Engadiner Schaf (Switzerland), Besch da Pader (Switzerland), Val d'Ultimo, Ultnerschaf (Italy), Rotes Bergschaf, Brown Mountain, Red Mountain

Background:

The Brown Mountain also occurs in Switzerland (2000: 1281 ewes and 147 rams in the herdbook), South Tyrol (1998: 800 ewes and 170 rams) and Germany (2000: 1600 animals in the overall population).

Distribution of the Brown Mountain in Austria: Tyrol, Hundsheim Mountains

Initiatives:

- Support, herdbook management and gene conservation program by the Tiroler Schafzuchtverband (Tyrol Sheep Breeders Association).
- Sperm conservation of 6 rams in the genebank (Institute for Organic Agriculture and Biodiversity).
- Premiums for animal keepers are allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- Because the breed occurs across borders, SAVE, the European umbrella organisation coordinates the conservation efforts of the different countries.
- The cooperation between breeders' organisations of the different countries has intensified during the last year. In November 2000, the 'Vereinigung der Bergschafzüchter' (Association of Mountain Sheep Breeders) was founded. The new association aims to support sheep breeding and keeping in the Alpine region. In the year 2001, the Bayerische Herdebuchgesellschaft (Bavarian Herdbook Association) had the chair of the association.

Contacts:

- Tiroler Schafzuchtverband, Herr Jaufenthaler, Brixner Strasse 1/Zi 12, A-6020 Innsbruck
- Italy: Verband Südtiroler Kleintierzüchter, Frau Barbara Mock, Via Galvani, 40, 39100 Bolzano, Tel: 0039-471/20 28 39
- Switzerland: SEZ, Kathrin Krieg, Sonnentel, 8712 Stäfa, Tel: 0041-1/920 06 55
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net
- Bayerische Herdebuchgesellschaft für Schafzucht, Haydnstrasse 11, D-80366 München, Tel: 0049-89/53 62 27

Stock:

1999: 464 ewes and 52 rams in Salzburg and Lower Austria.

Development trend: stable

Assessment: endangered

Need for action: Several organisations are active in the conservation of the breed.

Kärntner Brillenschaf / Carinthian

Synonyms: Spiegelschaf, Villnösser Schaf, Jezersko-Solcavsca, Seeländer Schaf, Jezersko Schaf

Background: The breed also occurs in Germany (2000: 348 female breeding animals in the herdbook), Slovenia (1999: approx. 4500 purebred animals) and Italy (2000: approx. 1000 animals in the overall population).

Initiatives:

- Conservation efforts through the VEGH.
- The 'Verein der Kärntner Brillenschafzüchter' (Association of Carinthian Sheep Breeders) maintains a country-wide herdbook via internet, and cooperates with the Landesschafzuchtverband Kärnten.
- Gene conservation program through the Lands-Schafzuchtverband Kärnten
- Conservation of a breeding group at the 'Tirolerhof' in the 'Tierpark Schönbrunn'.
- Semen cryoconservation of 12 rams.
- At present, a successful Interreg-program exists. Within the framework of this program, cooperation between Slovenia, Bavaria and South Tyrol is supported.
- Because the breed occurs across borders, SAVE, as the European umbrella organisation coordinates the conservation efforts of the different countries.
- Within the framework of Öpul 2000, premiums and a gene conservation program are planned.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Verein der Kärntner Brillenschafzüchter Alpen-Adria, Friedhelm Jasbinschek, Sponheimerplatz 1, Postfach 44, 9170 Ferlach, URL: <http://www.brillenschafe.at>
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Friedhelm Jasbinschek, Windisch Bleiberg 8, 9163 Unterbergen, Tel. 0043-463/32 81 94
- Landes-Schafzuchtverband Kärnten Museumsgasse 5, 9010 Klagenfurt
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0
- Germany: Koordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: 1) Manfred Ludewig, Breitenloh 11, 83416 Saaldorf, Tel: 0049-8654/38 57, 2) Jakob Wiesheu, Scheideringerstrasse 5, 83083 Riedering, Tel: 0049-8036/18 84
- Italy: Verband Südtiroler Kleintierzüchter, Frau Barbara Mock, Hörtenbergstrasse 1b, M. Tondo, 39100 Bolzano
- Slovenia: Mag. D. Kompan, Groblje 3, Biotehniska Fakulteta, SLO-1230 Domzale
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: approx. 900 ewes from 21 lines and 100 rams from 7 lines

Development trend: increasing

Assessment: endangered

Need for action:

Several organisations are active in the conservation of the breed.

Montafoner Steinschaf / Montafon

Background: The Montafon sheep belongs to the Steinschaf group. It is closely related to the Alpine Steinschaf.

Distribution: Occurs occasionally in the upper regions of the Montafon valley (Vorarlberg).

Initiatives:

- Conservation efforts by the VEGH
- The Institute for Animal Breeding at the University of Vienna takes care of scientific questions.
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0049-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Markus Stadelmann, Bergstrasse 9, 6850 Dornbirn, Tel: 0043-5572/226 01
- Institut für Tierzucht und Genetik, Veterinärmedizinische Universität, Veterinärplatz 1, 1210 Wien, Tel: 0043-1/250 77 56 25

Stock:

1999: 70 ewes and 9 rams in the overall population

Development trend: slightly increasing

Assessment: critical

Need for action:

Acute – little is being done. Recognition as a breed is still pending.

Original Steinschaf

Synonym: Salzburger Steinschaf

Initiatives:

- Since 1993, Fritz Brandner has been active in the conservation of Salzburg Steinschafe. He only wants to join the breeders' association if sires of other breeds are not used any more in the future.
- Since 1996, the Institute for Animal Breeding in Pottenstein has been conserving a herd.
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.

Contacts:

- Fritz Brandner, Arzeggbauer, Schlöglberg 17, 5505 Mühlbach am Hochkönig
- Ferdinand Brandstätter, Strandbadstrasse 303a, 5350 Strobl
- Institut für Tierzucht, Hochschulgut Merkenstein, Kremesberg 11, Pottenstein
- VEGH 'Spartenbetreuer': Günther Jagritz, Unkenberg 15, 5091 Unken, Tel: 0043-6589/43 88

Stock:

2000: approx. 40 female animals kept by 5 breeders

Assessment: critical

Need for action:

Acute – Fritz Brandner is active in support of the breed. At present, neither official recognition nor a herdbook exists. Conservation efforts should be intensified urgently.

Schwarzes Bergschaf / Black Mountain

Background: The Black Mountain is the black type of Brown Mountain.

Distribution: Tyrol

Initiatives:

- The Tiroler Schafzuchtverband takes care of the conservation of this breed.

Contacts:

- Tiroler Schafzuchtverband, Herr Jaufenthaler, Brixner Strasse 1/Zi 12, A-6020 Innsbruck

Stock:

The Tiroler Schafzuchtverband has not provided any information on the current stock of Black Mountain. At the beginning of the 1990s, approx. 1500 ewes were counted.

Need for action:

It has to be clarified how many animals still exist.

Tiroler Steinschaf / Tyrolean

Synonym: Grauschaf, Öztaler

Background: The Tyrolean belongs to the Steinschaf group.

It is a descendant of the Alpine Steinschaf and considered to be the oldest Tyrolean sheep breed.

Distribution: Tyrol, Salzburg

Initiatives:

- Management of the breed and gene conservation program through the Landesschafzuchtverband Tirol.
- Conservation of a breeding group in the 'Tierpark Schönbrunn' at the 'Tirolerhof'.
- Sperm conservation of 3 rams in a genebank (Institute for Organic Agriculture and Biodiversity).
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- Landesschafzuchtverband Tirol, Brixnerstrasse 1, 6020 Innsbruck
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0

Stock:

1999: 1314 ewes and 231 rams in the overall population

Development trend: stable for some years

Assessment: vulnerable

Need for action:

None at present. Stock development has, however, to be observed.

Waldschaf / Forest Sheep

Synonyms: Sumavka Schaf, Ciktaschaf, Böhmerwaldschaf, Bavarian Forest Sheep

Background: The Forest sheep descended from the Zaupel. There are also populations in the Czech Republic (2000: 2569 ewes in the overall population), Germany (2000: 620 ewes in the overall population) and Hungary (1999: 350 ewes in the overall population). The population in the Czech Republic is at present extremely endangered because of economic restructuring.

Distribution: Mühlviertel in Upper Austria

Initiatives:

- The Schafzuchtverband Oberösterreich (Sheep Breeding Association Upper Austria) is throughout the country responsible for conservation efforts. In 1999, a gene conservation program was designed.
- Since 1993, the VEGH has been trying to reestablish a Forest sheep population. A controlled mating program is used to continuously stabilise the population, which is threatened by signs of degeneration
- Development of marketing strategies for wool and meat through the Austrian Naturschutzjugend (Youth Association for Nature Protection)
- Sperm conservation of 19 rams in the gene bank (Institute for Organic Agriculture and Biodiversity).
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- EU-project (EAGFL) for the reestablishment of Forest sheep in the Mühlviertel/Bohemian Forest, together with the Austrian Naturschutzjugend.
- Because the breed occurs across borders, SAVE, as the European umbrella organisation coordinates the conservation efforts of the different countries.

- DAGENE will in future take care of the international coordination of conservation measures.

Contacts:

- Schafzuchtverband Upper Austria, Zentrales Abstammungsbuch für Waldschafe, Dipl. Ing. Hans Kjäger, Kriegwald 18, 4162 Julbach, Tel/Fax: 0043-7288/85 35, E-Mail: waldschafe@aon.at, Forest sheep in the internet: URL: <http://members.aon.at/waldschaf/>
- Landesverband für Schafzucht- und Schafhaltung Upper Austria, Generhaltungsprogramm, Auf der Gugl 3, 4021 Linz
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0049-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>,
- VEGH ‚Spartenbetreuer‘: Othard Hack, Steinbergstrasse 17, 6393 St. Ulrich am Pillersee, Tel/Fax: 0043-5354/889 16
- ARGE Waldschaf, DI Dr. Erich Millbacher, 3541 Senftenbergeramt 12, Tel: 0043-2719/84 30
- Österreichische Naturschutzjugend Haslach, Karl Zimmerhackl, Gurbberg 17, 4170 Haslach, Tel/Fax: 0043-7289/714 93
- Germany: Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Peter Neugebauer, Weisleithen 6, 94166 Stubenberg, Tel: 0043-85 71 89 58
- Czech Republic: Züchterverband Brno, Svaz chovatelů ovci a koz v CR, Ing. Vit Mares, Palackeho 1-3, CZ – 61242 Brno
- Hungary: Dr. Lazlo Radnoczi, Orszagos, Mezögazdasági Minösitö Intezet, Keleti Karoly u. 24, 1024 Budapest
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: 544 breeding animals (495 ewes and 49 rams) kept by 41 breeders

Development trend: decreasing effective population despite increasing stock numbers

Assessment: endangered

Need for action:

Several organisations are active in the conservation of the breed. The high degree of inbreeding within the population, which has led repeatedly to signs of degeneration, is a great problem!

24.5.4. Endangered foreign sheep breeds

Krainer Steinschaf / Bovec Sheep

Synonyms: Bovskaschaf, Trentarka, Plezzana

Background: Bovec sheep belong to the Steinschaf group. They are probably similar in type to the old Steinschaf. However, the breed is not indigenous to the current Austrian Alpine region.

It originates from northwestern Slovenia.

Bovec sheep also occur in Germany (2000: 65 animals in the overall population) and the Region Friuli-Venezia Giulia in Italy (2000: 40-50 animals). In Slovenia, a stock of 300 purebred animals was reported by the SAVE Foundation, however, the official estimate the number of purebred animals is 1500. An exchange takes place between Austrian and Slovenian breeders.

Distribution: Carinthia, Styria, Burgenland, Lower Austria

Initiatives:

- Conservation efforts through the Verein der Krainer Steinschafzüchter (Association of Bovec Sheep Breeders), founded in 1998, and the VEGH – integration of nearly all animals into the OPTIMATE-program.
- Integration of Bovec sheep breeders into the respective sheep breeding federations of the Federal States of Carinthia, Styria, Burgenland and Lower Austria.
- Gene conservation program of the Landes-Schafzuchtverband Kärnten (Sheep Breeding Federation Carinthia)
- In cooperation with the Institute for Agrobiology in Wels, male lines of suitable animals have been selected for sperm production.
- Since May 2000, an EU-project has been running in Upper Carinthia (Heiligenblut) on a community alp. Its objective is to support the production and direct marketing of alp cheese from the milk of Bovec sheep. At present, 6 breeders and 160 sheep participate.
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)
- Because the breed occurs across borders, SAVE, the European umbrella organisation coordinates the conservation efforts of the different countries.

Contacts:

- Verein der Krainer Steinschafzüchter, Hochfeistritz 40, 9372 Eberstein
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH 'Spartenbetreuer': Reiner Seibold, Laufensberg 20, 9545 Radentlein, Tel: 0043-4246/49 85
- Landes-Schafzuchtverband Kärnten, Museumgasse 6, 9010 Klagenfurt
- Germany: Coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: Dr. Christian Mendel, Berg 35, 85402 Kranzberg, Tel: 0043-8166/92 65
- Italy: ARA Friuli Venezia Giulia, Via G. Ferraris, 20/a, 33170 Pordenone Tel: 0039-434/54 15 11
- Slovenia: Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, 1230 Domzale, Tel: 0386-61/71 78 65, Fax: 0386-61/724 10 05, E-Mail: drago.kompan@bfro.uni-lj.si
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

Stock:

2000: 250 purebred animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

Several organisations are active in the conservation of the breed. Coordination across regions and the adjustment of overall interests is, however, unsatisfactory.

Ungarisches Zackelschaf / Zackel

Synonym: Rackaschaf

Background: The Zackel is the last remaining sheep breed with screwed horns. It originates from the Hungarian Puszta region. The breed has become extremely rare in the Pannonian region. In Hungary, only few stock are left (often mixed with other breeds). In the surrounding countries, single stock remain. In Austria, a relatively large stock is conserved.

Distribution: Northern Burgenland

Initiatives:

- Conservation efforts through the VEGH.

- Gene conservation program of the Schafzuchtverband Burgenland (Burgenland Sheep Breeders Association)
- Semen conservation is carried out.
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH 'Spartenbetreuer': Johann Liebreich und Barbara Baltacis, Reitstall Waidenhof, Hauptstrasse 50, 2263 Waidendorf, Tel/Fax: 0043-2538/82 96
- Schafzuchtverband Burgenland, Estherhazystasse 25, 7000 Eisenstadt

Stock:

2000: approx. 150 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

The VEGH is at present active in the conservation of the breed.

24.6. Goats

24.6.1. General information

Prevailing breeds in Austria are the White and Coloured Improved as well as the Saanen, the Toggenburg and the Chamois-coloured Mountain (synonym: Tux goat). The Valais Blackneck already formed a larger population in the 19th century in Austria (main area of distribution: Switzerland) because of imports.

24.6.2. Goat breeds in the Austrian Alpine region

Pfauenziege / Peacock Goat

Background: Numerous indications back up the claim that the Peacock goat was not only distributed in Switzerland but also in the entire Alpine region. In North Tyrol, it is in some places still regarded as the indigenous Tyrolean goat breed and is sometimes named 'Stubai goat'.

Initiatives:

- The conservation work for the Peacock in Austria is in its early stages. Meanwhile, the VEGH could allocate 5 breeders in the federal states of Tyrol, Salzburg and Lower Austria.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com> VEGH Spartenbetreuerin: Dr. Ruth M. Wokac, Hochkogelberg 10, 3263 Randegg, Tel: 0043-7487/84 29

Stock:

2000: approx. 50 animals in the overall population

Assessment: critical

Need for action:

Yes, particularly for the reproduction of the stock of typical animals with simultaneous conservation of the broadest possible range of Austrian gene material. Some work is being done by the VEGH.

Pinzgauer Ziege / Pinzgau

Synonym: Gemsfärbige Pinzgauer Ziege, Salzburger Alpenziege, Pizis

Background: The Pinzgau and the Chamois-coloured Mountain can be clearly differentiated!

Distribution: Mainly Salzburg and Carinthia, some in Lower Austria and Tyrol

Initiatives:

- Conservation efforts through the VEGH.
- Herdbook recording since the 1990s.
- The Landesverband der Schaf- und Ziegenzüchter Salzburg is responsible for the gene conservation program.
- Sperm conservation of 3 billy-goats in a genebank (Institute for Organic Agriculture and Biodiversity).
- Premiums for animal keepers have been allocated within the framework of Öpul 2000.
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: DI Adalbert Böker, Innerer Graben 12, 4100 Ottensheim, Tel: 0043-7234/831 73
- Landesverband der Schaf- und Ziegenzüchter Salzburg, Günter Jaritz, Schwarzstrasse 19, 5024 Salzburg

Stock:

2000: approx. 400 animals in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

The VEGH is at present active in the conservation of the breed.

Salzburger Strahlenziege

Background: In contrast to the Bündner Strahlen, the hair of the Salzburg Strahlen is not short and smooth, but medium long. Apart from its black colour with the white sign of the Bezoar goat, it is similar to the Pinzgau goat. The question whether the breed originated in Austria, or in Switzerland, from the Chamois-coloured Mountain, has not been clarified yet. The Chamois-coloured type is also called 'Braune Strahlenziege'.

Stock: Current information on the stock is not available.

Need for action:

Acute. The animals are widely scattered, nobody is doing anything at present for the breed!

Scheckige Tauernziege / Tauern Pied

Synonym: Tauernschecken Ziege

Distribution: A large part of the population in Pinzgau, partially East Tyrol and Carinthia

Initiatives:

- Conservation efforts through the VEGH. Well-directed conservation work is used to acquire new breeders.
- Sperm conservation of 6 billy-goats in a genebank (Institute for organic Agriculture and Biodiversity).
- Conservation of a group of animals in the 'Tierpark Schönbrunn' at the 'Tirolerfarm'.

- The Landesverband der Schaf- und Ziegenzüchter Salzburg is responsible for tattooing of animals and for the gene conservation program.
- Herdbook recording since the 1990s.
- Financial support within the framework of the ÖPUL 2000
- Financial support within the framework of EU-regulation 2078 (new: 1257/99)

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Johann Wallner, Vorstanddorferstrasse 71, 5661 Rauris, Tel: 0043-6544/64 20
- Landesverband der Schaf- und Ziegenzüchter Salzburg, Günter Jaritz, Schwarzstrasse 19, 5024 Salzburg
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 -0

Stock:

2000: approx. 200 animals in the overall population

Development trend: stable

Assessment: endangered

Need for action:

The VEGH is active in the conservation of the breed.

Steirische Scheckenziege

Background: As a typical mountain goat, the Steirische Scheckenziege is mainly horned. Those with a white breastbelt, however, are sometimes polled. The hair is short and without hangings.

Distribution: Styria

Initiatives:

- Conservation measures through the VEGH.
- Gene conservation program through the Steirischen Ziegenzuchtverein
- Sperm conservation of 9 billy-goats in a genebank (Institute for Organic Agriculture and Biodiversity).
- Financial support within the framework of the ÖPUL 2000

Contacts:

- Steirischer Ziegenzuchtverein, Pichlmayergasse 18, 8700 Leoben
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com> VEGH 'Spartenbetreuer': Vinzenz Krobath, Muggauberg 25, 8152 Stallhofen, Tel: 0043-3137/24 56

Stock:

2000: approx. 50-100 animals

Assessment: critical

Need for action:

Acute – it is partially dealt with. The stock is, however, not guaranteed. In Styria, only a few breeders exist at present who dedicatedly breed and conserve the breed.

Vierhornziege

Background:

The Vierhornziege occurs in several colour types. In addition to both main horns, 2-4 small side horns grow laterally. Probably, the goat is not an actual breed as such. According to one source, it is called a horn mutant (recessive reproduction) or a type which is not only different from other breeds because it has 4 horns, but also because it has other particular body features.

Distribution: Individual animals and smaller groups, mainly in parks and by hobby keepers in the Pongau and the German Allgäu, individual animals in southern and western Styria, Salzburg and Tyrol.

Initiatives:

- No conservation efforts at present. The VEGH is interested to support populations and individual animals with herdbooks, animal exchange and controlled exchange of breeding animals.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH Spartenbetreuer: Hannes Ossenagg, 8544 Pölfing-Brunn 13, Tel: 0043-664/482 00 97, Fax: 0043-3465/30 75

Stock:

2000: approx. 50 animals

Assessment: critical

Need for action:

The stock should be recorded in detail and the origin should be clarified.

24.7. Poultry

24.7.1. Chicken breeds in the Austrian Alpine region

Altsteirer : Weisser Schlag / Styrian White Type

Background: In Slovenia, a (very) small population exists today.

Initiatives:

- Conservation measures by the Sonderverein der Steierhuhnzüchter and the VEGH – during recent years, further animals could be located and integrated into the conservation program. A degree of purity of nearly 100% is maintained.

Contacts:

- Sonderverein der Steierhuhnzüchter, August Heftberger, Grolzhalm 34, 4680 Haag
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH ‘Spartenbetreuer’: Ing. Werner Abel, Günserstrasse 15, 2860 Kirchschlag, Tel: 0043-2646/24 35
- Heinz Gurker, Haymergasse 36/2/16, 1160 Wien
- Slovenia: Dr. Antonija Holcman, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, 1230 Domzale, Tel: 00386-61/71 78 53, E-Mail: antonija.holcman@bfro.uni-lj.si,

Stock:

1997: 10 breeders are active in keeping the breed

Assessment: critical

Need for action:

The future existence of the Altsteirer Weissen is questionable as only a few, often related animals exist. Cooperation with Slovenia is urgently needed to broaden the genetic basis. This step is a precondition for the survival of the breed.

Altsteirer Wildfarbiger Schlag / Styrian Partridge-coloured type

Background: In Slovenia, a population of the type exists (1999: approx. 1000 animals).

Initiatives:

- Conservation measures through the VEGH and the Sonderverein Steierhuhnzüchter.
- Conservation of a group of animals at the 'Tirolerfarm' of the 'Tierpark Schönbrunn'.

Contacts:

- Sonderverein der Steierhuhnzüchter, August Heftberger, Grolzhalm 34, 4680 Haag
- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- Ing. Werner Abel, Günserstrasse 15, 2860 Kirchschlag, Tel: 0043-2646/24 35
- Tierpark Schönbrunn, Maxingstrasse 13b, 1130 Wien, Tel: 0043-1/877 92 94 –0
- Slovenia: Dr. Antonija Holcman, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, 1230 Domzale, Tel: 00386-61/71 78 53, E-Mail: antonija.holcman@bfro.uni-lj.si

Stock:

2000: approx. 20 breeders in the whole of Austria who try to conserve the breed.

Assessment: endangered

Need for action:

The VEGH and the Sonderverein der Steierhuhnzüchter are active in the conservation of the breed. A cooperation and an exchange with Slovenia should be started urgently.

Sulmtaler

Initiatives: At present, numerous Austrian breeders are active in supporting the breed.

- The Sonderverein der Steierhuhnzüchter takes care in particular of the wheat-coloured Sulmtaler.

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- Sonderverein der Steierhuhnzüchter, August Heftberger, Grolzhalm 34, 4680 Haag
- Ing. Werner Abel, Günserstrasse 15, 2860 Kirchschlag, Tel: 0043-2646/24 35

Stock:

2000: several thousand animals

Assessment: vulnerable

Need for action:

Covered at present. Stock development has to be observed.

24.8. Pigeons

Old Austrian Pigeon breeds:

Breed	Colour types	Risk Status
Malteser	12	Not endangered
Huhnscheck/Linzer Taube	11	Not endangered
Waldviertler Kröpfer	1	Endangered – very low distribution
Österreichischer Ganselkröpfer	1	Endangered – distribution low
Alt. Österreichischer Tümmeler/Wiener Kiebitz	3	Endangered
Österreichischer Weisschwanz	7	Not endangered
Wiener Tümmeler/Wiener Ziertümmeler	many	Main colours are not endangered

Wiener Weisschild	3	Not very endangered
Wiener Kurze	12	Endangered – low distribution
Wiener Gansl	6	Partially endangered
Wiener Hochflugtauben/Jauker	Many	No acute danger

The Wiener Kurze and Wiener Gansl are also called ‘Wiener Kurzschnäbelige’.

Contacts:

- August Heftberger, Chairman for Pedigree Pigeons in Austria, Grolzham 34, 4680 Haag a.H.
- Komitee der Hochflugtauben, Hans Stibsky, Triesterstrasse 354, 1232 Wien
- Chairman of the Wiener Tümmeler: Erich Rumppler, Schulgasse 2, 2552 Hirtenberg
- Contact VEGH: Dr. Berthold Traxler, Oberntor 18, 4680 Haag am Hausruck

Need for action:

The need for action for the Austrian pigeon breeds is basically covered by the associations for small animal breeding. Conservation activities for the breeds Waldviertler Kröpfer, Österreichischer Ganselkröpfer, Alt. Österreichischer Tümmeler, Wiener Kurze and Wiener Gansl are, however, unsatisfactory. Controlled conservation programs should urgently be set up.

24.9. Dogs

24.9.1. Austrian hunting dog breeds

Hunting dog breeds from Austria and their entries into the Austrian dog pedigree book in 1998:

- Brandlbracke (synonym Österreichische glatthaarige Bracke): 119
- Tiroler Bracke: 44
- Alpenländische Dachsbracke: 62
- Steirische rauhaarige Hochgebirgsbracke (synonym: Peintingerbracke): 35

Overall populations:

A rough estimation of the overall population can be determined by multiplying the annual entry numbers into the pedigree book by 8 (estimated average life expectancy)

Contacts:

Österreichischer Kynologenverband, Joh. Teufel-Gasse 8, 1238 Wien, Tel: 0043-222/88 70 92, Fax: 0043-222/889 26 21

Need for action:

The need for action is taken care of by the federation of kynologists.

24.9.2. Österreichischer Kurzhaarpinscher/ Austrian Short-hair Pinscher

Background: *The Austrian Short-hair Pinscher is a typical house dog. The breed originates from the old Landpinscher which was formerly distributed throughout Central Europe, and particularly in Old Austria. In 1928, this indigenous Austrian dog breed was recognised by the Österreichischer Kynologenverband (Federation of Kynologists). In the 1960s, breeding stopped nearly completely. In the 1970s, the breed was again supported and today, it is spread throughout the Netherlands, Germany and Denmark.*

Initiatives:

- Conservation measures through the VEGH.
- Registering in the dog pedigree book and conservation efforts of the Kynologenverband

Contacts:

- VEGH – Verein zur Erhaltung Gefährdeter Haustierrassen, Mag. Wolfgang Unterlercher, Postfach 462, 9010 Klagenfurt, Tel/Fax: 0043-463/21 93 92, E-Mail: w.unterlercher@gmx.at, URL: <http://www.vegh.f2s.com>
- VEGH ‘Spartenbetreuerin’: Brigitte Mangold, Oberschildbach 6, 3232 Bischofstetten, Tel: 0043-2748/81 22
- Österreichischer Kynologenverband, Joh. Teufel-Gasse 8, 1238 Wien, Tel: 0043-222/88 70 92, Fax: 0043-222/889 26 21
- Denmark: Kennel Pinschergarden, Herbert og Jytte Baumkirchner, Skovmarksvej 50, Vettterslev, 4100 Ringsted
- The Netherlands: Kennel ‘Van Tilburgs Roem’, Henk en Ine Hartgers – Wagener, Nieuwevaart 89, 5161 AP Sprang-Capelle

Stock:

1998: 19 animals are registered in the Austrian herdbook, approx. 150 animals in the overall population.

Assessment: endangered”

Need for action:

Great, at present, several institutions are active for the conservation of the breed.

24.10. Rabbits

24.10.1. Viennese rabbit breeds

Contact:

Ing. Werner Abel, Günserstrasse 15, 2860 Kirchschlag, Tel: 0043-2646/24 35-4, Fax: 0043-2646/24 35-3

Blauer Wiener:

The original type of the Blauer Wiener is extremely endangered because breeding aims at extreme exhibition types.

Weisser Wiener:

The Weisse Wiener is not endangered. The breed has been developed since 1902 by Wilhelm Mucke from brighter coloured blue Holländer rabbits. Today, it is distributed world-wide. Crossbred animals and extreme forms are, however, favoured.

Grauer Wiener:

Within this breed, three colour types are differentiated whereby the darker colours have become extremely rare and are considered to be endangered. The darker coloured animals are more closely related to wild rabbits with respect to colour. An increase in pelt processing during recent years has had a positive effect on conservation work. The Graue Wiener originates from the 'Graue Gehegekaninchen'. Up to now, many other breeds have been crossbred so that the original type has rather lost its originality.

Schwarzer Wiener:

In 1925, the breed was exhibited for the first time. The pelt is pure black and with stronger kemps. The Schwarze Wiener is by far the most endangered breed.

Need for action Wiener Kaninchen:

In recent years, breeders turned in general to dwarf breeds and Guinea pigs and away from medium-sized breeds. In large enterprises, only hybrid beef rabbits are kept today. The need for action is partially taken care of by the breeding associations. For the original type of Blaue Wiener, the dark type of Graue Wiener and the Schwarze Wiener, it is, however, not sufficiently taken care of.

24.11. Bees

Approx. 400,000 bee colonies are at present registered in Austria.

24.11.1. Bee breeds in the Austrian Alpine region

Dunkle Biene / Mellifera

Synonyms: Nigra, Schwarze Biene, Braune Biene

Scientific name: *Apis mellifera mellifera* or *Apis mellifera nigra*

Ecotypes/breeding lines: Braunelle, Steinbergerin, Tiroler-Nigra, Salzburger Alpenlandbiene

Background: The Mellifera was replaced in Austria by Arnica breeding lines. It is considered to be extremely endangered throughout Europe. Today, there are only a few colonies left. The decline of the breed has gone rather unnoticed within the past few decades.

Main area of distribution: Tyrol, Salzburg, Styria, Burgenland, parts of Lower Austria

Initiatives:

- At present, great efforts are made for the conservation of the Mellifera by the ACA – Austrian Arnica Association. They want to ensure the conservation of the breed by making breeding more economically efficient and by ensuring that regional protection areas are protected by legislation (Lower Austria, Styria, Carinthia, Salzburg).
- The Landesverband für Bienenzucht in Tyrol is particularly active in the protection of the Mellifera.
- Kept in small numbers at the Tiroler Imkerschule (Tyrolean School for Beekeepers)
- The breeding group of the Salzburger Alpenlandbiene is particularly active in the conservation of the ecotype 'Salzburger Alpenlandbiene'.
- The Braunelle Vereinigung is active in the conservation of the ecotype 'Braunelle' in Tyrol.
- In Salzburg and Tyrol, there are control stations for the purebreeding of the Mellifera.

- The Institut für Bienenkunde in Lunz provides advice for the different organisations.
- At the international level, the *SICAMM* (International Society for the Conservation of the Mellifera) is active in the conservation of the breed.

Contacts:

- ACA – Austrian Carnica Association, President: Dr. Hermann Pechhacker, Bundesamt und Forschungszentrum für Landwirtschaft, Institut für Bienenkunde, department Bienenzüchtung, 3293 Lunz am See, Tel: 0043-7486/80 90 0, Fax: 0043-7486/80 90 17
- Landesverband für Bienenzucht in Tirol, Meranerstrasse 2, 6020 Innsbruck
- Tiroler Imkerschule, Landw. Landeslehranstalt Imst, Meraner Strasse 6, 6460 Imst, contact/director: Dipl.-Ing. Josef Strain, Tel: 0043-5412/663 46, Fax: 05412/663 46 45, E-Mail: lla_imst@asn.netway.at
- Zuchtgruppe Salzburger Alpenlandbiene, c/o Zuchtobmann Horst Bogenhuber, Gois 34, Heuweg, 5071 Wals
- Braunelle Vereinigung, Herr Trenkwalder, Landegg, Tirol
- SICAMM, Societas Internationalis pro Conservatione Apis melliferae melliferae, Nis Drival, Kvelland, N-4400 Flekkefjord, E-Mail: drivdal@online.no

Stock:

2000: small remnant populations in Tyrol (500-600 purebred colonies)

Assessment: critical

Need for action:

Different organisations are active in the conservation of the breed.

Kärntner Biene /Carinthian bee

Synonyms: Graue Krainer

Scientific name: *Apis mellifera carnica*

Ecotypes/breeding lines: Trioiseck, Perchetz, Sklenar

Background: At present, the Carinthian bee is not directly endangered, and the size of the population is still large enough. But because of the increasing import of crossbred bees – particularly buckfast and bees from New Zealand – great efforts have to be made to conserve the Carinthian bee. Because of its biology and mating behaviour, the loss of a widely distributed bee breed can take place very fast.

Main area of distribution: Vorarlberg, Upper Austria with Ennstal and western Lower Austria
Initiatives:

- At present, great efforts are made for the conservation of the Mellifera by the ACA – Austrian Carnica Association. They want to secure the conservation of the breed by an increase of economic efficiency (breeding) and by regional protection areas laid down in the legislation (Lower Austria, Styria, Carinthia, Salzburg).
- The initiatives Bienenland Kärnten is working hard to protect and support the breed.
- Single federations for bee breeding are also very active in the conservation of the indigenous bee breed.
- The Institut für Bienenkunde in Lunz provides advice for the different organisations.

Contacts:

- ACA – Austrian Carnica Association, President: Dr. Hermann Pechhacker, Bundesamt und Forschungszentrum für Landwirtschaft, Institut für Bienenkunde, Department Bienenzüchtung, 3293 Lunz am See, Tel: 0043-7486/80 90-0, Fax: 0043-7486/80 90 17
- Initiatives Bienenland Carinthia, Winfrid Dareb, Völkermarkter Strasse 39, 9010 St. Veit

Assessment: not (yet) endangered

Need for action:

Several organisations are active in the conservation of the breed. The development of the purebred colonies has, however, to be observed. A small group of so-called commercial beekeepers are opposed to conservation measures. They hope for help from Brussels with regard to the free trade of goods which would massively threaten the pure stocks of the Carinthian bee.

25. General report on cultivated plants in the Slovenian Alpine region

Conservation measure taken by public organisations have to date mainly been concerned with *ex situ* conservation which is institutionalised in the genebanks. The first systematic collection tours started in 1952. Since then, more than 2000 plants have been collected in the Slovenian region, which are stored at 20 different locations. Storage conditions, however, do not comply with modern standards.

In situ conservation is based on the sporadical individual interest of farmers and not on formal cooperation with genebanks.

On farm conservation is mainly carried out in the organic or biodynamic sector. Numerous farmers are linked via their federations.

In Slovenia, there are three main institutions involved in the conservation of Plant Genetic Resources: the Biotechnical Faculty in Ljubljana, the Institute for Agriculture and the Institute for Hops and Brewing. The usability of plants and utilisation possibilities are given special attention during collection tours.

The Institute for Hops and Brewing is the main supplier for hop varieties which were developed there and which are used for beer brewing.

The Institute for Agriculture develops varieties of potatoes, grasses, clover, beans and cabbage from indigenous material.

Moreover, some seed companies conserve cultivated plants which are then used in breeding. Strictly speaking, one cannot speak of actual conservation work here, as long-term conservation is not guaranteed. Semenarna is a company which deals with seeds and which also conserves some old varieties in its assortment. Osvald is a private enterprise which specialises on both production and breeding of old radicchio varieties.

After the Second World War, autochthonous examples of clover grass, grasses, maize, cabbage, beans and onions, chicory, buckwheat, wheat, rye, barley, hop, peach, apples and other cultivated plants were collected for breeding purposes. At this time, work focused mainly on the breeding of 11 grass and clover grass varieties, 4 bean, two cabbage, one onion, two chicory, two maize, two buckwheat, one wheat, one rye and one barley varieties.

Breeding was carried out at the Institute for Agriculture, at the Biotechnical Faculty of the University in Ljubljana and at the Institute for Hop Research and Brewing in Zalec. Only autochthonous maize plants dating from this time are stored in a fridge at 6°C, whereas the seeds of other plants have lost their germination ability. The vine and fruit tree collection was conserved, selection was carried out.

In former Yugoslavia, indigenous material was collected between 1989 and 1991 to found a genebank. In order to continue these collections, two projects were financed by the Ministry for Natural Sciences and Technology from 1991 and 1994 and 4 further projects were financed by the Ministry for Agriculture, Forestry and Nutrition. The result of one of the projects financed by the first mentioned ministry was the registration of 23 old vine varieties in the official variety list in 1993.

In September 1994, a new project was proposed by both ministries in order to reach an agreement on a national program on Plant Genetic Resources. A central genebank was to be established as well as central documentation and information service, both at the agricultural institute of Ljubljana, which has a 23 m³ storage room for mid-length storage at temperatures of +4°C.

Approx. 5000 old Slovenian varieties are stored in genebanks in Italy (Bergamo) and Paris. The botanical garden in Ljubljana has only a few plants from the Alpine region. Despite repeated inquiry, further information could not be obtained.

25.1.1. Management of the distribution of local varieties

Local varieties – if existing– are mostly distributed by the local farmers by exchange or for cash. Strict regulations on trade with autochthonous plants do not exist.

Some old Slovenian local varieties are registered in the official variety list and available through seed traders. Local varieties not listed are available through genebanks (limited amounts) if sufficient seed exists. Interest in local varieties is, however, very small.

Bio-dynamic orientated farmers mostly use uncertified seeds. They produce the seeds they need on their own farm, obtain it from other farmers or import Demeter seed from Germany. Some larger agricultural enterprises and some farmers reproduce varieties which have been developed from local varieties and distribute these via the seed-producing company Semenarna.

25.1.2. National and regional legislation concerning the conservation of Plant Genetic Resources

The legislation concerning Plant Genetic Resources is regulated at a national level in Slovenia. Genetic resources are dealt with in articles 29 to 36 of the Natural Conservation Act. The text is very general. Cultivated plants are not particularly considered.

25.1.3. Implementation of the National Plan of Action in the Slovenian Alpine region

In Slovenia, there is a National Plan of Action for Plant Genetic Resources which is supported by the Ministry for Agriculture, Forestry and Nutrition and implemented by three public institutions. Together, they form a national commission. The focus of the National Plan of Action is on conservation and further breeding of Plant Genetic Resources. The following list includes the names of the genebank trustees participating in the National Plan of Action:

Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana

Program Manager: Dr. Zlata Luthar
Dr. Zlata Luthar: buckwheat, primitive wheat, oats
Dr. Ludvik Rozman: maize
Franci Stampar: apples, pears
Jure Cop: some grasses and forage vegetables

Slovenian Institute for Agriculture, Hacquetova 17, 1000 Ljubljana

Program Manager: Dr. Vladimir Meglic
Dr. Vladimir Meglic: grain legumes, some grasses and forage vegetables, lettuce
Jelka Sustar-Vozlic: cabbage, kitchen onion
Jenko Verbic: some grasses and forage vegetables
Andrej Zemljic: winter wheat
Zoran Cergan: field bean
Darinka Koron: berries

Boris Koruza: *Vitis vinifera*

Peter Dolnicar: potatoes

Institute of Hop Research and Brewing, Zalskega tabora 2, 3310 Zalec

Program Manager: Janko Rode

Janko Rode: medicinal plants and spices

Natasa Ferant: hops

Dea Baricevic: medicinal plants and spices.

Attached to the Biotechnical Faculty, Department of Agronomy

Ethnobotanical or socio-economic plant research activities have not yet been carried out in Slovenia. However, there are activities in the area of population and conservation biology.

The improvement of cultivated plants is ensured by breeding bases of modern varieties using mass selection and simple breeding methods. Some comprehensive studies on several medicinal plants, flax, gold of pleasure and old apple varieties are available.

25.1.4. Financial support for the conservation of cultivated plants in the Slovenian Alpine region

It is mainly governmental organisations which enjoy the benefits of financial support for the conservation of cultivated plants. The plant genebank at the Biotechnical Faculty Ljubljana is supported by the Slovenian Ministry for Agriculture, Forestry and Nutrition.

In Slovenia, there is no concrete financial support for the conservation of old cultivated plants does not exist. Organic agriculture, however, is financially supported. Mainly old local varieties are used by organic farmers. Slovenian NGOs have to date not received any financial support for the conservation of Plant Genetic Resources.

25.1.5. NGOs active at a national level

Besides AJDA (mainly active in the area of vegetables) there are some other associations of organic farmers for the on-farm conservation of Plant Genetic Resources. Main of the linked-up members are increasingly cultivating and reproducing old Slovenian local varieties.

Officially, NGOs are not involved in conservation work which is mainly dealt with by the genebank in Ljubljana and other public institutions.

AJDA – Drustvo za biolosko-dinamicno gospodarjenje

Address: Vrzenec 60, 1354 Horjul, Tel.: 00386-1/744 07 43, Fax: 00386-1/754 07 51,

E-mail: ajda.slovenija@siol.net

President: Meta Vrhunc, contact: Dr. Mihaela Cerne

Description: A more detailed description of AJDA may be found in the section on organisations.

Type of organisation: NGO

Union of Slovenian Organic Farmers Associations – Zveza zdruzenj ekoloskih kmetov Slovenkije

Address: Metelkova 6, 1000 Ljubljana, Tel: 00386-1/439 74 65, Fax: 00386-1/439 71 05, E-mail: zveza.ekokmet@zveza-ekokmet.si

Description: The Union of Slovenian Organic Farmers Associations is an umbrella organisation which has 8 branches in the whole of Slovenia. More information may be found in the section on organisations.

Type of organisation: NGO

Institute for Sustainable Development – Institut za trajnostni razvoj

Address: Metelkova 6, 1000 Ljubljana, Tel.: 00386-41/72 59 91, E-mail:

anamarija.slabe@itr.si

Description:

The Institute for Sustainable Development is not directly involved in conservation work, a close cooperation, however, exists with the Union of Slovenian Organic Farmers Associations which uses the same office. A lively exchange of information is thus taking place. The type of conservation work is mainly PR-work concentrating on the practical aspects of organic farming. In workshops, farmers are trained in seed production and marketing of their products.

Type of organisation: NGO

25.1.6. Public institutions

In Slovenia, 2 governmental and one paragonovernmental institution are involved in the conservation of Plant Genetic Resources.

Biotechnical Faculty, Department of Agronomy (governmental)

Slovenian Institute for Agriculture (governmental)

Institute of Hop Research and Brewing (paragonovernmental)

These institutions are described in the chapter on the implementation of the National Plan of Action and details on their conservation work are contained in the section on organisations.

The above mentioned institutions keep in touch with individual farmers active in the conservation of old varieties only sporadically and in individual segments.

25.1.7. Integration of Slovenia into ECP/GR

This chapter lists contacts and institutions participating in working groups of the ECP/GR are listed. More detailed information on ECP/GR may be found in the chapter 'Introduction'.

The national coordination of the ECP/GR in Slovenia is with:

Dr. Mihaela Cerne, Španova pot 5, 1000 Ljubljana, Tel./Fax: 00386-1/256 34 33, E-mail:

mihaela.cerne@siol.net

Slovenia is represented by a member in the ECP/GR On farm Conservation and Management Task Force:

Janko Rode, Institute for Hop Research and Brewing, Zalsega tabora 2, 3310 Zalec, Tel:

00386-03/57 15 21, Fax: 00386-03/571 71 64 , E-mail: ihp.ho@guest.arnes.si

ECP/GR working groups:

Allium working group:

Partner in Slovenia: Prof. Dr. Borut Bohanec, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: borut.bohanec@uni-lj.si

Oats (Avena) working group:

Partner in Slovenia: Dr. Zlata Luthar, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-61/423 10 88 , E-mail: zlata.luthar@uni-lj.si

Barley working group:

Partner in Slovenia: Dr. Zlata Luthar, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: zlata.luthar@uni-lj.si

Beta working group:

Partner in Slovenia: Dr. Vladimir Meglic, Kmetijski inštitut Slovenije, Hacquetova 17, 1000 Ljubljana, Tel: 00386-1/280 51 80 or 00386-1/280 52 62, Fax: 00386-1/280 52 55, E-mail: vladimir.meglic@kis-h2.si

Brassica working group:

Partner in Slovenia: Prof. Dr. Borut Bohanec, Biotehniška fakulteta Oddelek za agronomijo, Jamnikarjeva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: borut.bohanec@uni-lj.si

Forage plants working group:

Partner in Slovenia: Dr. Vladimir Meglic, Kmetijski inštitut Slovenije, Hacquetova 17, 1000 Ljubljana, Tel: 00386-1/280 51 80 or 00386-1/280 52 62, Fax: 00386-1/280 52 55, E-mail: vladimir.meglic@kis-h2.si

Grain legumes working group:

Partner in Slovenia: Dr. Vladimir Meglic, Kmetijski inštitut Slovenije, Hacquetova 17, 1000 Ljubljana, Tel: 00386-1/280 51 80 or 00386-1/280 52 62, Fax: 00386-1/280 52 55, E-mail: vladimir.meglic@kis-h2.si

Malus / Pyrus working group:

Partner in Slovenia: Franci Štampar, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: franci.stampar@bf.uni-lj.si

Potato working group:

Partner in Slovenia: Peter Dolnicar, Kmetijski Institut Slovenije, Hacquetova 17, 1000 Ljubljana, Tel: 00386-1/280 52 62, Fax: 00386-1/280 52 55, E-mail: peter.dolnicar@kis-h2.si

Prunus working group:

Partner in Slovenia: Valentina Usenik, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: valentina.usenik@bf.uni-lj.si

Umbelliferae working group:

Partner in Slovenia: Janko Rode, Institute for Hop Research and Brewing, Zalsega tabora 2, 3310 Zalec, Tel: 00386-03/571 52 14, Fax: 00386-03/571 71 64, E-mail: ihp.ho@guest.arnes.si

Wheat working group:

Partner in Slovenia: Dr. Zlata Luthar, University of Ljubljana, Biotechnical Faculty, Department of Agronomy, Jamnikarjeva 101, 1000 Ljubljana, Tel: 00386-1/423 11 61, Fax: 00386-1/423 10 88, E-mail: zlata.luthar@uni-lj.si

25.2. Need for action

The gene erosion of local varieties is very high in Slovenia. Only few local varieties are still conserved by local farmers, knowledge is disappearing. A great need for action exists in general for Plant Genetic Resources, not only for the Alpine region. Roughly, the need for action is described as follows: more efforts should urgently be made with regard to conservation work and raising awareness. Political decision makers should be better informed and sensitised on the topic. Probably the largest problem is the lack of financial means. Slovenia cannot conserve its Plant Genetic Resources without help from foreign countries. In most collections conserving biological material, modern techniques are not used except for the collection of microorganisms. Until now, Slovenia only had an observer status in many important committees, as its integration into the European Union is not going to be completed for a long time.

No addresses of NGOs could be found with one exception - (AJDA). Many private persons are certainly active in conservation but not all of them were reached within the framework of this study. They could probably still be more integrated into conservation work. There is an urgent need to increasingly integrate private persons and NGOs into conservation work. They should also receive financial support. All actors working on the conservation of cultivated plants should be linked up in a more efficient way and cooperation should be intensified. Activities in the area of PR-activities should be enhanced.

During collection tours, some plant groups have been covered very well such as forage plants (grasses and clover grasses), buckwheat, certain cereals, beans, cabbage, apples, pears and vines. However, not all regions were covered. They should have absolute priority when collecting certain plant groups.

The genebanks have to date done little for the improvement of on farm programs. Therefore, the genebanks need to increase their on-farm conservation activities.

Experience of farmers with on-farm cultivation is central for its development. Until now, this knowledge has been recorded only sporadically, however not as continuous program.

Therefore, there is a need to monitor farmers' on-farm experiences. The measure would furthermore support the cooperation of institutions and farmers.

26. Portraits of organisations, institutions and institutes active in the conservation of cultivated plants in the Slovenian Alpine region

This chapter contains portraits of actors committed to the conservation of cultivated plants in Slovenia. The state of information is valid for the year 2000. Information on the individual actors is taken from questionnaire response, literature and Internet searches and personal contacts. Listing has been subdivided into fruit, vines, vegetables, legumes, cereals, medicinal plants, herbs and forage plants. The list does not claim to be complete nor could all information be verified. It was on the whole used as transmitted.

26.1. Fruit

26.1.1. Traditionally cultivated fruit in the Slovenian Alpine region

Slovenia, with an area of only 20,245 km² and 2 million inhabitants, is a relatively small country compared to the entire Alpine region. Therefore, overlapping with neighbouring regions occurs. Many plants are similar to the ones in the bordering Alpine countries. Slovenia, however, can offer many of its own specialities which do not occur elsewhere. In the Slovenian Alpine region, apples and pears were cultivated traditionally. They were used both for dessert and for must production. Stone fruit such as sour and sweet cherries, damson and plums were cultivated in more favourable locations or as wall fruit on house walls. They were important for commercial purposes and own consumption. Walnuts, hazelnuts and elderberries were grown by many farmers, mainly for own consumption, as well as several other berries.

26.1.2. Current situation

The old fruit trees were neglected when agriculture was restructured and liquidation of large agricultural enterprises took place. A large part of the fruit trees is already lost and many others are overaged. Therefore, a project has been launched by the University of Maribor which aims to conserve and renew extensive orchards. The directing Professor Dr. Dojnko at the University of Maribor is responsible for the scientific part of the work.

Many old fruit trees are found in an old monastery in Pleterje (Dolenjska). Conservation work is done in cooperation with the Department of Agronomy at the Biotechnical Faculty. 120 apple varieties, more than 40 pear varieties, walnuts and hazelnuts are cultivated here. A Swiss monk actively ensures for the continuation of the old fruit tradition at the monastery. It is the same monks' order as the one of the monastery of Einsiedel in Switzerland. A considerable part of the scions was transferred to the monastery from a governmental large-scale enterprises. after it was closed down. Some old cherry and damson varieties have also been planted in the monasteries' garden.

Slovenia is a country with many old fruit trees. Many of the varieties are currently unknown. In the region east of Maribor (Biserjane, Videm ob Scavnici), many of these abandoned fruit tree populations are to be found.

At the Biotechnical Faculty, a professor collected a lot of damsons, sweet and sour cherries, apples, almonds and olives from the coastal region before his retirement. Besides that, there are many collections of Slovenian fruit in Friuli-Venezia Giulia, Austria and Germany.

26.1.3. Overview of actors

The conservation of old fruit trees was formerly organised in two ways in Slovenia:

- conservation on-site, farmers were asked not to cut down these trees
- scion planting of these fruit trees were carried out by 2 to 3 large governmental enterprises.

One NGO, two governmental and one paragonovernmental institutions are involved in the conservation of fruit in Slovenia. Moreover, there are many extensive orchards. A lot of fruit trees are cultivated in monastery and house gardens.

The collection of fruit in a genebank is administrated by Dr. Stampar. It is located in Pleterje. Many apple, pear, walnut and hazelnut and *Prunus* varieties are conserved here. Additionally, smaller assortments including berries and apples are maintained by the Institute for Agriculture. At the Research Station for Fruit Cultivation in Maribor, collections of walnuts and hazelnuts are maintained.

26.1.3. Need for action

In Slovenia, most fruit collection efforts were dedicated to apples. It can be assumed that all important varieties have been collected. In many cases, it was only discovered in the first cultivation trial that samples were identical. Many ecotypes of the same variety developed. Pears were also collected, excluding must pears. There are many pear trees over one hundred years old. Therefore, there is need for action for pome fruit in order to collect must pears. As the lack of financial means is a great problem in conservation work, the collection of must pears is not yet planned. A cooperation with Austria, Italy or Bavaria concerning this issue would be very useful. The geographical location of Austria and Italy would be an advantage for a cooperation with those countries, as would the activities and knowledge on must pears in Bavaria when cooperating with Germany. Conservation of Slovenian genebanks should have first priority. In a second step, the characterisation and comparison with other genebanks could follow. This, however, requires financial means which are not presently available. In Slovenia, wild *Prunus Sinosa* is widely distributed. Therefore, the species has up to date not been collected. Of all *Prunus species*, damsons and cherries were given most attention. Berries have not yet been collected. There is urgent need for action to collect existing local varieties and to set up a variety garden.

26.1.4. Actors

Union of Slovenian Organic Farmers Associations – Zveza zdruzenj ekoloskih kmetov Slovenkije

Address: Metelkova 6, 1000 Ljubljana, Tel: 00386-1/439 74 65, Fax: 00386-1/439 7 1 05, E-mail: zveza.ekokmet@zveza-ekokmet.si, Internetaddress: <http://www.zveza-ekokmet.si>

Description: The Union of Slovenian Organic Farmers Associations is an umbrella organisation of organic farmers, represented in Slovenia with eight branches. Some members cultivate old Slovenian local varieties. Mainly extensive orchards of the grassland belt are conserved.

Type of organisation: NGO

Active since: the umbrella organisation has existed since 1999. Some branches were already founded at the beginning of the 1990s.

Biotechnical Faculty, Department of Agronomy, University of Ljubljana - Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra za sadjarstvo Maribor

Address: Jamnikajerva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88

Director: Prof. Dr. Franc Batic

Contact: Franci Stampar

Description: The Biotechnical Faculty is described in more detail in the chapter on cereals. In its first variety garden, it conserves, amongst others, the following fruit species:

Species	Number of varieties
<i>Juglans regia</i> (walnut)	10 local varieties
	2 modern varieties
<i>Malus domestica</i> (apples)	120 old cultivated varieties
	67 modern varieties
<i>Sambucus nigra</i> (elder)	1 wild variety
<i>Prunus domestica</i> (damson or plum)	7 local varieties
<i>Prunus avium</i> (sweet cherry)	7 very old varieties

Of these, the apple varieties “Lonjon“, „Majda“ and „Priolov delises“ as well as the cherry varieties „Vipavka“ and „Vigred“ are registered today in the official Slovenian variety list. Walnuts are exclusively grown from seedlings. There is close cooperation with the monastery in Pleterje. The Biotechnical Faculty also has a branch at the University of Maribor. Type of organisation: paragovernmental

Agricultural Institute of Slovenia – Kmetijski Institut Slovenije

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55, internetaddress: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description: The Slovenian Institute for Agriculture is described in more detail in the chapter on vegetables. The institute conserves the following fruit species:

Species	Number of varieties
<i>Pyrus communis</i> (pear)	21 modern varieties
<i>Ribes nigrum</i> (red and black currant)	30 modern varieties
<i>Ribes idaeus</i> (raspberry)	5 wild forms
<i>Ribes idaeus</i> (raspberry)	3 modern varieties
<i>Vaccinium corymbosum</i> (cultivated bilberry)	32 modern varieties

Type of organisation: governmental

University of Maribor, Research Station for Fruit Cultivation

Address: ul. Vinarska 14/I, 62000 Maribor

Director: Prof. Dr. Dojko

Contact: Peter Zatravec, Tel.: 00386-41-771 988, Fax: 00386-2/654 29 09, Dr. Anita Solar, Tel.: 00386-41/569 137

Description: The Research Station for Fruit Cultivation in Maribor conserves hazel- and walnuts on an area of 1 ha respectively. Some old varieties are also grown here. At the University of Maribor, there is a research institute for fruit which is actually a branch of the Biotechnical University of Ljubljana. At present, a project for the conservation and replanting of extensive orchards is being implemented whereby the conservation of diversity is of secondary importance. Main emphasis is laid on the conservation and replanting of these extensive orchards.

Type of organisation: governmental

Active since: The institute has been in existence since 1892

26.2. Vines

26.2.1. Background

Three different climatic regions create quite different conditions for vine cultivation in Slovenia: continental climate, Alpine climate and Mediterranean climate.

The 3 large Slovenian wine production areas differ significantly because of soil and climatic conditions:

- the Drava wine production region, the region with the best white wines.
- The Sava wine production region, the region well-known for its light red wines.
- The coastal region, with wines similar to those from the Mediterranean region.

26.2.2. Traditional vine cultivation in Slovenia

Wine cultivation in modern Slovenia dates back to pre-roman times. The tradition of wine growing is closely connected to the Greeks and Romans and Austrian influence is clearly noticeable. Most of the important wine growing regions had already been developed in Medieval times. With the spreading of the wine louse in the 19th century, the overall area for wine growing decreased by one third. Wine growing was traditionally important in the whole Slovenian region, for commercial purposes as well as for own consumption.

26.2.3. Current situation

The wine legislation provides a strict control of origin and quality and equals European standards. Cultivated vine varieties are often similar to those from other European wine growing areas. The most frequently used variety is the Welschriesling. Rheinriesling, Traminer and Gewürztraminer, Weissburgunder, Silvaner, Neuburger, Ranfol, Rislaner, Gelber Muskateller, Muskat Ottonel and Grüner Veltlinger are also used. Red varieties are Blauburgunder, Portugieser, Blaufränkisch and Sentlovrenka. The Ministry of Agriculture supports conservation measures.

Approx. 50-60 old Slovenian varieties are cultivated. Following the initiative of the professor for wine cultivation at the Biotechnical Faculty, students carried out collections of old varieties in the three wine cultivation areas. Using a questionnaire, the varieties were classified and examined with regard to their differences and similarities. For the time being, old wine varieties are cultivated by farmers at governmental farms. Some of them are more than 100 years old. It has proven difficult to find customers for these old varieties, often infected with viruses and not adapted to new technologies thus causing a lot of manual work. The Research Station for Fruit and Wine Growing in Styria, Austria, has recently conducted a collection tour in Slovenia, too. Some of the current Slovenian area was formerly part of Styria.

Slovenia has a wine growing area of 25,000 ha, a wine growing area of 4000 ha was asceded to Styria. In this area, there are very old vineyards, some of them more than 100 years old and not replanted. The owners of the garden have often unconsciously conserved the old varieties. Amongst them, 40 interesting types are found, clones from archetypes which were barely subject to breeding. Traminer and Silvaner are the most frequent representatives of this clone material which has barely been subject to selection.

26.2.4. Overview of actors

Conservation of old vine varieties is mainly carried out by the Institute for Agriculture in Slovenia. The Biotechnical Faculty has duplicates.

26.2.5. Need for action

Collection activities for old vine varieties in the Slovenian Alpine region were carried out systematically and meticulously. It can be assumed that most of the existing material has been collected. The conservation of these old vine varieties is guaranteed today. Their further distribution is more difficult at present as there are only few interested customers. The integration of Slovenia into the European project Genres 081 on wine varieties would be another possibility of enhancing distribution. There is urgent need for action to integrate the country increasingly into European conservation programs for genetic resources and to realise integration in practice.

26.2.6. Actors

Agricultural Institute of Slovenia – Kmetijski Institut Slovenije

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55, internetaddress: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description: Conservation activities of the Institute for Agriculture in Slovenia are described in detail in the chapter on cereals. Activities concerning vines are described here. The following local varieties of *Vitis vinifera* L.ssp. *vinifera* are registered in the official list of varieties:

Bela glera, Briska glera, Cedajc, Cundra, Danijela, Disecka, Dolga petlja, Klarnica, Kraljevina, Malocrn, Osipka, Pjokolit, Pinela, Pergolin, Planinka, Poljsakica, Racuk, Radgonska ranina, Ranfol, Recigla, Rozica, Steverjana, Sladkocica, Verbena, Volovnik, Vrtovka, Zelen, Zelenika, Zunek durelo, Zametovaka.

They are conserved in a genebank and *in situ*. Altogether, approx. 45 old vine varieties and 80 breeding lines are conserved by the Institute for Agriculture. A large number of them was formerly cultivated in the Alpine region and the Alpine upland.

Type of organisation: governmental

Biotechnical Faculty, Department of Agronomy, Ljubljana – Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra sadjarstvo Maribor

Address: Jamnikarjeva 101, 1000 Ljubljana

Director: Prof. Dr. Franc Batic

Contact: Dr. Zora Korosec-Koruza

Description: The Biotechnical Faculty of the University of Ljubljana conserves approximately the same local varieties registered in the official list as the Institute for Agriculture, listed above. Further information on the Biotechnical Faculty may be taken from the chapter on cereals.

Type of organisation: paragonovernmental

26.3. Vegetables

26.3.1. Traditionally cultivated vegetables in the Slovenian Alpine region

In the Slovenian Alpine region, the following vegetables have been traditionally cultivated (some traditionally cultivated varieties are mentioned in brackets):

Onion- *Allium cepa* (Ptujška rdeca)

Sugar beet - *Beta vulgaris*

White and red cabbage - *Brassica oleracea* var. *capitata* (Ljubljansko)

White and red cabbage are often cultivated in the Slovenian Alpine region and considered to be the most important vegetables.

White turnip, garden turnip, turnip - *Brassica rapa* var. *rapa* (Kranjska okrogla)

The fast-growing turnips are often planted in stubble fields and preferably used as fodder, but may also be used for human consumption.

Rape - *Brassica napus* var. *napus*

Rape was used both for human consumption and for fodder.

Carrots - *Daucus carota* (Ljubljansko)

Lettuce - *Lactuca sativa* (Ljubljanska ledenka)

Tomato - *Lycopersicon lycopersicum* (Milka, Maribor)

Potato - *Solanum tuberosum*

Valerianella olitoria (Ljubljanski)

26.3.2. Current Situation

The Institute for Agriculture in Slovenia maintains a small local genebank for some vegetables. The collection of local Slovenian varieties of cultivated plants at the Institute for Agriculture is based on the private initiative of individual persons. Collections were mainly set up in order to use old varieties for new breedings. The 'Laibacher Eis', for example, is a leading, frequently-used variety which has been bred from a local variety. The seed company Semenarna owns a small seed bank which is mainly used as basis for new breedings.

Lettuce

A comprehensive collection of different lettuce varieties was set up at the beginning of the 1990s, including samples of 20 old Slovenian lettuce varieties. The main cultivation areas are the regions of Krain and Ljubljana. The autochthonous variety "Ljubljanska" is registered in the EU variety list as "Laibacher Eis".

White Cabbage

Collection of indigenous white cabbage varieties was conducted 40 years ago, today, 7 local varieties are registered.

Onions

A collection of different onion varieties, mainly from southern Slovenia, is included in the genebank.

26.3.3. Overview of actors

In Slovenia, 5 institutions - 2 NGOs, one seed company, one paragonovernmental and one governmental - are involved in the conservation of vegetables. The focus of the public institutions is on *ex situ* conservation. AJDA and the Union of Slovenian Organic Farmers Associations emphasise on-farm conservation. The following table shows an overview of the conservation efforts of the different institutions:

	NGO	Private	Paragovernmental	Governmental	Total
Cabbage	1	1		1	3
Lettuce	1	2		1	4
<i>Allium</i> Species	1	1	1	1	4
Swedish turnip	1	1		1	3
Potatoes	1	1		1	3
<i>Brassica</i> ssp.				1	1
Chicory		2	1		3

Artichoke			1		1
Jerusalem artichoke	1				1
Sugar beets	1				1
Lambs' lettuce		1			1
Carrots		1			1
Turnips	1	1			2
Chillies		1			1
Pumpkin		1			1
Tomatoes	1	1			2
Vegetables General					1

26.3.4. Need for action

Collection tours for vegetables are by no means complete. Some vegetables such as white cabbage, lettuce and onions have been collected quite well, whereas others, amongst them many leaf and root vegetables, have only been collected in fragments. The first priority has to be given to those areas with the highest gene erosion and where only organic producers cultivate autochthonous varieties. Collection tours should urgently be carried out in the near future in order to secure the existing material. The Alpine region should be included into the tours. The second priority could then be given to the existing gene bank gaps and the respectively underrepresented vegetable varieties. Old varieties can probably still be found in house and farm gardens and also in more remote regions.

Official institutions should cooperate closer with the private interest groups and associated farmers in the area of vegetable conservation. This measure would furthermore not require any additional financial means. The current situation of genebanks tending to practice *ex situ* conservation and the private activists *in situ* conservation could be complemented by the set-up of variety gardens in official institutions, e.g. botanical gardens.

There is currently no direct financial support for old vegetable varieties. Need for action is urgent in order to support the conservation of old vegetable varieties with a financial contribution like in other European states. Marketing strategies could bring the old varieties increasingly back to the consumers. Slovenia depends heavily on the support of other states with regard to these issues.

26.3.5. Actors

AJDA – Drustvo za biolosko-dinamicno gospodarjenje

Address: Vrzenec 60, 1354 Horjul, Tel.: 00386-1/744 07 43, Fax: 00386-1/754 07 51,

E-mail: ajda.slovenija@siol.net

President: Meta Vrhunc

Contact: Dr. Mihaela Cerne

Description: AJDA cultivates Plant Genetic Resources on-farm to support biodiversity. The focus is on bio-dynamic cultivation of agricultural plants. All Slovenian regions are included in conservation work which is done on-farm on farmers' fields, by conservation work and by the delivery of conservation material. AJDA presently cultivates the following vegetable species: *Beta vulgaris*, *Brassica rapa* var. *rapa* (variety Kranjska okrogla), *Allium cepa* (variety Ptujška rdeca), *Brassica oleracea* var. *capitata* (variety Ljubljansko), *Valerianella olitoria* (variety Ljubljanski), *Lycopersicon lycopersicum* (varieties Milka and Maribor), *Solanum tuberosum*.

The following of these species were traditionally cultivated in the Alpine region:

Brassica oleracea var. *capitata* (variety Ljubljansko), *Valerianella olitoria* (variety (Ljubljanski), *Lactuca sativa* (variety Ljubljanska ledenka), *Daucus carota* (variety Ljubljansko), *Brassica rapa* var. *rapa* (variety Kranjska okrogla).

AJDA is member of Demeter International.

Type of organisation: NGO

Number of members: 900, amongst them 31 Demeter controlled enterprises

Databank: not with AJDA, but at the Institute for Agriculture.

Additional protection: some of the vegetables are stored in the central Slovenian genebank at the Institute for Agriculture at the University of Ljubljana.

Long-term conservation: AJDA does not conserve vegetables in the long term but they are stored in the genebank of the Institute for Agriculture at the University of Ljubljana.

Union of Slovenian Organic Farmers Associations – Zveza združenj ekoloških kmetov Slovenije

Address: Metelkova 6, 1000 Ljubljana, Tel: 00386-1/439 74 65, Fax: 00386-1/439 71 05, E-mail: zveza.ekokmet@zveza-ekokmet.si, Internetaddress: <http://www.zveza-ekokmet.si>

Description: The Union of Slovenian Organic Farmers Associations is described in the chapter on fruit. Some of the linked-up farmers' associations also cultivate old Slovenian varieties. More detailed information on the topic could unfortunately not be obtained.

Type of organisation: NGO

Semenarna Ljubljana

Address: Seleksijski center Ptuj (Selection – promotion center Ptuj), Ob Dravi 5a, 2250-Ptuj, Tel.: 00386-2/788 51 80, Fax: 00386-2/788 51 81, Internetaddress: <http://www.semenarna.si>

Director: Anton Prasnikar, E-mail: anton.prasnikar@semenarna.si

Description: Semenarna specialises in the sale of seeds and seedlings. It maintains its own seedbank which serves as a basis for new breedings. The following vegetable species are conserved and bred: Swedish turnip, white turnip, root chicory, carrot, shallot, kitchen onion, white cabbage, chillies, lettuce, tomato, lambs' lettuce, potato and oil pumpkin. In the assortment, varieties are included which are cultivated in the Alpine region.

Type of organisation: private enterprise

Oswald d.o. o.

Address: Corsica a17, 5290 Demeter pry Garcia, Tel.: 00386-5/393 67 66

Description: The seed company Oswald owns a seedbank which serves as a basis for new breedings. The following species are conserved and bred: root chicory (*Chicories Ignatius* var. *foliosa*) and lettuce (*Lactuca sativa* var. *capitata*).

Type of organisation: private enterprise

Biotechnical Faculty, Department of Agronomy, Ljubljana

Address: Jamnikrajeva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88

Director: Prof. Dr. Franc Batic

Contact: Prof. Dr. Borut Bohanec

Description: The following vegetable species are conserved by the Department of Agronomy of the Biotechnical Faculty:

Species	Number of varieties
<i>Allium rotundum</i>	1 wild variety
<i>Cichorium intibus</i>	5 local varieties
<i>Cichorium initbus</i>	2 modern varieties
<i>Cynara cardunculus</i>	1 local varieties

<i>Cynara scolymus</i> (artichoke)	15 modern varieties
<i>Heliantuhus tuberosus</i>	2 local varieties
<i>Heliantuhs tuberosus</i>	14 modern varieties

Furthermore, the official variety “Belokranjka” of *Allium cepa* L. var. *cepa* is conserved in the genebank of the Biotechnical Faculty. A more detailed description of this institution is included in the chapter on cereals.

Type of organisation: paragovernmental

Agricultural Institute of Slovenia

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55, internetaddress: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description:

The Agricultural Institute of Slovenia is active in the collection, conservation, evaluation and improvement by breeding of Plant Genetic Resources. The focus of its activities is on the collection and conservation of Plant Genetic Resources. All Slovenian regions are included. Conservation work is done *in situ*, through genebank, by PR-activities and by the delivery of propagation material. Working groups exist for grain legumes and for forage plants some of which are classed as vegetables. Furthermore, projects on the genetic diversity of autochthonous field crops and their wild relatives have been implemented in Slovenia. Vegetable varieties conserved at the Institute for Agriculture are lettuce, cabbage, onions, Swedish turnips, potatoes and other *Brassica* species. Many of these were, and still are, cultivated in the Alpine region.

Type of organisation: governmental

Active since: 1950

Members of staff: 130

Number of active members: 10

Databank: yes

Additional protection: yes

Long-term conservation: yes

26.4. Legumes

26.4.1. Traditionally cultivated legumes in the Slovenian Alpine region

Legumes were, and still are, important today in the Slovenian Alpine region. They are cultivated traditionally. Their most important representatives were the garden bean (*Phaseolus vulgaris*) and the field bean (*Vicia faba*).

26.4.2. Overview of actors

Beans have been collected in Slovenia for some years. 20 Slovenian varieties are stored in the genebank at the Biotechnical Faculty of the University of Ljubljana. The NGO AJDA cultivates garden beans traditionally grown in the Slovenian Alpine region. The seed company Semenarna also owns an assortment of garden beans formerly cultivated in the Alpine region.

26.4.3. Need for action

In Slovenia, systematic collection tours of vegetables have not yet been carried out. It can however be assumed that the Slovenian assortment of legumes is identical to the assortment from the Austrian Alpine region. There is need for action with regard to the evaluation of material stored and the comparison with genebanks of neighbouring states.

Until now only beans have been collected. Therefore, there is urgent need for action to collect other representatives such as field beans, sugar peas, peas and lentils.

26.4.4. Actors

AJDA – Drustvo za biolosko-dinamicno gospodarjenje

Address: Vrzenec 60, 1354 Horjul, Tel.: 00386-1/744 07 43, Fax: 00386-1/75407 51,

E-mail: ajda.slovenija@siol.net

President: Meta Vrhunc

Contact: Dr. Mihaela Cerne

Description: AJDA is described in the chapter on vegetables. The organisation also conserves garden beans (*Phaseolus vulgaris*) which are traditionally cultivated in the Slovenian Alpine region. The modern variety “Ribnican” is included in the assortment.

Type of organisation: NGO

Semenarna Ljubljana

Address: Selekcijski center Ptuj (Selection – promotion center Ptuj), Ob Dravi 5a, 2250-Ptuj, Tel.: 00386-2/788 51 80, Fax: 00386-2/788 51 81, Internetaddress: <http://www.semenarna.si>

Director: Anton Prasnikar, E-mail: anton.prasnikar@semenarna.si

Description: The seed company Semenarna is described in the chapter on vegetables. The following legumes are included in the assortment: *Phaseolus vulgaris* var. *nanus* (variety Cesnjevec) and *Phaseolus vulgaris* var. *vulgaris* (varieties: Ptujski maslenec, Semenarna 22, Cipro, Jeruzalemski).

Type of organisation: private enterprise

Oswald d.o.o.

Address: Goriska a17, 5290 Xempeter pri Gorici, Tel.: 00386-5/393 67 66

Description: The seed company Oswald is described in the chapter on vegetables. It also breeds some old local bean varieties (*Phaseolus vulgaris* var. *vulgaris*) which are registered in the official catalogue: Jabelski isanec, Jabelski strocnik and Klemen.

Type of organisation: private enterprise

Biotechnical Faculty, Department of Agronomy, University of Ljubljana - Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra za sadjarstvo Maribor

Address: Jamnikrajeva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88

Director: Prof. Dr. Franc Batic

Description: The Biotechnical Faculty of the University of Ljubljana is described in more detail in the chapter on cereals. 20 Slovenian beans are stored in the genebank. Both, the official variety “Zorin” of *Phaseolus vulgaris* var. *nanus* as well as the official varieties “Jabelski pisanec”, “Jabelski strocnik” and “Klemen” of *Phaseolus vulgaris* var. *vulgaris* are stored.

Type of organisation: paragonovernmental

26.5. Cereals

26.5.1. Background

Wheat

A systematic search for old wheat varieties has not yet been conducted. The last collection tour took place in 1960, 200 samples were stored without final description and analysis. Old Slovenian varieties, however, are not included in the assortment.

Rye

The varieties collected originate entirely from other countries, but have, however, been cultivated in Slovenia for more than 40 years.

The breeding of *Triticale* (wheat x rye) was first carried out by the Slovenian scientist Fran Jesenko (1875-1932).

Dinkel

The collection comprises of 18 dinkel varieties, a large part was transferred to Weißenstephan/Freising (Germany) and is reproduced there in intervals of approx. 5 years. In Freising, information could not be obtained.

Millet

Two old millet varieties are stored in the genebank.

Buckwheat (*Fagopyrum esculentum*)

One decade ago, 3000 ha of buckwheat were cultivated in Slovenia producing a yield of approx. 400 tons. Buckwheat is one of the most important cultivated plants in Slovenia today. Three forms of buckwheat are differentiated:

- **Grey buckwheat** grows in warmer regions with a longer vegetation period.
- **Black buckwheat** is mainly distributed in the colder and Alpine regions of Slovenia because of its shorter vegetation period.
- **Tatary buckwheat** (*Fagopyrum tataricum* L.) is extremely frost resistant and mainly used as fodder or as an additive mixture for cereals.

26.5.2. Traditionally cultivated cereals in the Slovenian Alpine region

It has been proved that buckwheat (mainly *Fagopyrum esculentum*) has been cultivated in the area of former Yugoslavia since the 13th century. In the 16th and 17th century, it was already widely distributed and renowned as one of the most important grain cereal crops. The advantages of buckwheat are it is easy to grow and has a short vegetation period which facilitates a harvest after rye or wheat in the same year.

Common millet (*Panicum miliaceum*) was traditionally cultivated in the Slovenian Alpine region. It was used as corn or for mash, bread or millet beer.

Rye (*Secale cereal* L.) is also cultivated in the Slovenian Alpine region. Winter forms have gained a larger economic importance than summer forms. In the mountain regions where wheat cannot be grown any more, rye yields are good even under unfavourable conditions. Rye was mainly used as a cereal for bread.

26.5.3. Overview of actors

The following table shows an overview on actors committed to the conservation of cereals in Slovenia:

	NGOs	Private	Paragovern- mental	Governmental	Total
Wheat			1	1	3
Rye			1		2
Millet			1		1
Maize		1	1		3
Buckwheat			1		2
Barley			2		2
Dinkel			1		1
Cereals General		1			1

26.5.4. Need for action

Collection tours for old buckwheat and maize varieties were carried out very meticulously. Other cereals were only collected rudimentally. There is need for action to conduct wheat collection tours and to evaluate the samples from the 1960s. A search for old rye varieties in mountain areas should be conducted. There is also a need for action for dinkel and common millet and to search for buckwheat, mainly in mountain areas between 500m and 700m a.s.l.. There is also a need for action for maize. Plants should be secured as duplicates at other locations and an electronic database should be available for administration purposes.

26.5.5. Actors

AJDA – Drustvo za biolosko-dinamicno gospodarjenje

Address: Vrzenec 60, 1354 Horjul, Tel.: 00386-1/744 07 43, Fax: 00386-1/754 07 51,

E-mail: ajda.slovenija@siol.net

President: Meta Vrhunc

Contact: Dr. Mihaela Cerne

Description: AJDA also maintains old cereal varieties in its assortment. Many of these, in the following list, were cultivated in the Alpine region: *Fagopyrum esculentum* (of breeding variety Siva), *Triticum aestivum* (old breeding variety Marinka), *Triticum monococcum*, *Triticum dicoccum*, *Triticum spelta*, *Secale cereale*, *Zea mais* (old breeding variety Osminka).

Type of organisation: NGO

Semenarna Ljubljana

Address: Selekcijski center Ptuj (Selection – promotion center Ptuj), Ob Dravi 5a, 2250-Ptuj,

Tel.: 00386-2/788 51 80, Fax: 00386-2/788 51 81, Internetaddress: <http://www.semenarna.si>

Director: Anton Prasnikar, E-mail: anton.prasnikar@semenarna.si

Description: The seed company Semenarna has already been described in the chapter on vegetables. It has some varieties of maize and other cereals cultivated in the Alpine region in its collection.

Type of organisation: private enterprise

**Biotechnical Faculty, Department of Agronomy, University of Ljubljana -
Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra za sadjarstvo
Maribor**

Address: Jamnikarjeva 101, 1000 Ljubljana, Tel.: 00386-1/256 33 76, Fax: 00386-1/423 10 88

Director: Prof. Dr. Franc Batic

Contact: Dr. Zlata Luthar, E-mail: zlata.luthar@uni-lj.si

Description: The Biotechnical Faculty of the University of Ljubljana maintains its own genebank for buckwheat. The collection of buckwheat varieties began approx. 30 years ago, with the main emphasis being laid on mountain regions. The main focus of activities is on the conservation, reproduction and characterisation of stored material. Material is from the whole of Slovenia. Reproduction material is supplied. At present, 340 plants of *Fagopyrum esculentum* and 15 plants of *Fagopyrum tataricum* are stored in the genebank, half of which were traditionally cultivated in the Alpine region. Most Slovenian local varieties are also included. Tartary buckwheat was found as a special variety in the Triglav mountain area. Worldwide, this form only otherwise exists in Nepal and Bhutan. It is remarkable that particularly buckwheat varieties with red flowers have disappeared nearly entirely, whereas those with white flowers are distributed more frequently.

The intention is to support the stored material in the long term but there are neither duplicates in other genebanks nor an administration with an electronic database. The following varieties registered in the official list are conserved in the genebank:

<i>Fagopyrum esculentum</i>	Darina, Darja, Rana 60, Siva
<i>Hordeum vulgare</i> ssp. <i>polystichum</i>	Vega
<i>Secale cereale</i>	Tertaploidna okta
<i>Triticum aestivum</i>	Reska

The Biotechnical Faculty of the University of Ljubljana is continuously improving its genebank. The genebank is officially supported by the Slovenian Ministry for Agriculture, Forestry and Nutrition.

Type of organisation: paragonovernmental

Active since: 1978

Members of staff: 3

**Biotechnical Faculty, Department of Agronomy, University of Ljubljana -
Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra za sadjarstvo
Maribor**

Address: Jamnikrajeva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88

Director: Prof. Dr. Franc Batic

Contact: Dr. Ludvik Rozman, E-mail: ludvik.rozman@bf.uni-lj.si

Description: The Department of Agronomy of the Biotechnical Faculty performs the conservation and genebank storage of maize. The last collection tour for maize varieties in the Slovenian region was carried out 55 years ago, and included the entire Slovenian Alpine Arch. IPGRI has conserved samples of these varieties, too.

The entire Slovenian region is included in conservation work. The focus of activities is on the conservation, reproduction and characterisation of the stored genebank material. Moreover, reproduction material is supplied.

At present, 200 plants of *Zea Mays* are stored, all local varieties. Approximately half of them were cultivated in the Alpine region. It is intended to conserve the material in the long term, but there are neither security duplicates in other genebanks nor are data administered in an electronic database. The following maize varieties in the genebank are officially registered: "Lj-180", "Lj-280", "Lj-13", "Lj-37i".

Type of organisation: paragovernmental
Active since: 1955
Members of staff: 3

Kmetijski poskusni center Jablje

Address: Loka 68, Grajska 1, 1234 Menges, Tel.: 00386-1/724 14 74

Description: The Kmetijski poskusni center Jablje is described in more detail in the chapter on forage plants. The collection of the enterprise also contains some old barley varieties.

Type of organisation: paragovernmental
Active since: 1962

Agricultural Institute of Slovenia - Kmetijski Institut Slovenije

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55,

Internetaddress: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description: The Agricultural Institute of Slovenia is described in the chapter on vegetables. Cereals are also included in its collection. The wheat variety "Marinka" is conserved by the Agricultural Institute.

Type of organisation: governmental

26.6. Medicinal plants and herbs

26.6.1. Background

In the area of medicinal plants, commercial utilisation is significantly in the foreground. A project was carried out on the antibiotic effects of more than 300 samples of *Origanum peragloticum*. Plants were analysed and stored. There are further collections of medicinal wild valerian plants which is of superior quality in Slovenia. Perforated St. John's wort, elder and soapwort are also collected.

26.6.2. Traditionally cultivated medicinal plants and spices

In the Slovenian Alpine region, medicinal plants and herbs were cultivated for own consumption in basically each house and farm garden. Flax (*Lignum usitatissimum*), gold of pleasure (*Camelina sativa*) and poppy (*Papaver somniferum*) are traditionally grown on a larger scale. Besides their characteristics as medicinal plants, oil is produced from the seeds and flax serves as source of fibres.

In the Alpine upland and the subalpine valleys where the climate is milder than in the Alps, hops (*Humulus lupulus*) are traditionally cultivated as plants for beer brewing.

26.6.3. Overview of organisations

The largest collection of medicinal plants and spices today is maintained by the Institute for Hop Research and Brewing, comprising of approx. 300 breedings of medicinal plants and spices and approx. 200 hop varieties (wild forms and developed varieties).

26.6.4. Need for action

In Slovenia, only few comprehensive ethnobotanical studies have been conducted to date. The focus of attention for medicinal plants was on medicine research. There is a need to collect the

species to date given little attention and to set up further variety gardens – e.g. in botanical gardens. A concept for long-term hop conservation should be developed.

26.6.5. Actors

Institute of Hop Research and Brewing - Institut za hmeljarsvo in pivovarstvo

Address: Zalskega tabora 2, 3310 Zalec, E-mail: ihp.ho@guest.arnes.si

Director: mag. Andrej Simoni

Contact: Janko Rode

Description: The Institute for Hop Research and Brewing has been studying autochthonous hops, medicinal and spice plants for a long time. The focus on activities is on the breeding of new hop varieties, the conservation of plants of different origins, the study of medicinal and spice plants and their integration into field production. Slovenia is covered as a geographical area. Conservation work is done *in situ*, through a genebank and through PR activities. The garden with medicinal and spice plants is used both as a genebank and for research. The following table gives an overview of cultivated plants conserved at the Institute for Hop Research and Brewing:

Species	Number of local varieties
<i>Humulus lupulus</i> (Hop)	71
<i>Artemisia drancunculus</i>	3
<i>Camelina sativa</i>	4
<i>Sorghum vulgare</i>	1
<i>Ruta graveolens</i>	2
<i>Salvia officinalis</i>	2

Excluding hops, which are rather cultivated in the subalpine valleys, all of these plants are cultivated in the Alpine region. The genebank includes the following hop varieties which are also registered in the official Slovenian variety list: Savinjski golding, Ahil, Apolon, Atlas, Aurora, Blisk, Bobek, Buket, Cekin, Celeia, Cerera, Cicero. A project with *Camelina sativa* is at present being initiated in cooperation with the administrative organisations of the region Koroska. Activities have already started.

Type of organisation: paragonovernmental

Active since: 1952

Members of staff: 57

Databank: yes

Additional protection: yes

Long-term conservation: no

Agricultural Institute of Slovenia - Kmetijski Institut Slovenije

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55,

Internetaddress: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description: The Institute for Agriculture has already been described. In the area of medicinal plants, the following species are conserved:

Arnica montana, *Artemisia lobelii*, *Atropa belladonna*, *Calendula officinalis*, *Carum carvi*, *Chelidonium majus*, *Eupatorium cannabinum*, *Gentiana lutea*, *Hypericum perforatum*, *Hyssopus officinalis*, *Ocimum basilicum*, *Origanum vulgare*, *Plantago lanceolata*, *Plantago major*, *Salvia officinalis*, *Sambucus nigra*, *Saponaria officinalis*, *Satureja hortensis*, *Satureja montana*, *Satureja subspicata* ssp. *liburnica*, *Teucrium montanum*, *Thymus vulgaris*,

Valeriana officinalis, *Viola arvensis* and *Viola tricolor ssp. tricolor*. Amongst them are local varieties, modern varieties and many wild forms from the Alpine region.
Type of organisation: governmental

26.7. Forage and industrial plants

26.7.1. Background

The forage plant collection includes mainly leguminous plants and grasses which were collected in the whole of Yugoslavia. It consists of nearly 200 tested, analysed and reproduced varieties. In the area of industrial plants, rape is important.

26.7.2. Traditionally cultivated forage plants in the Italian Alpine region

The following forage plants are cultivated traditionally in Slovenia:

The Swedish turnip - *Brassica napus* var. *rapifera* is cultivated mainly for forage purposes. It can also be consumed as a vegetable, and is an important food in times of shortage.

Different clover grasses

Fodder beet – *Beta vulgaris*

The fodder beet is an important forage plant. It descends from the *Beta vulgaris* L. ssp. *maritima* which occurs as wild plant on the European coasts. It was used as fodder as early as the 17th century.

Rape - *Brassica napus* var. *napus*

Rape is used both for human consumption and fodder purposes.

Many forage grasses are also used for fodder purposes.

26.7.3. Overview of actors

Four actors are responsible for the conservation of fodder plants in Slovenia: the Institute for Agriculture and the Biotechnical Faculty of the University of Ljubljana, the seed company Semenarna and the Kmetijski poskusni center Jablje. Collections focus on grasses and clover grasses.

26.7.4. Need for action

Forage plants are very important in Slovenia thanks to animal husbandry which represents a main agricultural sector. They are mostly conserved *in situ* at their natural location. There is need for action to integrate the Alps into the collection tours and to evaluate the different samples.

26.7.5. Actors

Semenarna Ljubljana

Address: Selekcijski center Ptuj (Selection – promotion center Ptuj), Ob Dravi 5a, 2250-Ptuj, Tel.: 00386-2/788 51 80, Fax: 00386-2/788 51 81, Internetaddress: <http://www.semenarna.si>

Director: Anton Prasnikar, E-mail: anton.prasnikar@semenarna.si

Description: The seed company Semenarna has already been described in the section on vegetables. Its assortment mainly includes representatives of grasses, clover grasses and plants for replanting. Many of them are indigenous in the Alpine region. The following species of fodder plants are conserved and bred: *Agrostis tenuis*, *Cynosurus cristatus*, *Dactylis*

glomerata, *Festuca arundinacea*, *Festuca ovina*, *Festuca rubra*, *Lolium perenne*, *Lotus corniculatus*, *Poa alpina*, *Poa pratensis* and *Trifolium repens*.

Type of organisation: private enterprise

Kmetijski poskusni center Jablje

Address: Loka 68, Grajska 1, 1234 Menges, Tel.: 00386-1/724 14 74

Description: The Kmetijski poskusni center Jablje specialises on the production of weeds, forage grasses and rape. Focus is on research and development of seeds for agriculture.

Conservation work is based on own seed collection which also serves as a basis for modern breeds. Unfortunately, weeds have to be considered lost. The collection contains old local rape varieties. The variety Starska is an old Slovenian local variety which is registered in the official catalogue of seeds.

Type of organisation: paragonovernmental

Active since: 1962

Biotechnical Faculty, Department of Agronomy, University of Ljubljana - Biotehniška fakulteta, Oddelek za agronomijo Ljubljana in Katedra za sadjarstvo Maribor

Address: Jamnikrajeva 101, 1000 Ljubljana, Tel.: 00386-1/423 11 61, Fax: 00386-1/423 10 88

Contact: Jure Cop

Description: The Biotechnical Faculty is described in the chapter on cereals. At the Biotechnical Faculty of the University of Ljubljana, the following forage plants are conserved:

Species	Number varieties
<i>Lolium perenne</i>	3 local varieties
<i>Medicago sativa</i>	6 local varieties
<i>Medicago sativa</i>	1 modern line
<i>Sambucus nigra</i>	1 wild varieties
<i>Trifolium pratense</i>	26 local varieties
<i>Trifolium repens</i>	29 local varieties
<i>Trigonella foenum graecum</i>	147 local varieties

Of the officially listed forage plants, the variety "Rozna" of *Festuca pratensis* and the variety "Bistra" of *Medicago sativa* is conserved.

Type of organisation: paragonovernmental

Agricultural Institute of Slovenia - Kmetijski Institut Slovenije

Address: Hacquetova 17, 1000 Ljubljana, Tel.: 00386-1/280 52 62, Fax: 00386-1/280 52 55,

Internet address: <http://www.kis-h2.si>

Director: Slavko Gliha

Contact: Dr. Vladimir Meglic, E-mail: vladimir.meglic@kis-h2.si

Description: The Agricultural Institute of Slovenia has already been described in the chapter on vegetables. There are also many grasses and clover grasses res. fodder beets in the assortment most of which are cultivated in the Alpine region. The following table shows the conserved autochthonous populations, ecotypes and local varieties registered in the official list in 2000:

Species	Name of the variety
<i>Dactylis glomerata</i>	Kopa
<i>Festuca arundinacea</i>	Loka
<i>Festuca pratensis</i> Huds	Jabelska

<i>Festuca rubra</i> L. ssp. <i>Vulgaris</i>	Jasna
<i>Lolium multiflorum</i>	Draga
<i>Lolium perenne</i>	Iirka
<i>Phleum pratense</i>	Krim
<i>Poa pratensis</i>	Menina
<i>Trifolium incarnatum</i>	Inkara
<i>Trifolium pratense</i>	Poljanka, Ziva
<i>Agrostis gigantea</i>	Bela
<i>Arrhenatherum elatius</i>	Sora

In addition to unofficial local varieties, further modern varieties and wild forms of the following forage plants from the assortment of grasses and clover grasses at the Institute for Agriculture are conserved: *Agrostis alba*, *Alopecurus pratensis*, *Arrhenatherum elatius*, *Bromus* ssp., *Dactylis glomerata*, *Festuca arundinacea*, *Festuca pratensis*, *Festuca rubra*, *Lathyrus pratensis*, *Lolium multiflorum*, *Lolium perenne*, *Medicago sativa*, *Phleum pratense*, *Poa pratensis*, *Trifolium incarnatum*, *Trifolium pratense* and other *Trifolium* ssp.

Type of organisation: governmental

27. General report on livestock in the Slovenian Alpine region.

27.1. National and regional laws

The agricultural legislation from the year 2000 protects agricultural biodiversity in the following paragraphs:

- 7) Paragraph 30: Protection of agricultural biodiversity, prohibited to destroy autochthonous cultivated plants and livestock breeds
- 8) Paragraph 92: Description of the tasks of the genebanks in conserving agricultural diversity

The law on animal production is being drawn up at present and will deal with the topic of agricultural diversity in the following paragraphs:

- Paragraph 68: Conservation of genetic diversity
- Paragraph 69: Tasks of the genebanks in conserving agricultural diversity
- Paragraph 70: Autochthonous livestock breeds
- Paragraph 71: Monitoring and analysis of the biodiversity of livestock breeds
- Paragraph 72: Protection of the autochthonous bee ‘*Apis Mellifera carnica*’ and its breeding areas

27.2. Conservation efforts of NGOs

There are no NGOs explicitly working for the conservation of endangered autochthonous livestock breeds in Slovenia. There are, however, private breeder organisations active for certain breeds, mainly supporting performance breeds.

27.3. Governmental conservation efforts and implementation of the National Plan of Action

The implementation of the National Plan of Action was decided on in May 1996. At present, activities include *ex situ* conservation, evaluations and PR-activities. *In situ* conservation has not yet been included in the program. Most programs are implemented by the University of Ljubljana. A long-term program (2001-2010) at the national level for the conservation of endangered Slovenian livestock breeds is at present being set up.

27.4. Financial support

The ‘Ministry of Agriculture, Forestry and Food’ supports the keepers of endangered livestock breeds. The contribution is meant as a compensation for the losses breeders have when keeping indigenous livestock rather than more productive breeds. For cattle and horses, the compensation in their area of origin is higher. Annual contributions per animal entered in the herdbook are as follows:

Horses: 77 – 153 EUR

Cattle: 77-153 EUR

Pigs: 128 EUR

Sheep: 25 EUR for mutton breeds, 36 EUR for milk breeds

Goats: 25 EUR

Poultry: 5 EUR

Contact: Ministry of Agricultural, Forestry and Food, Dunajska 56, 1000 Ljubljana

27.5. Important university institutions

At the Zootechnical Department of the University of Ljubljana, different programs are running at present to conserve autochthonous Slovenian livestock breeds. The program 'Slovenian Genebank' is affiliated to the department. In this genebank, part of the Slovenian breeds is conserved *ex situ*. The inclusion of further breeds is planned for 2001.

In 1999, the officially recognised autochthonous breeds of Slovenia were portrayed in a brochure (The preserved Slovenian Autochthonous Domestic Animals).

More detailed information on the activities may be taken from the portraits of the individual breeds.

Address: University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, URL: <http://www.bfro.uni-lj.si>

Contact: Mag. Drago Kompan

Information on Slovenian breeds:

http://www.bfro.uni-lj.si/zoo/publikacije/avtohtone_pasme/

27.6. Official recognition of breeds and herdbook management

The herdbooks of the officially recognised horse, sheep, goat and poultry breeds are kept by the institutions listed as follows. They are also responsible for the documentation on the breeds. Since 2000, the selection program (selection of suitable breeding animals) has been carried out, mainly by the Zoological Department of the University of Ljubljana. The selection program is being reorganised at present.

Addresses:

- Cattle, pigs, goat, sheep: Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za zootehniko, Groblje 3, Slo-1230 Domzale
- Poultry: Kmetijski inštitut Slovenije, Hacquetova 17, Slo-1001 Ljubljana
- Horses: Univerza v Ljubljani, Veterinarska fakulteta, Inštitut za rejo in zdravstveno varstvo kopitarjev, Cesta v Mestni log 47, Slo-1000 Ljubljana
- Address 'Selection Program': University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, 3, Slo-1230 Domzale

Recognised horses with official herdbook keeping:

- Horses: Lipids, Slovene Cold Blood, Slovene Warm blood, Nordic, Plosive, Hafling Mountain, Trotter, Arabian, Icelandic, Hanoverian
- Cattle: Lisasto goveda/Simmental, Rjavo Govedo, Black and White, Limousin, Charolais, Cika cattle
- Pigs: German Landrace, Swedish Landrace, Large White, Pietrain, Duroc, Krsko Polje

- Sheep: Bovec, Improved Bovec, Istrian Pramenka, Beka Krajina Pramenka, Jezersko-Solcava, Improved Jezersko-Solcava, Texel
- Goats: Saanen, Alpine, Boer, Bovec-Drenica
-

27.7. Slovenian animal breeding federation

The official breeders' organisations are linked to the 'Ministry of Agriculture, Forestry and Food' (address: Dunajska 56, 1000 Ljubljana).

National cattle breeders' organisations:

- Breeders Association of Slovenia, Združenje govedorejcev Slovenije, z.o.o., Groblje 3, Slo-1230 Domzale
In this association, cattle breeders of the different breeds are brought together.
- Cattle Breeders Union of Slovenia, Zveza govedorejcev Slovenije, Pot na Banovec 1, Slo-1215 Medvode
The Cattle Breeders Union of Slovenia represents particularly the breeders of beef breeds, Holstein-Friesian and partially those of the Slovenian Brown Cattle and Simmental. In the near future, the Breeder's Association of Slovenia and the Cattle Breeders Union of Slovenia will unite and become a part of the Ministry of Agriculture, Forestry and Food.
- Cattle Breeding Service of Slovenia – CBS, Govedorejska služba Slovenije, Hacquetova 17, Slo-1001 Ljubljana

Regional cattle breeders organisations:

- Animal Husbandry and Veterinary Department Murska Sobota, Ztefana Kovaza 40, Slo-9000 Murska Sobota
- Animal Husbandry and Veterinary Department Celje, Trnovelsjska cesta 1, Slo-3000 Celje
- Animal Husbandry and Veterinary Department Ptuj, Ormozka 40, Slo-2250 Ptuj
- Agricultural Department Ljubljana, Miklozizeva 4, Slo-1000 Ljubljana
- Animal Husbandry and Veterinary Department of Gorenjska, Kranj Iva Slaca 1, Slo-4000 Kranj
- Animal Husbandry and Veterinary Department Nova Gorica, Pri hrastu 18, Slo-5000 Nova Gorica

Organisation of small animal keepers:

Professional organisation for the breeding of goats and sheep was introduced at the beginning of the 1990s. Local associations are united in the following national organisations::

- Slovene Association of Goat Breeders, Zveza kozjerejskih društev republike Slovenije, Biotechnical Faculty, Zootechnical Department,, Groblje 3, Slo-1230 Domzale
Exists since 1996 and unites at present 5 societies
- Slovene Association of Small Ruminant Breeders, Zveza društev rejcev drobnice Slovenije, Mr. Evgen Gerzelj, Dolenja vas 46, Slo-6224 Senožeze
Foundation in 1996, unites 9 Breeders' Societies.
- Breeder's Society of Small Animals of Slovenia, Mr. Egon Plevnik, Vrtna ul. 6, Slo-2327 Raze (Tel. 00386-62/60 82 86)
-

27.8. Overview of the need for action for livestock breeds in Slovenia

Need for action concerning the individual breeds and species is dealt with in the section on the individual portraits of the breeds.

On farm conservation

At present, mainly *ex situ* conservation is supported in Slovenia. An *in situ* conservation system needs to be set up urgently, too .

Breeds with acute need for action

- Cika Cattle – evaluation of whether a controlled conservation of both types Tolmin und Bohinj is possible
- Slovenska Bela Zlahtna Pasma – This pig breed is neither officially recognised nor supported. The remaining animals have to be integrated urgently into a controlled conservation concept.
- Noric Horses: The conservation of Noric horses in Slovenia is officially recognised as a matter of urgency.

Goat breeds

In the 1950s, virtually all goats in Slovenia were slaughtered. It has to be clarified on-site if any rest populations in remote areas have survived.

Private conservation efforts

Conservation efforts are exclusively in government hands in Slovenia. The type of conservation work thus depends on the political and economic situation on the one hand and on the other hand on the question whether the tasks are given to people who are willing to dedicate their energy to carrying them out. These direct dependencies harbour the problem that the situation might change dramatically from one day to the next. The set-up of private conservation efforts and their linking-up needs therefore to be supported.

Support of the economic efficiency of endangered breeds

By supporting the products of endangered breeds, an important indirect contribution to their conservation is made. By creating a respective label, it would be possible to mark the products of indigenous endangered breeds and to open a marketing niche with a suitable concept.

28. Portraits of livestock breeds in Slovenia

The portraits of the individual breeds are designed as a completion of the 1995 study on Agricultural Genetic Resources of the Alps. More detailed portraits of the breeds may be taken from the 1995 study.

28.1. Overview of endangered livestock breeds

In the following table, the endangered livestock breeds of Slovenia are listed – not included are extinct breeds. Listing is done according to species, risk status and is alphabetical within a risk category.

Species	Breed	Stock**	Risk Status	Trend	Initiatives*
Cattle	Bohinj + Tolmin	400 OP (1999)	Endangered	?	++
Horse	Noric / Norican	49 breeding mares (2000)	Critical	?	-
Horse	Lipitsa /Lipicanski	600 OP (1999)	Endangered	↑	++
Horse	Ljutomerski Kasac	315 breeding mares (2000)	Endangered	↑	+
Horse	Posavski	263 f HB (1999)	Endangered	?	+
Horse	Slov. Toplokrvni	194 breeding mares (2000)	Endangered	→	-
Horse	Slov. Hladnokrvni	2700f HB (1999)	Vulnerable	↓	+
Pig	Slov. Bela Zlahtna	35f HB (2000)	Critical	→	-
Pig	Krskopolje	400 OP (1999)	Endangered	↑	+
Sheep	Bela Krajina	250f OP (1999)	Endangered	?	+
Sheep	Bovska	? (300-1500)	Endangered	?	+
Sheep	Istrska	600f OP (1999)	Endangered	↑	+
Sheep	Solcava-Jezerska	4500 OP (1999)	Vulnerable	↑	++
Goat	Bovcka Koza	287 OP (2000)	Endangered	?	(+)
Dog	Koroski	?	Critical?	?	?
Dog	Krasevec	>1000 OP (2000)	Endangered	↑	++
Dog	Istrski	5503 OP (1999)	Vulnerable	?	++
Dog	Posavski	1470 OP (1999)	Vulnerable	?	++
Dog	Stajerska Kokos (brown type)	?	Extinct?	?	-
Chicken	Stajerska Kokos (white type)	few animals (1999)	Critical	?	-
Chicken	Stajerska Kokos (partridge coloured)	1000 OP (1999)	Endangered	↑	+
Pigeon	Slov. Beloglavec	<600 OP (2000)	Endangered	?	+
Rabbits	Slov. Kunec	<250 OP (2000)	Endangered	?	+

* ++ (existing with success), + (existing), - (non-existent)

** f = female animals, m = male animals, HB = Herdbook, OP = overall population

28.2. Cattle

28.2.1. General information

The overall stock of cattle slightly decreased during the 1990s.

In 1999, 471,425 animals were counted in Slovenia. Of these, 208,586 were cows.

Contacts Cattle:

Head office for Cattle Breeding - Data processing and breeding evaluation:

- University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, URL: <http://www.bfro.uni-lj.si>
Viz. Pred. Mag. Marko Cepon, Tel: 0386/61 717 864, E-Mail: marco.cepon@bfro.uni-lj.si
Prof. Dr. Joze Osterc, Tel: 0386-61/71 78 48, E-Mail: joze.osterc@bfro.uni-lj.si
Doc. Dr. Silvester Zgur, Tel: 0386-61/71 78 22, E-Mail: silvester.zgur@bfro.uni-lj.si

Secretary general:

- Kmetijski Institut Slovenije, Agricultural Institut of Slovenia, Hacquetova 17, p.p.2553, Slo-1001 Ljubljana, Tel: 0386-61137 53 75, Fax: 0386-61/137 54 13

28.2.2. Extinct cattle breeds

Lavanttal

Since the 1950s, Lavanttal cattle has been considered to be extinct in Slovenia.

Marijadvorsko Govedo (synonyms: Mariahofer)

The breed is closely related to Lavanttal. It originated from the border area to Austria.

According to the most recent information, it does not exist any more. The VEGH in Austria also has not located any animals.

Pomurkso Govedo (synonyms: Psenicno Govedo, Murbodner)

This breed originates from the Upper Mur valley in Austria. According to most recent information, it has died out in Slovenia. The VEGH in Austria could also not locate any animals.

28.2.3. Authochtonous cattle breeds

Bohinjska Cika and Tolminska Cika

Synonyms Bohinjska: Bohinj-Cika, Bohinj-Rind, Gorenjska Cika

Synonyms Tolminska: Tolmin-Cika, Tolmin-Rind

Background:

In Slovenia, crossbreds of the fair Noric cattle (also called Bohinjskega or 'Cattle of Bohinj') and the breed Pinzgau are called 'Cika'. The smaller types originate from the regions Bohinj and Tolmin, in the plains of Gorenjska. A larger type also developed (Gorenjska-Cika). Today, only 2 types are differentiated in Slovenia: Tolmin-Cika and Bohinj-Cika. Tolmin cattle are slightly heavier and larger.

For Bohinj-Cika, insemination with sperm from Pinzgau bulls from Austria is carried out. The small and light Bohinj type is supposed to be conserved by backcrossing.

Purebred Tolmin bulls do not exist any more. For reproduction purposes, sperm from Pinzgau bulls from Austria are used, too.

Distribution: Julian Alps (northwestern Slovenia)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 77-153 EUR/animal/year.
- The University of Ljubljana plans to integrate these breeds into the program 'Slovenian Genebank', starting in 2001.

Contact:

- Kmetijsko Veterinarski Zavod, Agricultural Institut of Slovenia, Hacquetova 17, p.p.2553, Slo-1001 Ljubljana, Tel: 0386-61/137 53 75, Fax: 0386-61/137 54 13
- University of Ljubljana (see also, 2.1. *General Information*)

Stock:

1999: 400 animals in the overall population

1993: 20 Bohinj cows and 34 Tolmin cows

Development trend: ?

Assessment: endangered

Need for action:

It has to be clarified whether both types of Cika are to be conserved separately. In case differentiation is definitely not possible, or if the stock of Bohinj or Tolmin should be too small, all animals will have to be amalgamated for conservation.

28.2.4. International cattle breeds in Slovenia

Lisasto Govedo / Simmental

Synonyms: Simentalsko, Jugoslawisches Fleckvieh, Simmentaler

Herdbook: exists since 1906.

Stock 1999: 32,910 cows in the herdbook (all of them subject to milk control)

Rjavo Govedo / Brown Cattle

Synonyms: Slowenisches Braunvieh

Herdbook: Exists since 1909.

Stock 1999: 17,971 cows in the herdbook (all of them subject to milk control)

Crnobelo Govedo / Holstein-Fresian

Synonyms: Schwarzbunte, / Black & White

Herdbook: Exists since 1960.

Stock 1999: 21,399 cows in the herdbook, of these, 1376 are subject to milk control.

28.3. Horses

28.3.1. General information

In 1999, 10,000 horses were counted in Slovenia. The overall stock is slightly decreasing.

Contact horses:

Prof. Dr. Franc Habe, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, Tel: 0386-61/717 817, E-Mail:

franc.habe@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>

28.3.2. Authochtonous horse breeds

Lipicanski Konj /Lipitsa

Synonyms: Lipicanec, Lipizzaner, Lipitsa, Lipicanska Rasa

Background: Lipitsa horses developed from the indigenous horse population of the Karst region by crossbreeding with other horse breeds. In 1580, the first centre for these horses in Lipitsa was founded. The main current stud of Lipitsa horses has been an official stud since 1996. Close contacts to the Austrian stud in Piber exist. Stallions are exchanged for breeding purposes. In Slovenia, all 6 male blood lines are represented (Neapolitano, Conversano, Pluto, Maestoso, Favory, Siglavy).

Lipitsa horses are found today in more than 20 countries. In Austria, the overall population includes at present 83 mares (status: 2000). Worldwide, the stock is estimated as approx. 3000 animals.

Distribution: southwestern Slovenia (in the Karst region)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 77-153 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank'
- The private breeders' organisation 'Zdruzenje Rejcev Lipicanca Slovenije' is active in supporting Lipitsa horses. It takes care of approx. 300 animals (90 mares and 10 stallions).

Contacts:

- Zdruzenje Rejcev Lipicanca Slovenije, Lipica 5, Slo-6210 Sezana, President: Dr. Vet. Med. G. Rajko Vojtkovsky
- University of Ljubljana (see also ,2.1. *General Information*')
- Austria: Bundesgestüt Piber, A-8580 Köflach, Tel: 0043-3144/33 23, Fax: 0043-3144/33 23 33

Stock:

1999: 600 animals in the overall population, 300 are kept at the main stud in Lipiza.

1993: 80 mares und 9 stallions in the government stud in Lipitsa.

Development trend: increasing

Assessment: endangered

Need for action:

The need for action is at present taken care of.

Ljutomerski Kasac / Ljutomer Trotter

Synonyms: Ljutormer

Origin: Town of Ljutomer (eastern Slovenia)

Distribution: eastern Slovenia

Contact:

- University of Ljubljana (see also ,2.1. *General Information*)
- Vereinigung Slowenischer Pferdezüchter, Celovska 25, Slo-1000 Ljubljana

Stock:

2000: 315 breeding mares, 168 breeding stallions

Development trend: increasing

Assessment: endangered

Need for action:

The need for action for the Ljutomer Trotter is largely covered by the Vereinigung Slowenischer Pferdezüchter.

Norican /Noric

Synonyms: Corkier, Knie Sloyskie, Norisches Kaltblut, Silesian Norik, Pinzgauer, Elmar, Schaunitz, Vulkan, Oberland

Background: Noric horses are also kept in Italy (2000: 142 mares in the herdbook), Austria (1999: 3575 mares in the herdbook) and in former Yugoslavia.

Distribution: Mainly along the rivers of the middle Drau and the Sava

Contacts:

- Austria: Arbeitsgemeinschaft der Norischen Pferdezüchter Österreichs, Kirchhamerstrasse 47, A-5751 Maihofen
- Italy: Federazione Provinciale degli Allevatori di Cavalli di razza Aveglinese dell'Alto Adige – Südtiroler Haflinger Pferdezuchtverband GmbH, Via Monterotondo 1/B, I-39100 Bolzano, Tel: 0039-471/97 16 82

Stock:

2000: 49 breeding mares, 18 breeding stallions

Assessment: critical

Need for action:

There is need for action for the conservation of Noric horses at present in Slovenia. The population in Austria is sufficiently safeguarded.

Slovenski Hladnokrvni Konj

Synonyms: Nonius, Slowenisches Kaltblut

Background: The breed originated from the Medzimirje horses from northeastern Slovenia (Gorenjska). The Medzimirje horses do not exist any more today. The horse is mainly used as a pack animal today. It is the most widely distributed horse breed in Slovenia.

Distribution: The whole of Slovenia – with the main distribution in Ptuj, Lenart, Ormoz, Sentjur, Zalec, Kranj, Kamnik

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 77-153 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank' – 231 mares were included in the program in 1999.

Contacts:

- University of Ljubljana (see also: General Information)

Stock:

1999: 2700 mares in the herdbook

1993: 3000 mares and 60 stallions

Development trend: decreasing, because of the increasing popularity of warm blooded saddle horse breeds.

Assessment: vulnerable

Need for action:

Decreasing stock numbers need monitoring. At present, there are no controlled on farm conservation measures, apart from premiums for animal keepers.

Posavski Konj / Posavje Horse

Synonyms: Posavec

Background: The Posavski horse originated from the autochthonous horse population of the Sava river basin. Posavski horses also occur in Croatia in larger stock numbers. Distribution: southeastern Slovenia (Posavje region)

Initiatives:

- Since 1993, there have been efforts in Slovenia to conserve this breed. Today, 93 mares and 10 stallions are integrated into a conservation program.
- The Ministry of Agriculture supports keepers of animals of this breed with 77-153 EUR/animal/year.
- Plans exist to integrate the breed into the program 'Slovenian Genebank' of the University of Ljubljana

Contacts:

- University of Ljubljana (see also General Information)

Stock:

1999: 263 mares und 10 stallions in the herdbook

Assessment: endangered

Need for action:

There is need for action in Slovenia to set up an *in-situ* conservation program.

Slovenski Toplokrvni Konj

Synonyms: Slowenisches Warmblut

Distribution: the whole of Slovenia

Stock:

2000: 194 breeding mares

Development trend: stable

Assessment: endangered

Need for action:

There is still need for action for the conservation of the breed.

28.4. Pigs

28.4.1. General information

The Slovenian pig stock was 558,459 animals in 1999, – the entire stock is slightly increasing.

Contact Pigs:

Prof. Dr. Andrej Salehar, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, Tel: 0386/6171 78 54, E-Mail:

andrej.salehar@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>

28.4.2. Extinct pig breeds

Crna Mangulica (synonyms: Schwarzes Mangalitza, Pfeifer Schwein, Black Slovenian)

The breed originates from Croatia and was formerly distributed in the Austrian-Hungarian region. Today, no animals are found any more in Slovenia.

28.4.3. Authochtonous pig breeds

Krskopoljski Prasic / Krskopolje Saddleback

Synonyms:, Krskopoljske Crnepasatiprasic, Krskopolka Cerno Pasata Prasica, Krsko Polje Pig, Blackbelted

Background: The Krskopoljski pigs originated in the region of Dolenjska (southeast Slovenia). Because of crossbreeding with the breeds Berkshire and Cornwall, head and ears changed slightly. Most animals no longer show the typical straight head with long drooping ears. Only 50% of the animals are purebred.

Distribution: southeast Slovenia (mountains of Gorjanci, Krsko –at the Croatian border)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 128 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank'

- On 3 farms, the purebred on-farm conservation of these animals is supported by the government side.

Contacts:

- University of Ljubljana (see also General Information)

Stock:

1999: 400 animals in the overall population

1994: 150 sows and 10 boars in the overall population

Development trend: increasing

Assessment: endangered

Need for action:

The remaining animals with straight heads of medium length and the long drooping ears have to be supported directly.

Slovenska Bela Zlahtna Pasma /Slovenian White

Synonyms: Weisse Slowenische Landrasse, Veredelte Slowenische Landrasse,

Background: This breed has only been bred on 4 family farms. Some animals were also sold – mainly for extensive keeping. In the 1980s and 1990s, Swedish Large White was used for breeding.

The herdbook is at present kept by the Animal husbandry and Veterinary Department Murska Sobota. They also brand animals.

Distribution: northeast Slovenia

Contacts:

- Animal husbandry and Veterinary Department Murska Sobota, Zivinorejsko-veterinarski zavod za Pomurje, Ztefana Kovaza 40, 9000 Murska Sobota
- Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 65, E-Mail: drago.kompan@bfro.uni-lj.si

Stock:

2000: 35 sows at 4 family farms in the area of Pomurje (northeast Slovenia)

1991: 300 sows and 15 boars, approx. 70% are purebred.

Development trend: stable

Assessment: critical

Need for action:

A conservation program does not exist. The breed is not recognised by official organisations as an autochthonous Slovenian breed. There is an acute need for action! Purebreeding has to be given special attention.

28.4.4. International high-performing breeds in Slovenia

Swedish Landrace

Synonym: Svedska Landrace

Stock 1999: 8330 sows and 118 boars

Large White

Stock 1999: 1307 sows and 155 boars

Duroc

Stock 1999: 395 sows and 45 boars

Pietrain

Stock 1999: 61 sows and 57 boars

German Landrace

Synonym: Nemska Landrace

Stock 1999: 1015 sows and 90 boars

28.5. Sheep

28.5.1. General information

The overall stock in Slovenia was 72,533 animals in 1999. During the 1990s, it more than doubled.

The following sheep breeds are found relatively often:

- Texel
- Improved Jezersko-Solcava (bred with Romanov sheep)
- Improved Bovec (bred with East Friesian sheep)

Contact sheep:

Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 65, Fax: 00386-61/72 410 05, E-Mail: drago.kompan@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>

28.5.2. Authochtonous sheep breeds

Solcava-Jezerska / Carinthian

Synonyms: Jezerskosolcavska, Seeboden, Seeländer, Seeland-Sulzbach, Brillenschaf, Villnösser

Background: The breed was already sold to Bavaria and Austria under the name Carinthian or Seeländer Schaf. The herdbook was started in 1983. Since 1997, cooperation has existed with the breeders' association for Carinthian sheep in Austria.

The stock in Austria was 1000 animals in the year 2000. An exchange of genetic material is planned. In the Italian Region Trentino-Altoadige (2000: 900 animals in the herdbook) and in Germany (1998: 400 animals), animals also exist.

Distribution: north Slovenia (Steiner Alpen, Kamniske Alps - Jezersko and Solcavska)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 25-36 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank' - approx. 800 animals are involved in the program at present.
- Because the breed occurs across borders, the SAVE Foundation as the European umbrella organisation coordinates conservation efforts between countries.

Contacts:

- University of Ljubljana (see also General Information)
- Italy: Federazione Zootechnica dell'Alto Adige, Via Crispi, 15, Bolzano, Tel: 0039-471/97 77 45
- Austria: Verein der Kärntner Brillenschafzüchter Alpen-Adria, Friedhelm Jasbinschek, Sponheimerplatz 1, Postfach 44, A-9170 Ferlach
- Germany: GEH, Antje Feldmann, Postfach 1218, D-37202 Witzenhausen

- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40, E-Mail: office@save-foundation.net

1999: 4500 purebred animals in the overall population and approx. 50,000 crossbred animals (improved jerzersko-Solcava)

1993: 1500 animals in the overall population

Development trend: increasing

Assessment: vulnerable

Need for action:

The need for action for the conservation of purebred animals is great. An on-farm conservation program for the remaining purebred animals has to be set up.

Bovska Ovca / Bovec

Synonyms: Krainer Steinschaf, Trentarka, Plezzana

Background: Bovec sheep originated in the Upper Soca valley. The name comes from the town of Bovec. The Steinschaf was also bred in Austria, Switzerland, Italy, and Bavaria.

Strong crossbreeding has, however, led to another type of sheep. Only in the Slovenian Alpine region were these animals purely bred. Today, only approx. 50 % of the animals are purebred in Slovenia. The Slovenian herdbook was founded in 1983.

In Austria (2000: 250 purebred animals) and Germany (2000: 65 animals in the overall population), the breed is also represented. In the Italian Region Friuli Venezia-Giulia, 40-50 animals were found in the year 2000.

Distribution: east Slovenia in the Trifile-National Park, Bovec (Upper Soca-Tall), Region Trent

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 25-36 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank' - at present, 1200 animals are linked up to the program.
- Because the breed occurs across borders, the SAVE Foundation as the European umbrella organisation coordinates conservation efforts between countries.

Contacts:

- University of Ljubljana (see also General Information)
- Vitomir Bric, Pri Hrastu 18, Slo-5000 Nova Gorica
- Italy: ARA Friuli Venezia Giulia, Via G. Ferraris, 20/a, I-33170 Pordenone Tel: 0039-434/54 15 11
- Germany: coordinator at the GEH - Gesellschaft zur Erhaltung alter und gefährdeter Haustierrassen: : Dr. Christian Mendel, Berg 35, D-85402 Kranzberg, Tel: 0049-8166/92 65
- Austria: Dr. R. Seibold, Laufenberg 20, A-9545 Radentheim
- SAVE Foundation, Paradiesstrasse 13, D-78462 Konstanz, Tel: 0049-7531/45 59 40 E-Mail: office@save-foundation.net

Stock:

2000:

- 300 purebred animals in the overall population according to SAVE Foundation
- 1500 purebred animals in the overall population according to the University of Ljubljana (out of these 1050 ewes and 50 rams) and approx. 1000 crossbred (improved Bovec – mainly crossbred with the East Friesian Milk)

Assessment: endangered

Need for action:

The current stock of purebred animals needs to be clarified. The conservation of the purebred type in Slovenia should be supported with an on-farm conservation program.

Istrska Pramenka / Zackel

Synonyms: Istrijanka, Zackelschaf, Pramenka

Distribution: southwest Slovenia, Karst region and Istria region (border region to Istria, along the river Reka)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 25-36 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank' - at present, approx. 400 animals are linked up to the program.

Contacts:

- University of Ljubljana (see also General Information)

Stock:

1999: 600 ewes und 25 rams in the overall population

1993: 70 animals kept by 2 farmers

Development trend: increasing

Assessment: endangered

Need for action:

Need for action still exists. It is partially taken care of by the government.

Bela Krajina Pramenka

Synonyms: Belokranjska Pramenka

Origin: Bela Krajina sheep originated in the regions Karst and Bela Krajina.

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 25-36 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program 'Slovenian Genebank' - all existing animals are involved in the program.

Contacts:

- University of Ljubljana (see also General Information)

Distribution: southeast Slovenia (Karst region)

Stock:

1999: 250 ewes and 15 rams in the overall population

Assessment: endangered

Need for action: Great, and little is being done.

28.6. Goats

28.6.1. General information

In 1999 14,643 goats were counted in Slovenia. The overall goat stock is stable at present. Between 1955 and 1960, all existing goat breeds in Slovenia were slaughtered. A new goat population established itself only slowly. The following breeds are often found: Sanska Pasma (synonym: Saanenziege Domaca Sanka, Gessenay, Yugoslav Saanen)

- Srnasta Pasma (synonym: Alpine goat)
1993: 14,000 animals in the overall population, 50% are purebred
- Buren goat from South Africa (synonym: Boer goat)
- Valiska Crnovratka (synonym: Valais Blackneck)
- Togenburska (Toggenburger Ziege)

The Domaca Kirzana goat (synonym: Domaea Bela Koza) is today considered to be extinct. It was integrated into the Saanen and the 'Balkan White Goat'.

Contact goats:

Mag. Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Chair for Small Ruminants, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 65, Fax: 00386-61/724 10 05, E-Mail: drago.kompan@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>

28.6.2. Authochtonous goat breeds

Bovcka Koza / Bovec Goat

Synonyms:

Background: The occurrence of the Bovec goat is at present being examined by the University of Ljubljana. It is not integrated into a conservation program.

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 26 EUR/animal/year.

Contacts:

- University of Ljubljana (see also General Information)

Stock:

2000: 287 animals in the overall population

Assessment: endangered

Need for action: Great, nothing is being done at present.

28.7. Dogs

28.7.1. General information

Contact Dogs:

- Miroslav Zidar, Kinoloska Zveza Slovenije - Slovenian Kennel Club, Ilirska ul. 27, Slo-1000 Ljubljana, Tel: 00386-61/31 54 74, E-Mail: kinoloska.zveza-slo@siol.net

Initiatives

- The University of Ljubljana plans to take dogs into the program 'Slovenian Genebank' starting in 2001.

Need for action:

- The need for action for the Slovenian dog breeds is at present taken care of by the Slovenian Kennel Club. For the breed Koroski Zigec, stock has to be recorded.

28.7.2. Extinct Slovenian hunting dogs

- Kraskega Gonica (synonym: Karst Hound)
- Ilirskega Resavca (synonym: Illyrian Rough Coated Hound)
- Keltskega Gonica (synonym: Celtic Hound)

28.7.3. Authochtonous hunting dogs

Istrski Gonic / Istrian Hound

Synonym:

Background: The breed was first described in 1894 by H.V. Baylandt.

The following types are distinguished: Istrian Rough-Coated and Istrian Smooth-Coated

Stock:

1999: 5503 animals in the overall population

Assessment: vulnerable

Posavski Gonic / Posavec Hound

Synonym:

Background: The standard of the breed was first described in 1939.

Stock:

1999: 1470 animals in the overall population

Assessment: vulnerable

Koroski Zigec / Slovenian Mountain Hound

Synonym: Slwovenski Planinski Gonic,

Background: In 1939, 2 animals were first entered into a register – at that time, the breed was still known as Balkan Hound.

Stock: current stock numbers are not available

28.7.4. Authochtonous shepherd dog breeds

Krasevec / Karst Shepherd

Synonyms: Krazski Ovcar, Karstschäferhund

Background: The Karst shepherd is the oldest authochtonous Slovenian dog breed. For several centuries, it has been used as sheep dog (herd protection dog) in the Slovenian Karst region around Pivka. The first detailed description appeared in 1689. In 1939, the breed was internationally recognised (under its old name: Illyrian Shepherd).

In Austria, the Allgemeine Hirten- und Hütehundeclub (AHHC, Frau G. Höllbacher, Untere Marktstrasse 14, 3481 Fels) deals with the breed. At present, no animals exist there any more.

Distribution: whole of Slovenia, mostly Maribor, Slovenska Bistrica and around Ljubljana.

Stock:

2000: more than 1000 animals in the overall population

1997: 800 animals in the overall population

Development trend: increasing

Assessment: endangered

28.8. Poultry

28.8.1. General information

The number of poultry kept was 8.55 million animals in 1999 – most of them hybrid breeds (Ross, Cobb, Isa, Hisex). At the beginning of the 1990s, 13.3 million animals were counted. The following international breeds exist in Slovenia: Barred Plymouth Rock, Rhode Island Red, Silver, Synthetic Slovenian Line, White Rock Line B and Line P. For more than 30 years, the zoological department of the University of Ljubljana has been involved in the selection of hens from which the hybrid breeds 'Prelux' originated. The breeds Rhode Island Red, Silver, Synthetic Slovenian Line, White Rock and Barred Plymouth Rock were used for breeding.

Contact Poultry:

- Dr. Antonija Holcman, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 53, E-Mail: antonija.holcman@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>
- Mr. Egon Plevnik, Vrtna ul. 6, Slo-2327 Raze, Tel: 00386-62/60 82 86

28.8.2. Authochtonous poultry breeds

Stajerska Kokos / Styrian Hen

Synonym: Stajerka, Altsteirer,

Background: The Stajerska chicken is the only authochtonous poultry breed in Slovenia.

There are efforts to backbreed the partially strongly crossbred animals. In Austria, a small population exists, too (partridge-coloured, approx. 20 breeders – status 1999, white: approx 10 breeders – status 1997).

Distribution: in the whole of Slovenia, mainly in the region of Styria (Celje, Bargar)

Initiatives:

- The Ministry of Agriculture supports keepers of animals of this breed with 5 EUR/animal/year.
- *Ex situ* conservation at the University of Ljubljana through the program ‘Slovenian Genebank’ - at present, approx. 200 animals are involved in the program.
- The University of Ljubljana supports the partridge-coloured type through the project ‘Conservation of native breeds of domestic animals in Slovenia’. In 1999, 235 hens and 16 cocks were integrated in the project.

Contacts:

- University of Ljubljana (see also General Information)
- Austria: Sonderverein der Steierhuhnzüchter, August Heftberger, Grolzhalm 34, A-4680 Haag

Stock:

1999:

- White type: some few animals kept by one breeder
- Brown type (Altsteirer): probably extinct.
- Partridge-coloured type: approx. 1000 animals in the overall population

1993: approx. 60 animals in the overall population

Development trend of the partridge-coloured type: increasing

Assessment according to type: critical/endangered

Need for action:

The need for action is at present only taken care of for the partridge-coloured type.

Conservation efforts for the white type have to be initiated urgently. Controlled search for the brown type should be started.

28.9. Pigeons

28.9.1. Authochtonous breeds

Slovenian Beloglavec

The breed Slovenian Beloglavec is the only Slovenian pigeon breed which could be found. The 'Club of Breeder's Societies of Small Animals of Slovenia' takes care of the breed.

Contacts:

- Club of Breeder's Societies of Small Animals of Slovenia, Mr. Egon Plevnik, Vrtna ul. 6, Slo-2327 Raze, Tel: 00386-62/60 82 86

Stock:

2000: 500-600 animals kept by 10-15 breeders

Assessment: endangered

Need for action:

The need for action is at present taken care of.

28.10. Rabbits

28.10.1. Authochtonous breeds

Slovenian Kunec

The only Slovenian rabbit breed is the 'Slovenian Kunec'. The 'Club of Breeder's Societies of Small Animals of Slovenia' takes care of this breed.

Contacts:

- Prof. Dr. Miroslav Struklec, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 17, E-Mail: miroslav.struklec@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>
- Club of Breeder's Societies of Small Animals of Slovenia, Mr. Egon Plevnik, Vrtna ul. 6, Slo-2327 Raze, Tel: 00386-62/60 82 86

Stock:

2000: 200-250 animals kept by 5 breeders

Assessment: endangered

Need for action:

The need for action is at present taken care of.

28.11. Bees

28.11.1. General information

In Slovenia, 147,000 bee colonies were counted in 1996 – this means a small increase compared to the 1990s (140,000 bee colonies).

28.11.2. Authochthonous breeds

Kranjska Cebela / Carniolan Honeybee

Synonyms: Krainer Biene

Background: 80-90% of the Slovenian bee population consists of the authochthonous population in Kranjska Cebala (*Apis mellifera carnica*). Close to the Italian-Slovenian border, crossbreeding with the *Ligustica* takes place. The breed is distributed all over the world and is today considered to be the second largest population (after the Italian bee *Apis mellifera ligustica*). It is found with larger stock numbers in Austria, Hungary, Romania, Croatia, Bosnia, Herzegovina and Serbia.

Distribution: entire country

Initiatives:

- The University of Ljubljana plans to integrate the breed into the program 'Slovenian Genebank' in the year 2001.

Contact:

- Dr. Janez Poklucar, Kmetijski Institut Slovenije, Agricultural Institut of Slovenia, Hacquetova, 2, Slo-1000 Ljubljana, Tel: 00386-61/137 53 38, E-Mail: janez.poklucar@kis-h2.si
- Beekeeping Museum, Linhartov trg 1, 4240 Radovljica, Tel: 0386-61/71 51 88, Fax: 00386-61/71 50 49

1999: 162,000 bee colonies kept by 8200 beekeepers (out of these, 150 are professionals)

Development trend: stable

Assessment: not endangered

Need for action:

There is no need for action.

28.12. Fish

28.1. Soska Postrv

Soska Postrv (*Salmo trutta marmoratus*) or Marble Trout is an indigenous trout species. It is severely threatened by the Braune Forelle (*Salmo trutta*), introduced at the beginning of the 20th century as both types can crossbreed.

Initiatives:

- The University of Ljubljana plans to integrate fish into the program 'Slovenian Genebank' in 2001. Projects are running to find a suitable genetic marker to distinguish purebred and crossbred animals.
- The 'National Institute for Fisheries' and the 'Sport Fishing Association of Tolmin' has launched a project for the conservation of the purebred Marble Trout.

Contact:

- Prof. Dr. Jurij Pohar, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje, Slo-1230 Domzale, Tel: 00386-61/71 78 62, E-Mail: jurij.pohar@bfro.uni-lj.si, URL: <http://www.bfro.uni-lj.si>

Stock:

2000: 1550 animals are kept as a breeding basis.

Need for action:

The need for action for the conservation of the purebred Soska Postrv is covered at present.

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