



## Continuous Monitoring of Agricultural Biodiversity in the Alpine Region: The Alpine Delphi

# Final Report 2007



Photo: Pommiers Vallouise, M-F Tarbouriech

Project Coordination: Elli Broxham

This Project is funded by the Swiss Federal Office for the Environment FOEN  
and Swisslos (Lotterie-Fonds of the Canton St-Gallen)

## Abstract

*"The present study shows that efforts to develop a system for continuous monitoring, equipped with an efficient alarm system, are urgently needed. This seems, at present, the most efficient way of dealing with a situation which might change fast and of reacting in reasonable time to negative trends"*

*(Preface, Agricultural Genetic Resources in the Alps, 2003)*

The original study "Agricultural Genetic Resources in the Alps", undertaken by the Stiftung Pro Specie Rara, was published in 1995 and successfully updated between 2000 and 2001 by the Monitoring Institute for Rare Breeds and Seeds. The update was published in 2003. The Monitoring Institute considered a new update of this study to be necessary. However, it is clear that a study on a similar scale to the two previous ones cannot be repeated every two years. Due to this fact and in order to achieve the aims of networking organisations and institutions, of documenting and updating relevant data and building up an early warning system for critically endangered agricultural breeds and species, research began that was based on the Delphi Method.

Experts from the various sectors of Alpine Genetic Resources were invited to take part in the research. The research was based on three questionnaires, which the participating experts were able to fill in online using a personal username and password. Each expert filled out a first questionnaire especially tailored to his or her expert knowledge. The second questionnaire was a more general one, based on the results of the first. The third questionnaire presented the participants with a rough draft of this report and asked questions based on the results of the second questionnaire and the conclusions of the report.

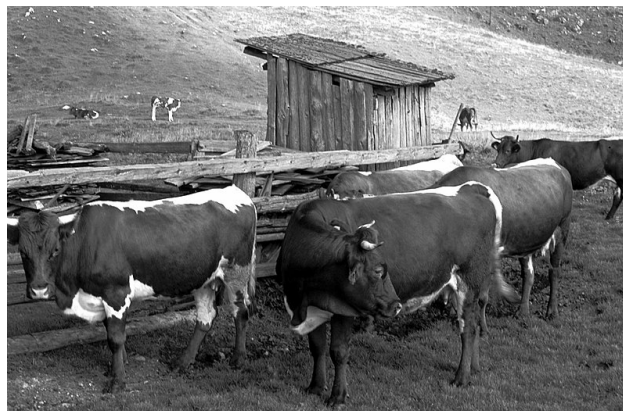
The questionnaires were analysed using qualitative methodology based on Grounded Theory. This method of systematic analysis is a well-known method of analysing data from a Delphi study as the data is often a hybrid of words and numbers. Through a system of coding, the results of the first questionnaire were divided into themes. The second questionnaire was based on these themes. For each of the four themes identified, statements were created that reflected the results of the first questionnaire. The participants in the second questionnaire were then able to say if they agreed or disagreed with these statements. In this way a broad picture was built up of the state of Alpine agricultural genetic resources and of the institutions working for its conservation. Last but not least, trends that will influence the future of Alpine Agrobiodiversity were also identified. The last round of the present Delphi study was the presentation of this report to the participants. They were invited to comment on the content of it. In this round there was also a third, short questionnaire.

The three rounds led to the identification of two factors that need urgent attention. Firstly, cooperation between experts working in the field must be improved. Secondly, a need for research covering the whole scope of

Agrobiodiversity – from the farmer through to the consumer. Further results suggest a number of measures required to improve the situation of agricultural biodiversity in the Alpine area. These measures range from the need for goal setting, cooperation and standardisation of data from the experts, through to research into the marketing of products and services as well as analysis of agricultural policy structures and the curricula of agricultural schools in the Alpine countries.

Due to the fact that the Alpine Delphi not only researched the state of Alpine Agrobiodiversity but was also a pilot for a system of long-term monitoring in the Alpine region, methodological problems of the Alpine Delphi are also identified. These problems, which need to be addressed in further rounds of the Alpine Delphi, include the challenge presented by the multi-lingual nature of the area, the need for improved design of the question-style so that answers to the questions not only provide the needed information but are also user-friendly. There are also problems of generalisation due to the large range of experts as well as the geographical and biological range of Alpine Agrobiodiversity. It is also suggested that the range of experts is increased in further rounds to include some of the areas that need further research. In this way the Alpine Delphi should come closer to achieving the goal of providing a clear picture of agricultural genetic resources in the Alps as well as indicators for future needs.

A regular repetition of this exercise based on the themes that have been brought up in this first Alpine Delphi should enable successful monitoring of the Alpine Region for many years to come.



Bohinjska cik. Dr. D. Kompan

## Contents

Background: Agriculture in the Alps	5	
Monitoring the Alpine Agrobiodiversity	6	
The Convention on Biological Diversity: National Obligations	7	
The Alpine Convention: The Protocol on Mountain Agriculture	9	
The Alpine-Delphi	11	
Questionnaire 1	13	
Questionnaire 2	18	
Questionnaire 3	24	
Questionnaire 3a	29	
Conclusions	30	
Identified Methodological Problems	32	
Acknowledgements	33	
References	34	
<b>Annexes</b>	<b>35</b>	
Annex I.i	Self-Rating Questionnaire	35
Annex I.ii	Round 1, Main Questionnaire	36
Annex II	Report Example Round 1	42
Annex III	Round 2	43
Annex IV	Results Round 2	47
Annex V	Results Round 2 - Profiles	53
Annex VI	Example Questionnaire 3	55

## Background: Agriculture in the Alps

The Alpine Region provides a unique environment for agrobiodiversity. Over centuries, animals and plants have been developed by farmers to suit the very different landscapes of the Alps. Animals were bred for hardiness, fertility and sure-footedness. Plants were selected that could cope with the harsh conditions of the Alps: high altitude, intense sun and short vegetation periods. However, this did not lead to a homogenous “Alpine” agrobiodiversity, each valley and region had its own breeds and varieties.

Due to socio-economic factors, the drive towards industrialisation in agriculture came late to the Alps. This meant that many breeds and varieties were not irredeemably lost as in other European countries. However, the encroaching industrialisation brought high-yield hybrid crops and cross-breeds of high performance animals. These crops and animals were intended for the intensive farming of the lowlands and are not best suited to the Alps.

Robust animals and crops are still essential in the Alpine Region. Although Alpine farmers are, naturally, also interested in high yields and large profit margins, there is also value in good average yields and for regional products. A consistent yield and a quality regional product can allow the farmer to sell in the growing “gourmet” market. Finding a place in a niche sector of the market can be far more profitable than selling standardised, over-produced products. Many Alpine farmers, due to the harsh conditions of mountain farming, can never undercut the prices of the massive, intensive, lowland farms.

The Alpine region is traditionally farmed using transhumant agricultural systems. These are important in the Alpine region both ecologically and economically. The importance of semi-natural habitats such as the Alps cannot be overemphasised. Vast areas of Europe are now either intensively farmed or are part of the urban sprawl and the infrastructure needed to support it. Creating and managing protected areas is expensive. However, encouraging the upkeep of traditional agro-eco-systems in the Alpine region creates a large area of semi-natural habitat, which can be utilised by birds and other wildlife as well as providing space for wild plants to propagate.

In order to promote sustainable development of agriculture in the Alpine region and provide economic security for marginal areas, traditional agricultural methods rather than industrial methods need to be encouraged. This includes the conservation and promotion of the traditional plants and animals in Alpine agriculture. Promoting these traditional systems also helps the conservation of Alpine wildlife, as they complement the ecosystem rather than placing additional strain upon it. Traditional farming systems help to prevent soil erosion and loss of soil fertility, through the use of methods adapted over centuries especially for the region they are used in. All these factors contribute to the production of the traditional Alpine landscapes, which are attractive to tourists.

Due to the frugality of the traditional plants and animals in the Alpine region, traditional agricultural systems use less imported fodder and fertiliser, thus placing less of a burden on other areas. The traditional agrarian system of the Alps has a small “ecological footprint” and its unique climate and altitude provide genetic resources adapted to harsh conditions, which may be essential for future food security in areas outside of the Alpine region.



Klauser, Hans Peter, Alpabfahrt, Appenzellerland 1944  
<http://www.fotostiftung.ch/>

## Monitoring the Alpine Agrobiodiversity

The aim of monitoring the Alpine Agrobiodiversity is to monitor the whole agrarian system. “The expression agrarian system looks at the interaction between bio-ecological, socio-economic, cultural and political systems, across agricultural practices.” (FAO Multilingual Thesaurus on Land Tenure, ch.7) This means that, even though data on stock numbers and cultivated areas is important, it is not the only factor that needs to be taken into account.

The widely used indicator model “*Pressure-State-Response*” has been used in the development of biodiversity monitoring indicators in Switzerland. Under the list of indicators are Z1 and Z2, which concern monitoring the *State* of Agrobiodiversity. The results of this monitoring show the number and proportion of breeds in Switzerland. These results show two trends, firstly that the number of breeds is increasing and secondly that the number of animals from rare breeds is also increasing. Although this sounds positive, some factors are missing, though not unacknowledged. Firstly, the amount of breeds kept is growing due to imports. Secondly, the statistics do not show the genetic distance between individual animals. Thus it is possible that good statistics are hiding in-breeding and genetic erosion. Due to the restrictions within which the data is collected, many small farmers with genetically important breeds could be slipping through the net and this distorts the final picture presented.

Measuring the *State* of agricultural genetic resources is the most used monitoring device. This device is extremely important but there are pitfalls, which make the data produced less than reliable:

- **Constraints in data availability.** Databases often have gaps.
- **Inconsistencies between data disseminated at the international level.** Not all data is collected and recorded in the same manner. This means that data entered into an international database may be unusable.
- **Data sources.** Data sources may be unreliable.
- **Data fatigue.** Data duplication and lack of collaboration in data collection.

Even though there is constant improvement in this field, as long as there are gaps and inconsistencies, this form of monitoring, whilst undoubtedly essential, is not enough to ensure conservation of agrobiodiversity.

Two aspects of *Pressure-State-Response*, which often get overlooked, are *Pressure* and *Response*. What are the *Pressures* on agrobiodiversity in the Alps? And what *Response* is required? The majority of experts working on the subject of conservation of Alpine agrobiodiversity strive to achieve good data on the *State* of agrobiodiversity in their specialist field. However, knowing the *State* does not guarantee future conservation. The *State* may show the positive or negative consequences of *Pressure* and may give an indication towards *Response*. However, a good monitoring system will explicitly make use of all three levels of *Pressure-State-Response*.

All of the Alpine countries are committed to protecting and monitoring their agrobiodiversity. These commitments are part of international conventions, signed by the Alpine states. These conventions clearly lay out the national obligations of the signatories.

## The Convention on Biological Diversity: National Obligations

The Convention on Biodiversity [CBD] was signed in Rio in 1992. All of the Alpine States signed the convention. The convention came into force in December 1993. The Convention is legally binding; countries that join it are obliged to implement its provisions.

When considering the national obligations in the context of this study the following is of interest: Under *Article 7. Identification and Monitoring* each party shall

“identify components of biological diversity important for its conservation and sustainable use..., monitor, through sampling and other techniques, the components of biological diversity ...paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use and identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques...”

Under *Article 8. In-situ Conservation* each party shall

“prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species...and, subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices;”

Source: Convention on Biodiversity, Rio, 1992<sup>i</sup>

Specifically, in the context of agrobiodiversity, the Convention's agricultural biodiversity work programme makes the following points:

“The importance of agrobiodiversity encompasses socio-cultural, economic and environmental elements. All domesticated crops and animals result from human management of biological diversity, which is constantly responding to new challenges to maintain and increase productivity.”

“Biodiversity provides not only food and income but also raw materials for clothing, shelter, medicines, breeding new varieties, and performs other services such as maintenance of soil fertility and biota, and soil and water conservation, all of which are essential to human survival.”

Source: Convention on Biodiversity website<sup>ii</sup>

Two important elements of the work programme inspire the research contained within this report, “Assessment” and “Capacity Building”:

- Assessment:

---

<sup>i</sup> <http://www.cbd.int/convention/convention.shtml>

<sup>ii</sup> <http://www.cbd.int/programmes/areas/agro/default.aspx>



“To provide a comprehensive analysis of status and trends of the world's agricultural biodiversity and of their underlying causes (including a focus on the goods and services agricultural biodiversity provides), as well of local knowledge of its management.

“...Understanding of the underlying causes of the loss of agricultural biodiversity is limited, as is understanding of the consequences of such loss for the functioning of agricultural ecosystems. Moreover, the assessments of the various components are conducted separately; there is no integrated assessment of agricultural biodiversity as a whole. There is also [a] lack of widely accepted indicators of agricultural biodiversity. The further development and application of such indicators, as well as assessment methodologies, are necessary to allow an analysis of the status and trends of agricultural biodiversity and its various components and to facilitate the identification of biodiversity-friendly agricultural practices...”

#### Capacity Building:

“To strengthen the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainably agricultural biodiversity so as to increase their benefits, and to promote awareness and responsible action.

“The management of agricultural biodiversity involves many stakeholders and often implies transfers of costs and benefits between stakeholder groups...Decision III/11, paragraph 15, countries are encouraged "to set up and maintain local-level forums for farmers, researchers, extension workers and other stakeholders to evolve genuine partnerships”...

Source: Convention on Biodiversity Website<sup>iii</sup>

From the above it is possible to reach the conclusion that, although databases, stock numbers, genebanks, seedbanks and genetic distance tests are all vitally important to the conservation of agrobiodiversity, they do not provide all the information required for conservation. A full assessment of socio-economic and cultural factors is also required. Agriculture exists on a threshold between the natural world and the manmade world. Agricultural processes are as much influenced by economic policy as they are by the weather. The modern, industrialised version of agriculture moves yet further from natural processes and is, thus, more influenced by socio-economic and cultural factors than ever before.



Steiner, Heiri, Drei Ziegen, 1935  
<http://www.fotostiftung.ch>

---

<sup>iii</sup> Capacity Building: <http://www.cbd.int/programmes/areas/agro/capacity.aspx>

Assessment: <http://www.cbd.int/programmes/areas/agro/assessment.aspx>



## The Alpine Convention: The Protocol on Mountain Agriculture

The Alpine Convention was signed and ratified by all Alpine states and the EU. It came into force by the year 2000. The signatories of the framework convention went on to sign various associated protocols. The Convention and its protocols are legally binding; countries that sign and ratify them are obliged to implement their provisions. As can be seen below, not all the Alpine countries have ratified the Protocol on Mountain Agriculture.

Protocol on Mountain Agriculture as of June 2006									
State	A	CH	D	F	FL	I	MC	SLO	EU
Signed	31.10.00	16.10.98	20.12.94	20.12.94	16.10.98	20.12.94	20.12.94	20.12.94	20.12.94
Ratified	10.07.02	-	12.07.02	15.11.03	18.04.02	-	-	28.11.03	27.06.06
Into force on	18.12.02	-	18.12.02	15.02.03	18.12.02	-	-	28.04.04	6.10.06

Source: [http://www.cipra.org/datenbankseiten/willkommen.asp?n\\_LID=1](http://www.cipra.org/datenbankseiten/willkommen.asp?n_LID=1)

Below are the most relevant aspects of the Protocol on Mountain Agriculture, in the context of this report:

### Cooperation between institutions:

International cooperation between research and educational institutes, between agricultural and environmental organisations and in the media, as well as a transfer of knowledge and experience between the parties should be promoted. Specifically, the conservation of genetic diversity is to be encouraged. Research and monitoring should be harmonised and completed in close cooperation in order to achieve the goals of the protocol.

### Development and Farming Methodology:

Mountain farming should be encouraged and developed. This should be done using the appropriate animal husbandry and the typically diverse animals and crops of the Alps. Farming systems should be appropriate to the landscape and should preserve and promote a system of farming which suits local conditions and is environmentally compatible, taking into account the less favourable economic conditions. The parties are obliged to take all possible measures to create criteria to encourage extensive, ecologically sound and regionally relevant farming methods as well as the production of typical Alpine products that are specific to a locale, are unique, whose production process is ecologically sound. These should be protected and given a high value. The parties are agreed that regionally appropriate farming as a source of income as well as the landscape and cultural uniqueness are formative elements which present an important part of mountain farming. Thus farming with traditional livestock, with characteristic diversity and typical products is ecologically compatible and is to be encouraged. Additionally, education, training and consultancy in the agricultural and related areas should take environmental issues into account.

### Marketing tradition:

Traditional farming methods and production of typical Alpine products should be encouraged. Information about the importance of traditional Alpine agriculture should be disseminated. This information should be available to the general public through the media. This information is to be made available both within and outside the Alpine region in order to raise public awareness and interest in Alpine products.



Alpine Apple Diversity. Photo: Béla Bartha

## The Alpine-Delphi

The Delphi method of research was developed by the Rand Corporation in the 1950s-1960s to gather expert predictions about the impact of technology on warfare. This is far away from the objectives of the project Continuous Monitoring of Alpine Agrobiodiversity. However, Delphi has since been used successfully in many differing fields, from war through business to educational policy. Although Delphi is not designed specifically with such a project in mind, the attempt has been made to redesign Delphi in such a way that it provides usable results and can also be repeated on a biannual basis.

Generally, Delphi research projects work towards consensus building. The goal of this stage of the project was to achieve a consensus about the state of the Alpine region and its agrobiodiversity. From the initial “self-rating” questionnaire, where participants were specifically asked about their expertise, the research was constantly broadened to end with this report, both a broad picture of Alpine agrobiodiversity and also a challenge to increase cooperation and collaboration. It also encourages the setting of common goals for agrobiodiversity conservation in the Alpine region.

This report, combined with a short questionnaire, made up the third and final round of the current Delphi study. As the participants read through the report, it was meant to be treated as a mirror that reflects opinion from all over the Alpine region. As with all mirrors, sometimes the reflection is not pleasant or comes as a surprise. The purpose of the third round was to identify any distortions of fact which could occur by synthesising results of surveys. It was also a tool to encourage feedback and discussion in order to produce a final report that properly reflects the opinions of the participants in the project.

### Facts:

After weeks of searching through the databases of the Monitoring Institute and also on the Internet for the “right type” of person to take part, 58 individuals were sent the initial email inviting them to take part in the study. With this email they also received the “Self-Rating” form. This meant that they could tell us where their expertise lay. This was for two reasons. Firstly, so that the first questionnaire could be tailored to their knowledge. Secondly, so that no available knowledge was missed.

The “right type” fulfilled the following criteria:

- experience in the field of agrobiodiversity conservation,
- knowledge of Alpine agrobiodiversity conservation,
- employment (including on a voluntary basis) as an “expert” in this field.

Additionally, due to the fact that the questionnaires were purely in electronic form, access to the internet and an email address were also essential.

34 from the 58 invited agreed to take part. These 34 represented the 7 Alpine countries with a good balance between expertise in plants and animals. Switzerland was slightly over-represented, France and Italy rather under-represented in the sample.

Only 24 participants filled in first round. This was partly due to the fact that the email system “failed”. Often the emails with the passwords in did not get past a spam filter. This was especially the case with participants from the larger institutions. In some cases it was possible to deal with this problem. Other participants, on seeing the questionnaire, felt they were not the right person to answer it and contacted the Monitoring Institute to inform us of this decision. Some people simply did not react to the email, this is to be expected in any kind of research. Fortunately, the 10 people who were unable to participate, for the above reasons, represented areas which were covered by other participants. Although it would be ideal to have had more than one view from each area, there were relatively few “holes” left where information was lacking.

18 participants filled in the second round. As in the first round some emails didn't get through. Other participants just dropped out with no message, even though they were asked to inform the Monitoring Institute should they wish to cease participating. It is possible that some participants were just too busy at that moment, that it was put on the "to do" pile and is still there now. It is also possible that some people do not like the idea of anonymity, which is essential for Delphi. Without agreeing that the contributions can be quoted in this final report anonymously, it is not possible to participate in the project. Another factor could be that this type of research is not typical in the field of agrobiodiversity, mostly experts are asked "how many of what?", a more social-science-based type of research is possibly unusual, not understood and not taken seriously.

Technical problems were surely also a factor, slow internet connections, time outs, spam filters all conspired against participants' chances of taking part. And one technical problem affected the results, only 6 answers to the last question of the second round were saved for the analysis. This programming problem was noticed quickly, but not soon enough to save all the answers given.

As with all new techniques, much was experienced and learnt through the course of the three rounds of Alpine-Delphi. The technical problems should not occur again. The purely human problems are not so easy to conquer but there is hope that, as participants get used to a markedly different type of research and its use is proved, those participants who are currently still sceptics will eventually feel able to take part.



Klauser, Hans Peter  
Wildheuer, 1943 <http://www.fotostiftung.ch>

## Questionnaire 1:

Questionnaire 1 was preceded by the completion of a short “self-rating” form (see Annex 1.i). This allowed for a profile of each participant to be created within the database at the Monitoring Institute.

### Example profile:

Organisation  
 Person                      Example  
 Strasse  
 Alpenland                     

Alpenmonitoringsprache     deutsch     englisch     französisch  
     italienisch     slovenisch

Tierarten:

Bienen	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Büffel	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Esel	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Geflügel	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Hase	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Hund	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Pferd	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Rind	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input checked="" type="checkbox"/> CH	<input type="checkbox"/> SI
Schaf	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Schwein	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Ziege	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI

Pflanzenkategorien:

Ackerbau	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input checked="" type="checkbox"/> CH	<input type="checkbox"/> SI
Kartoffeln	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Gemuese	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Kraeuter	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Wein	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI
Fruechte & Beeren	<input type="checkbox"/> D	<input type="checkbox"/> F	<input type="checkbox"/> I	<input type="checkbox"/> FL	<input type="checkbox"/> A	<input type="checkbox"/> CH	<input type="checkbox"/> SI

This profile made it possible to create individually tailored questionnaires. This helped to make a long questionnaire shorter and thus meant that it was less daunting for the participants. The full questionnaire tailored to the Example above, can be found in Annex I.ii.

The first Questionnaire (Round 1) was seen as testing the ground. What issues exist, what is important to each participant, where are they outspoken or where do they contradict each other, where are the areas of agreement and disagreement?

Before the results of Round 1 were analysed, it was impossible to anticipate the content of Round 2, as this was to be totally based on the results of Round 1.

Round 1 questions were asked on the following subjects:

Animals:

- Breed Organisations and organisations running herdbooks
- Stock Numbers
- Marketing of Products from the Alpine Region
- Cultural Aspects and Tourism
- Financial Support
- Need for Action
- General Situation

Plants:

- Active Organisations
- Cultivated Area
- Conservation
- Products
- State-level Support
- Need for Action
- General Situation

Each theme had both specific questions to answer and space to freely add comment. From these comments, a series of statements used in the second round questionnaires were created.

For example, the comments:

- “Need for action: Study of biodiversity as a living heritage through the botanical and zoological aspects along with the study of cultural, historical and literary resources.”
- “The government at national and at local level claims that biodiversity including agrobiodiversity is a priority, however it is very difficult to find a researcher who is able to research into local breeds.”
- “There is no coordinated database. Only a handful of data collected in the regions but no national overview or compilation of results. The knowledge of old varieties is deficient. Quality assurance during the identification is necessary“

led to a statement about the need for financial support for the work of experts: “More financial support is needed to pay for inventories, databases and expert/scientific level research”, as well as being an underlying theme. The aim of this underlying theme was to identify the problems facing researchers and conservationists working in the field of Agrobiodiversity along with an identification of the goals of conservation work.

Unfortunately, there were fewer comments made in round 1 than would be ideal. Delphi lives in the discussion, the ticked boxes just provide a basis to work with. Ideally every answer would be coupled with a comment. To some extent the questionnaire was an attempt to “force” comments, to phrase questions in such a way that meant a serious answer would have to include a comment. However, our participants often just made comments such as: “Comment: the questions should be breed-specific not species-specific.” This is a shame, as an added comment that was breed specific would certainly be of far more use to the analysis than a criticism of the research methodology.

Another identified problem is that many experts, when answering questions directly asking for their own opinion, referred us on to official statistics and websites. As we had already identified in 2005 that these statistics were not reliable, it was frustrating to be just referred back to them.

However, there were some valuable comments made and also some up to date statistics sent to the Monitoring Institute. From these valuable comments and the answered questions of Round 1, a picture of the Alpine Region started to take shape. Round two has added to this shape and both rounds feed into the recommendations of this report.

Four main themes were identified during the analysis of the first round:

- The task and general situation of experts.
- Public awareness, tourism and consumers
- Subsidies and other financial support
- Farming and its environment

The last section of the questionnaire concerned “actors” and the awakening of interest in the agrobiodiversity in the Alps. This element relates to the “Marketing Tradition” section of the Mountain Agriculture Protocol of the Alpine Convention (see above).

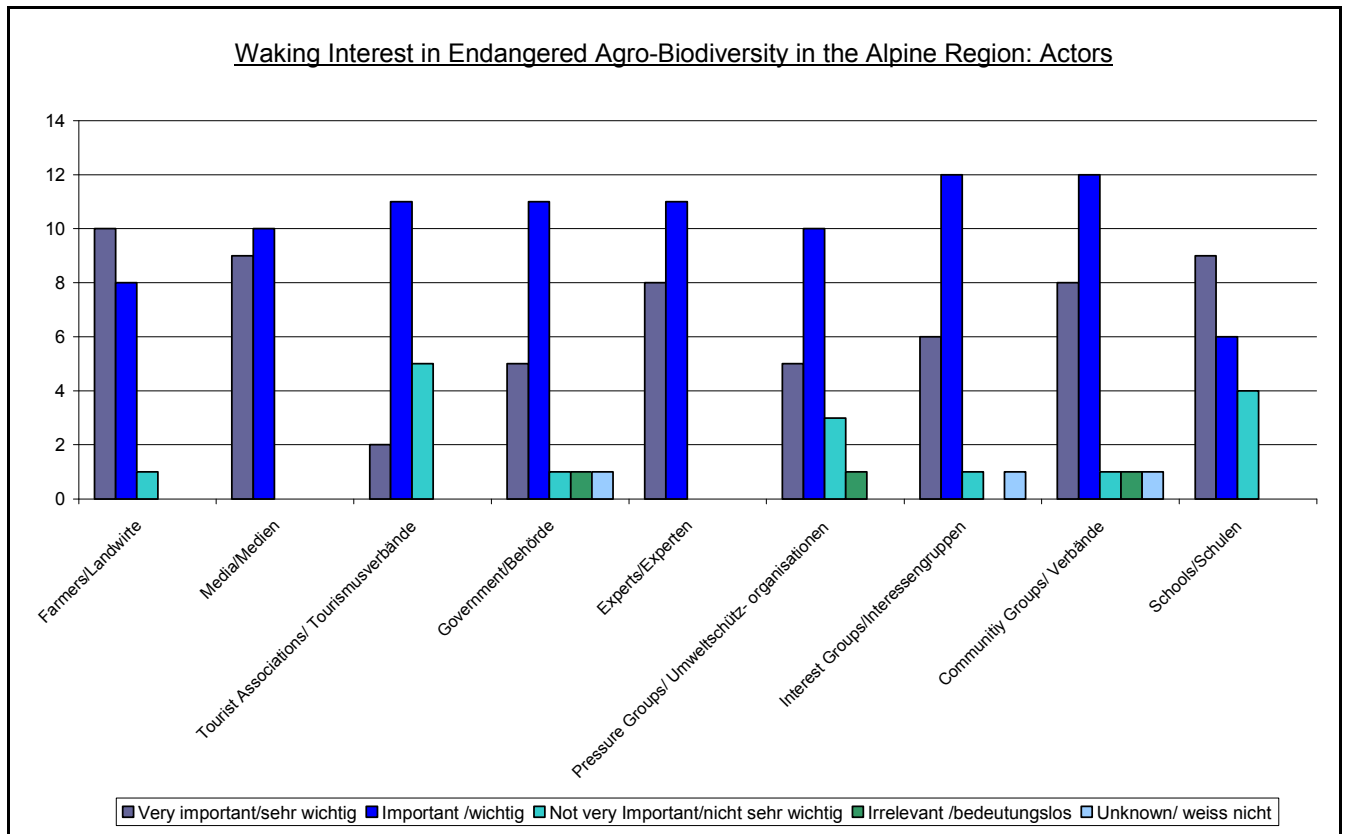
**Please mark those actors you see as having an important role in waking interest in endangered domestic breeds and species in the Alpine region:**

	Very important/sehr wichtig	Important /wichtig	Not very Important/nicht sehr wichtig	Irrelevant /bedeutungslos	Unknown/ weiss nicht
Farmers/Landwirte	10	8	1		
Media/Medien	9	10			
Tourist Associations/ Tourismusverbände	2	11	5		
Government/Behörde	5	11	1	1	1
Experts/Experten	8	11			
Pressure Groups/ Umweltschütz- organisationen	5	10	3	1	
Interest Groups/Interessengruppen	6	12	1		1
Community Groups/ Verbände	8	12	1	1	1
Schools/Schulen	9	6	4		

The numbers above show how many of the participants ticked each box.



From this it can be seen that the participants generally agree on the importance of various actors:



### Data Analysis:

In the case of Delphi research methodology, although some numerical data exists, much of the data is qualitative. This raises the question of “how does one analyse the data without colouring the results with one’s own opinion?”

The principle of “Grounded Theory” [GT], developed by Glaser & Strauss, is a method of building theory through an ongoing comparison of data. This type of data analysis is used when the data to be analysed is qualitative or, as in this case hybrid data i.e. a mixture of both quantitative and qualitative. GT was developed to provide a scientifically viable method of dealing with qualitative data in order to provide trustworthy results that can be used in, for example, public policy development. Thus GT is distanced from other qualitative methodology, which generally uses ethnographic research and analysis methodology.

Following the principles of GT, each comment given in the first questionnaire was coded according to keywords or categories. Thus all comments on the theme of “marketing in relation to consumer awareness” were given the number 1. Comments that contained two keywords or themes were numbered according to both. The comments were then sorted according to number and compared with the other results of the questions. Although there is expensive software developed to do this, Excel is also a perfectly sufficient piece of software, though slightly cumbersome. Thus it can be seen from the results that, for example, in the case of Fruit and Berries there are products already on the market and there are further products planned. When this is added to the coded comments, it can also be seen that the participants feel that consumers are interested in specialities, in “gourmet” food and that this interest could

be built upon to create a bigger market for products of Alpine Agrobiodiversity. This is an example of a “theory” being built. In order to test and extend this theory, the theme of “Public Awareness, Tourism and Consumers” was brought into the second round.

An important feature of successful analysis of hybrid data is to make use of “expert panels”. The researcher undertaking the data analysis can often become swamped with data and thus find “logical connections” and code results in ways that make sense to no one. Trends and categories are developed but need to be double checked. For this piece of research, two “expert panels” were used. Firstly, the team of the Monitoring Institute: they were asked to check all the comments and to carefully check the phrasing of the statements used in the second round. The second “expert panel” was, of course, the panel of participants, who were able to reflect on the results as part of the second round.

Both expert panels are made use of again in the third round.



Alpabfahrt, 2001 [www.lid.ch](http://www.lid.ch)

## Questionnaire 2:

### Design

An important factor when designing questionnaire 2 was to find a way around the “no comment” problem of questionnaire 1, whilst still reflecting on the comments made in round 1 and remaining in the spirit of Delphi. There was a danger that the project would turn into a “survey in 3 stages” and that it would become a meaningless opinion poll of agrobiodiversity experts. The idea of Delphi is to question and discuss with experts their opinion of the current state and their prediction/vision of the future. It was intended to discover what is achievable for the future and what is desirable.

Also important (relating to the question about “actors” in round 1) was to find out where weight should be given in relation to awareness raising. In questionnaire 1 a question was asked about which “actors” play the most important role in waking interest in the agrobiodiversity in the Alps. From the results it was not only clear that the actors listed were seen as important, from the comments to this section it was also clear that consumers and gastronomy are also key “actors”. Thus, to a certain extent, awareness-raising can be seen in as lying in two key areas, with the producers and with the consumers. This raises another question: do we need the experts at all? Or can conservation be achieved through a partnership of consumer and producer by promoting the market for products of Alpine Agrobiodiversity? One of the goals of round 2 was to define the role and effectiveness of experts.

It was decided that the easiest way around the no-comment problem would be to take the results and comments of the first round and create statements. The experts were then asked to rank these statements with

- “I don’t know”
- “strongly disagree”
- “disagree”
- “agree”
- “strongly agree”

At the end of the Round 2 questionnaire, there was a space for further comments, should anyone wish to make use of it. As in Round 1, this opportunity was hardly used. However, also as in Round 1, those comments that were made were very valuable.

### Results

The results of a survey based on the Likert scale<sup>iv</sup> are ranked or ordinal. This factor, together with the need to take into account the area of expertise of the participant, means that standard numerical analysis of the results was inappropriate. Using the Mean and Standard Deviation was a good guide in the analysis. However, as with the first round most of the analysis was based on qualitative methods. It was necessary to compare results on all levels. This was achieved by collating the results for all questionnaires, by collating plants and animals separately (see Annex IV), by creating participant profiles and by creating country profiles (see Annex V). Due to this methodology, there are no neat charts and graphs complete with clear answers to present in this report, rather there is a mass of data and notes, which is far too vast to be fully presented here. From this mass of data and notes the following Trends, Themes, Successes and Areas in Need of Development could be identified:

---

<sup>iv</sup> The standard survey response scale, respondents are asked to rank statements in the manner described above. The scale was developed by American educator and organisational psychologist Rensis Likert, hence the name “Likert Scale”.

## Trends

### Consumer Behaviour and Tourism

*Participant Comment: “There is a problem with production and demand. To promote old varieties in restaurants means there must be a guaranteed level of production. However, farmers are reluctant to produce when there is no guaranteed market.”*

The opinion of the participants shows that consumers are interested in buying the products of traditional Alpine agrobiodiversity both in the supermarket and in restaurants.

- There is a definite trend towards gourmet food, particularly well known through international organisations like Slow Food<sup>v</sup> and national/regional organisations like Culinarium<sup>vi</sup> in Switzerland.
- This trend in consumer behaviour should be built upon.
- This could be done by means of a label for the whole Alpine Region, which would make products made with traditional animals and plants recognisable to consumers. The participants seem to agree that a label would be a help towards conservation measures.
- Another approach would be to promote traditional agrobiodiversity to tourists. Tourist organisations were considered important in Round 1 and in Round 2 the consensus is that tourist organisations could be encouraged to promote Alpine agrobiodiversity.
- Places such as zoos and open farms can contribute to public awareness and to *in situ* conservation by having traditional animals and plants on display. Through the use of the internet, places showing traditional animals and plants can be promoted<sup>vii</sup>.

All these factors not only involve consumers and tourists, they involve producers, sellers and promoters. As the quoted comment (above) suggests, demand from consumers is not going to be enough, supply has to be adequate and the quality must be high. Consumers are used to buying standardised modern products, if they are to buy products that are not quite as perfect in appearance, it is essential that they are fresh and good tasting.

- The participants with expertise in plant genetic resources felt that it was not difficult to provide goods to this standard.
- However, on the side of animal genetic resources, opinion was split exactly half/half.

Those who agreed with the statement “There is a problem to meet the quality standards expected by modern consumers with the products of traditional Alpine [animal] agrobiodiversity.” represented the Alpine Regions of Austria, Switzerland, Slovenia. This means that they agree, it is difficult to provide products from traditional animal breeds of a quality high enough to meet the requirements of the modern consumer. Those that disagreed therefore said that the quality standards could be met, they came from Austria, Germany and France. There are conclusions that can be jumped to about the quality standards of French and German consumers or the production standards of the Swiss and Slovenians but with so little evidence to base such a conclusion on, none will be made here. It is, however, a possible area for further research.

---

<sup>v</sup> [www.slowfood.com](http://www.slowfood.com)

<sup>vi</sup> [www.culinarium.com](http://www.culinarium.com)

<sup>vii</sup> For example [www.arca-net.info](http://www.arca-net.info)

## Farming

*Participant Comment: “On average, farmers who keep rare breeds or grow old varieties of cultivated plants, are from an older generation. Young people are generally not interested in farming. Those who are interested in farming are not interested in local breeds and seeds and traditional agro-eco-systems!”*

The majority of participants would disagree, in part, with the above statement. Young people are interested in farming, maybe less so in Italy and Slovenia. Farmers are also generally interested in traditional animals and plants but may not know what subsidies are available for them, should they decide to keep a rare breed or plant an old variety.

It was agreed that agricultural schools should teach local and extensive methods of farming. This would mean that, in reference to the above comment, younger people who are interested in farming would have a chance to learn about regionally specific methods and crops/livestock. Also, subsidies aimed specifically at promoting the keeping and planting of traditional breeds and crops would show a clear policy commitment from national governments and may go some way towards taming the swing towards internationally standardised agriculture.

The influx of “exotic” breeds and varieties is also a cause for concern. These “exotics” can be seen as two types, firstly the high yield crossbreeds and hybrids needed for intensive farming and secondly, those animals or plants that don’t traditionally fit in to the Alpine landscape. The drive towards intensive farming reflects the policies of national and international governing structures and the economic reality for most rural areas. The Alpine region is not prime farming land, should it be expected to keep up or would it be possible to use different policy in this area? Keeping breeds that are “non-traditional” such as camels or growing plants such as kiwi fruit is generally undertaken by hobby farmers or places that aim to encourage tourists. Whilst camels and kiwi fruits are undoubtedly valuable in their own right, it must be questioned if hobby farmers, having little or no economic pressure, could make a contribution to conservation instead of keeping exotics. The traditional Alpine agrobiodiversity provides variety and challenge enough and the participants in Round 2 clearly feel that encouraging hobby farmers to plant and keep traditional varieties and breeds would help *in situ* conservation.

As in any other business, farmers need to know that the products they produce can be sold. The statement “Farmers will only keep/plant rare breeds or traditional varieties if the products are marketable“, was the last statement in the questionnaire. Due to the technical problem already mentioned, only 6 answers could be recorded. Two participants strongly agreed, three agreed and one disagreed.

## Public Awareness and Attitudes

*Participant Comment: “The diversity of Alpine cultivated plants can only be conserved in situ within a small framework, however, this conservation is important. It is important because it can be used to raise public awareness of the importance of agro-biodiversity and its conservation. The public pay, through taxes, for much of the conservation in genebanks. It is important that the taxpayer knows why this money needs to be spent.”*

Conservation of Alpine agrobiodiversity is about far more than eating yellow carrots and blue potatoes. And it is also about more than replacing black and white cows with prettier ones that look nice on a postcard.

As has already been shown, there is a general consumer awareness of agrobiodiversity. It is important that a market is created for these plants and animals. Is it also important that the general public understands why conservation is necessary? The comment (above) suggests that it is.

Although many consumers are aware that there is a wide range of products available, the “The general public is not aware of agrobiodiversity.” This statement was agreed with by the majority of participants, with only two in disagreement.

Likewise the statement “The general public is more aware of the wildlife of the Alps than the traditional agrobiodiversity“ was also accepted, with only one “disagree” and two “don’t know”s. There was also agreement that “In order for conservation to be successful, *in situ* conservation must be encouraged.“ and “Hobby farmers and gardeners should be encouraged to take part in conservation of traditional Alpine agrobiodiversity.” Not only are the general public taxpayers, paying for conservation work that they don’t understand, they could also, in the roles of consumers, tourists, gardeners and hobby farmers, play an important role in the *in situ* conservation.

## Themes

### Concerning Experts

The participants in this project come from the seven Alpine countries and can be seen as experts in the field of agrobiodiversity conservation. They are a range of government employees, academics, researchers, employees of active private institutions and individuals familiar with and trusted by the various institutions. All have in common the task and desire to promote the conservation of agrobiodiversity. The methods used in this quest differ. Some promote *in situ* conservation; indeed have their own herds, flocks, orchards and gardens. Others run genebanks and databases and spend their time classifying and characterising. All take an interest in agricultural policy and how it affects their work.

Under the heading “General Situation” these experts were asked questions about the effectiveness of their own work.

The first questions asked how well plants and animals were monitored and documented in the expert’s region. Animals are well monitored and documented in all areas, only in Germany is there a voice of disagreement. Plants, on the other hand, are seen as not well monitored. In Austria, Germany and Slovenia the participants agree with each other: more could be done to monitor and document traditional cultivated plants. Switzerland presents an interesting case in that the opinion is split and it is deduced that individual species are indeed well monitored and documented, however the overall monitoring and documentation is not complete.

Regarding coordination, cooperation and goals of and between expert institutions: For most of those working for the conservation of traditional cultivated plants there appears to be no clear coordination, cooperation and goal setting. For those working for the conservation of traditional livestock however, it would seem the cooperation between experts is not excellent and goals are only clearly defined in Austria, Italy and Slovenia. Switzerland, Germany and France answer that goals are not clearly defined. The statement “Often it seems that work on the expert-level of conservation is uncoordinated.“ was agreed with, the work is seemingly not coordinated.

However, this coordination and cooperation would be vital in the case of overseeing breeding programmes to ensure that cross-breeding and in-breeding is minimised. This overseeing task, it was agreed by all animal experts, is extremely important. Also agreed is that regulations about the free movement of animals prevents successful conservation work.

Two areas that all participants agree on are: that there is enough information available to make conservation work. Secondly, all agree that conservation work can only be successful in the Alpine Region if it is overseen by experts. Although this answer could be expected, after all agreeing with the statement “Conservation of traditional Alpine agrobiodiversity requires expert-

level guidance in order to be successful.“ justifies their own work, it shows that it takes more than just producers and consumers to conserve agrobiodiversity. Both producers and consumers are key actors in conservation but they cannot conserve everything, only those products which can be produced *en masse* and fit in with consumer demands can be successfully conserved this way. For everything that falls outside of these categories, another solution must be found.

### **Subsidies and Financial Support**

The results of the section concerning subsidies and financial support for conservation have been split up into countries. These results reflect the answer given by the experts and are not necessarily true to reality, see the last point in this section:

- ⇒ **Austria:** There are subsidies for autochthonous breeds. There are few subsidies for traditional cultivated plants. Farmers need to know more about these subsidies.
- ⇒ **Switzerland:** There are few subsidies available for traditional cultivated plants. There are no subsidies for autochthonous breeds. Subsidies for plants should go directly to the farmers. There should be subsidies for extensive farming animals.
- ⇒ **Germany:** There are few subsidies available for traditional cultivated plants. There are subsidies for autochthonous breeds. Extensive farming should be encouraged through subsidies.
- ⇒ **France:** It is not clear if there are subsidies for traditional cultivated plants and autochthonous breeds. There should be more support for extensive farming.
- ⇒ **Liechtenstein:** Subsidies are available for traditional cultivated plants. Subsidies should not only be paid directly to farmers. There is no need for extra money for experts.
- ⇒ **Italy:** there are no subsidies for traditional cultivated plants and autochthonous breeds. Subsidies should go directly to farmers. There should be more financial support for experts. Extensive farming should be encouraged and supported. Farmers need more information about what support is available to them, they need more financial support. Without this, they will not be interested in planting/keeping traditional cultivated plants and autochthonous breeds.
- ⇒ **Slovenia:** There are few subsidies available for traditional cultivated plants. There are subsidies for autochthonous breeds. Farmers are interested in planting/keeping traditional cultivated plants and autochthonous breeds. Subsidies for autochthonous breeds should go direct to the farmers, the level of subsidy should depend on the breed kept. There should be more support for extensive farming.
- ⇒ **General overview:**
  - Breed Organisations running Herdbooks should get financial support for their work.
  - Subsidies should be related to the breed kept, keepers of rare breeds should be given more support
  - Expert institutions should receive financial support to keep inventories, databases and to undertake research
  - Farmers are interested in planting/keeping traditional cultivated plants and autochthonous breeds.
  - Financial support for *in situ* (on farm) conservation is important.
  - The participants did not seem to have any clear knowledge about subsidies.



## In Situ Conservation

The subject of *in situ* conservation is treated separately here due to the fact that there are a few controversial voices. Although the majority of the participants speak clearly for the need for *in situ* conservation *per se*, as well as the need for *in situ* conservation to be financially supported and for farmers to take an active part in this conservation, there are 3-4 participants who do not agree. This is made clear by the fact that they have disagreed with all statements suggesting that *in situ* conservation is necessary or should be supported.

By using the Participant Profiles and the results of Round 1, it is possible to see that one of the participants concerned feels strongly that the market for products should be strengthened rather than subsidies paid out. Two are working in areas where conservation measures are very successful, therefore it is possible to believe that they are answering purely for their own work. And the last participant seems to have answered in complete contradiction to the answers in Round 1. In Round 1 the participant comments that farmers should be encouraged, through subsidies, to keep traditional livestock.

In-situ and ex-situ conservation are complementary conservation methods. The use of traditional breeds and varieties in-situ/on farm allows for an on-going process of selection, evolution and adaptation. In addition, *in situ* conservation provides a back up for genebanks, a natural laboratory for researchers and, most importantly for public awareness, it provides a glimpse of the richness of agrobiodiversity.

## Successes

Success can be seen in the following areas:

- That the stock of traditional livestock breeds is well monitored and documented.
- That the existing institutes in the Alpine Region feel able to secure the conservation of traditional livestock breeds and cultivated plants.
- That there is enough information available to experts to ensure successful conservation.
- That, in the area of cultivated plants, the quality of product produced meets the high quality criteria of the modern consumer.
- That in nearly all areas, young people are taking an interest in rural issues again.

## Areas in Need of Development

“Failure” is too strong a word to use here, as some of the barriers preventing adequate conservation are not the result of the action or lack of action of the experts themselves, rather they are part of an external policy or are market based. However, they are problems which cannot be ignored.

First, there are the external problems:

- The enormous amount of rules and regulations about seed saving and animal movement.
- The lack of subsidies in some important areas.

The second set of problems is practical:

- The quality of products made from traditional alpine livestock.
- The monitoring and documentation of plant genetic resources.
- The lack of awareness of farmers and the public.

The third set of problems concerns operations at a strategic level:

- The lack of cooperation between institutions.
- The lack of goals in the conservation work.
- The lack of coordination between institutions.

## Questionnaire 3

### Design

In Questionnaire 3, participants were invited to give their comments and opinions of the working draft of this report. The draft report was made available to them within the password protected online questionnaire. A short version of the report was also made available. This short report contained the results of Questionnaire 2 and the conclusions of the report. The questions asked in this questionnaire (Annex VI) were based on the report and asked the participants if they were in agreement with the results and conclusions. This round of the Alpine-Delphi was intended as a means of making sure that the participants who had taken part in the first two questionnaires really were in agreement with the results presented.

### Results

Nine participants filled in the third questionnaire. Although the number of participants could have been greater, the quality of the answers given was high. Within this round, there were more comments made. France is the only country not represented in this round, because no participants answered from France.

Because of the low number of participants, it is not possible to come to a true 'conclusion'. However, the results are still interesting and certainly show a general trend.

Below, the numerical results are presented first. These are followed by the respondents' comments given within this questionnaire.

#### Do you feel that the following sections of the report reflect your opinion?

		Yes	No
1	Consumer Behaviour and Tourism	8	
2	Farming	5	3
3	Public Awareness and Attitudes	8	
4	Concerning Experts	7	
5	Subsidies and Financial Support	7	1
6	<i>In Situ</i> Conservation	8	
7	Sucesses	8	
8	Areas in Need of Development	7	

As can be seen, not all nine participants answered these questions. This is probably due to the fact that the report was only available in English (see the section "Identified Methodological Problems" below). However, the eight answers show that there is a basic trend in agreement/disagreement with the results of Questionnaire 2.

Do you agree with the following conclusions made by the report?

		Yes	No
1	Conservation of agrobiodiversity in the Alps should be approached as a partnership between producers/consumers/experts	9	
2	The lack of cohesion in the conservation efforts leads to inefficiency, a lack of transparency and a lack of usable data.	9	
3	Many of the people working in the field of conservation of Alpine agrobiodiversity do not have knowledge of the whole Alpine region	8	1
4	Inter-institutional coordination, cooperation and collaboration are lacking.	7	2

Questions 1 and 2 have been answered positively. Question 3 and 4 will be discussed below in the Summary.

Please mark as many answers as fit your opinion on the subjects below

1	Internationally agreed guidelines for data collection are
2	Inter-institutional goal setting is
3	Improvement in the monitoring of the State of plant genetic resources in the Alps is
4	Improvement in the knowledge of subsidies is
5	State financial support for research in the full range of Pressure-State-Response is
6	A label for products made from Alpine agrobiodiversity is
7	The promotion of Alpine agrobiodiversity to tourists is

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
1	4			6			
2	3	1		6			
3				7			
4	1		1	8			
5	1			8	1		
6	1	2	2	3			1
7	3			8			

The above questions show a variety of answers. It was possible to choose more than one answer to each question in this section. This opportunity was taken by one participant, this is why there are more than nine answers to some questions.

Please indicate how important you think the following are:

1	Research into how products of Alpine livestock can achieve better quality
2	Market research into quality standards of consumers
3	Research into the curriculum of agricultural schools in the Alpine region
4	Inclusion of data from hobby farmers and gardeners into official statistics
5	An international meeting to improve cooperation and to set goals
6	An comprehensive information source to explain what financial support is available
7	Lobbying states to fulfil their obligations under the Convention on Biological Diversity and the Alpine Convention

	Very important	Important	Slightly important	Not important
1	1	7	1	
2	2	5	1	1
3	1	3	4	
4	2	2	1	1
5	4	6		
6	1	6	2	
7	4	4		

Again in this section there is a basic agreement between participants. However, there are two answers of 'not important' and many comments were made

## Comments

In order to gain an overview of the comments made, abridged versions of the comments are listed below. In order to understand them better they have been grouped into themes.

### Marketing, Tourism, Consumers and Quality:

- Problems with the quality of animal based products refer to the high fat content of pork from traditional breeds.
- Improving the quality of the products of animal genetic resources in the Alps can be done, but only if the breed characteristics are protected.
- Information about the qualities and niche products of animal genetic resources in the Alps is as important as research into how product quality can be improved.
- Market research into quality standards of consumers: consumers can be influenced. The question is also asked: what quality? Do the consumers' nutritional, environmental, hygiene etc standards need to be measured?
- There is often only seasonal availability of products. The market would be guaranteed if there was more stability.
- Consumers can be influenced in their decision making and carry the future of agrobiodiversity.
- Partners for a 'conservation partnership' are not only producers/consumers/experts but also regional development, tourism and politics/public administration.
- Agrobiodiversity is, increasingly, being promoted to tourists.

### Labelling:

- A label could have limited success.
- There are too many labels already, people find it difficult to know which is which.
- To create a new label would be complex and it would be expensive to promote.
- A long comment refers to problems of labelling: Who certifies products that are sold under an Alpine label and what exactly would this label guarantee?
- Emphasis on the local character of a product is generally more important than a label. Consumers do not always understand what a label means. When a cheese from Slovenia and a grain product from France have the same label, the connection between them might not be understood.

### Subsidies:

- A comprehensive information source to explain what support is available is the responsibility of the individual countries.
- Reaching each farmer with the information is a problem.
- There is a problem in that advisors do not notice that subsidies are available or they do not think that *in situ* conservation is important enough to promote.
- Although subsidies exist, they do not exist for all varieties and breeds. The exact criteria for the availability of subsidies are unclear.
- Although subsidies are available for conservation, there are not always special subsidies available for farmers wishing to use traditional Alpine agrobiodiversity commercially.

### Setting Goals and Definitions:

- A long-term goal should be to place as many breeds and varieties as possible into the local agricultural product structure.
- Inter-institutional goal setting often fails because the goals cannot be harmonised. This is due to the fact that hardly any institutions are only concerned with the conservation of agrobiodiversity.
- A clear statement of the goals of conservation is required, with terms defined e.g. the difference between 'local population' and 'local breed' should be clearly defined. This will aid conservation work.
- If something is going to be classified as part of agrobiodiversity it must, by definition, be kept and used *in situ*.
- Hardly any state institutions concentrate solely on agrobiodiversity and that this can lead to discrepancies in goal-setting.
- The standard for "well monitored and documented" is questioned, what does this mean? And which plants/animals are meant?

### Crossborder Cooperation and Data Collection:

- There is no need for experts to have an overview of the whole Alpine region.
- Local conservation activity is important.
- More important than the overview of the whole area is the discussion and exchange of methodology.
- As was already seen in the first round, some Alpine countries do not have complete data about their conservation programme.
- The guidelines for data collection that already exist are either too basic or rely on long descriptions.
- The guidelines adopted by Bioversity ([www.bioversityinternational.org](http://www.bioversityinternational.org)) should be the basis of any future Alpine guidelines.
- There is a lack of trans-boundary cooperation.
- Cooperation is not too bad, but it could be developed further.

### Farming:

- Young farmers carry the future of agrobiodiversity.
- The inclusion of data from hobby farmers and gardeners into official statistics is hardly possible.
- However, some kind of monitoring of hobby farmers should be done as they can not only conserve things but also cause great damage.

### International Meeting of Experts:

- An international meeting should be arranged with attendance of the national and regional coordinators of all Alpine countries
- An international meeting would cost too much for the limited resources available.

### Agricultural Policy Making:

- The experts working in conservation of agrobiodiversity are not always included into the discussion of agricultural policy.

### General:

- There is too little money in the budget for State financial support for research into the full range of Pressure-State-Response issues.
- The questions are sometimes difficult to answer as they are very general
- Suggested splitting up of sectors within the questionnaire: domestic animals, fruit, cultivated plants.
- Terms within the questionnaires should be defined more clearly.

### To conclude:

The participants were in general agreement with the fact that consumers are showing an interest in the products of traditional Alpine agrobiodiversity. However, some important points were raised. A label to distinguish these products is not always seen as either necessary or a good idea. Before a label is used, there must be further research to find out if this idea would work. On the question of quality, it would seem that there are a few products that do not meet the modern expectations, for example, meat from old breeds of pigs tends to have a high fat content. It is questionable whether it is possible to change this without compromising the breed characteristics. A similar problem is the seasonal availability of products which does not fit to the modern expectation of standardised availability. However, the consumer can be influenced towards accepting some of the idiosyncrasies of traditional agrobiodiversity.

A general theme emerges, which shows that agrobiodiversity does not have a firm place within administrative structures or on the policy agenda. This is probably why, when States sign and ratify agreements such as the Alpine Convention, there is a large gap between 'intention' and 'implementation'. This gap can be seen in the fact that conservation of agrobiodiversity is often managed under the wing of a related State department, rather than as an entity in itself and that money and information are limited. This leads to difficulties in cooperation, meeting, goal-setting, exchange of information and data. Agrobiodiversity experts are not included into the policy decision-making process, which means that conservation of agrobiodiversity is hardly even on the policy agenda. In order to ensure that the financial and political means are in place to undertake successful conservation of the traditional Alpine agrobiodiversity, some action needs to be taken to place the issue firmly onto the political agenda.

## Questionnaire 3a

Due to the fact that participation in this Alpine-Delphi project was not as high as expected and the additional fact that the questionnaires were conducted online using especially written software, which SAVE-Monitoring would like to use again in the future, Questionnaire 3a was constructed. This questionnaire was sent by post to all those people who had agreed to take part but had either not answered at all or had only answered on one or two rounds. In all 25 letters were sent. These letters included the following short questionnaire:

- I filled in each round, I don't know why you don't have my answers
- I tried to fill in each round but \_\_\_\_\_
- I only filled in round/s \_\_ because \_\_\_\_\_
- I did not receive any emails from your organisation
- I do not read my emails often, by the time I read your mails the deadline was over
- I was very busy and had no time to fill in the questionnaires
- I had problems understanding the questions in the language they were sent in. I would prefer questions in (please enter language) \_\_\_\_\_
- Other: \_\_\_\_\_

Participants were asked to fill in the above and to send or fax it back to the Monitoring Institute. The basic intent of this questionnaire was to find out if there had been any technical problems that could be improved on in future. The results were as follows:

In all, 12 replies were received.

2	I filled in each round, I don't know why you don't have my answers
	I tried to fill in each round but _____
	I only filled in round/s __ because _____
1	I did not receive any emails from your organisation
	I do not read my emails often, by the time I read your mails the deadline was over
8	I was very busy and had no time to fill in the questionnaires
	I had problems understanding the questions in the language they were sent in. I would prefer questions in (please enter language) _____
1	Other: _____

It would seem that there are no real technical problems. The results of the two participants who say that they filled in each round were investigated and it seems that they filled in the first two questionnaires but not the third, there are no records of them accessing the website after the second round. One participant did not receive any emails, this problem is also being investigated. The one participant who answered 'other' did not feel that their knowledge of the Alpine region was enough to answer the questions. That people are busy is understandable and hardly a crime. Questionnaire 3a was about technical problems and it is a relief to have confirmation that the online questionnaire functions as it should.



## Conclusions, Recommendations and Areas for Further Research

This report and the research that has fed into it offer a broad picture of Alpine agrobiodiversity. Its aims are to encourage cooperation, to draw attention to the need to set common goals, to encourage the definition of parameters of activity as well as the development of common institutional procedures and the refinement of methodology on all levels.

It seems clear, from the responses given, that the conservation of Alpine agrobiodiversity must extend from the farmers through to the consumers, with the experts acting as guides. Without this strategic 'whole-system' approach to conservation, all attempts to conserve Alpine agrobiodiversity *in vivo* are futile. Lack of coordination between actors can lead to duplication of work and organisations and institutions working with different objectives or even against each other. The lack of cohesion in the conservation efforts can lead to inefficiency, a lack of transparency and a lack of usable data. A good example of coordination work that makes conservation more effective is the Swiss Commission for the Conservation of Cultivated Plants (SKEK).

On the basis of this report presented on the three rounds of the Alpine-Delphi, it can be said that many experts, whilst clearly competent in their own field, lack an overarching knowledge and, thus, point of view of the whole field of agrobiodiversity in the Alps. Although one participant said that Alpine-wide knowledge was not required, it can be argued that, even though it is not necessary for every expert to have detailed knowledge of other regions, a broad understanding of conservation work in the entire Alpine region is necessary. Cooperation between experts encourages a process of social learning within which experts stand to gain further knowledge and understanding through collaboration with their peers. This process thus creates an epistemic community for the conservation of Alpine agrobiodiversity.

\*

Two factors that are identified as urgent are:

- a) Cooperation between experts
- b) Research into the whole field of agrobiodiversity: from farmer through to consumer.

These two points would aid the generally widened research strategy, discussed at the beginning of this report, to create indicators of Pressure-State-Response in the Alpine region. It will only be possible to build up an early warning system to alert conservationists to major changes in Alpine agrobiodiversity if a more exacting methodology can be found that covers the whole region and the whole sector using the principles of Pressure-State-Response.

Cooperation between institutions should include an internationally agreed set of guidelines for collecting data so that it is comparable. Within bio-geographical regions there should be closer international and inter-institutional collaboration to ensure that the State of conservation is documented.

In general, the recommendations on the theme "The task and general situation of experts" are:

- ⇒ There must be better cooperation between institutions including cross-border cooperation
- ⇒ Inter-institutional and international definition and goal setting is urgent
- ⇒ Monitoring and documentation of the State of agricultural genetic resources should be improved
- ⇒ Knowledge of subsidies should urgently be improved.

Subsidies relate to the sectoral agricultural and land-use policy of the eight Alpine states and the EU. Through studying the subsidy structure, it is possible to find out if conservation of Alpine agrobiodiversity is really considered desirable or necessary by policy makers and politicians.

The fact that the Protocol on Mountain Farming remains unratified by three of the Alpine states can be seen to show that there is not only a lack of commitment to it in those three countries but also in the neighbouring countries. A lack of commitment to mountain farming in general leads to a lack of commitment to the conservation of Alpine agrobiodiversity. An exact overview of the policies of the eight Alpine states, the subsidy structures and the commitment to the Alpine Convention is considered necessary. Additionally, lobbying is required to achieve complete ratification and implementation of the Protocol on Mountain Farming.

Also on the theme of “Subsidies and other financial support” it is clearly felt by the majority of the participants in the project that financial support to ensure conservation is not just required by the farmers. Money is needed by breed organisations to finance running herdbooks, researchers into Alpine Agrobiodiversity need more money to aid their research and the running of databases. Research into Pressure and Response, not just the State of agrobiodiversity should be supported.

On the theme of “Public Awareness, Tourism and Consumers” there are three main recommendations:

- ⇒ Investigations into creating a label that identifies products as made from autochthonous Alpine breeds and plants should be undertaken; this would also partly fulfil the obligations of the Protocol on Mountain Farming.
- ⇒ The traditional agro-eco-systems and traditional animals and plants of the Alps should be actively promoted to tourists; this too would also partly fulfil the obligations of the Protocol on Mountain Farming.
- ⇒ The question of meeting consumer quality standards with the products of traditional Alpine livestock breeds, whilst preserving their breed characteristics, should be further researched.

Under the theme of “Farming and its environment” there are two main recommendations:

- ⇒ Agricultural schools should be encouraged to teach traditional farming practise to agricultural students. The curriculum of agricultural schools in the Alpine states should be examined. This is also an opportunity to fulfil the Protocol on Mountain Farming.
- ⇒ Hobby farmers and gardeners should be encouraged to take their part in conserving Alpine agrobiodiversity. Possibilities to include data about their efforts into the relevant databases should be explored.

The Alpine-Delphi should be repeated bi-annually. It is to be hoped that this study can be used as a means to create a new policy direction for the conservation of agrobiodiversity in the Alps and that it becomes possible to create networks that can cross sectors, borders and cultures in order to generate effective cooperation and sharing of experience, data and methodology.

## Identified Methodological Problems

This first Alpine Delphi has been a rich source of experience. Not only has the Monitoring Institute written an online questionnaire programme, a new kind of questionnaire has been developed in an attempt to marry the work of natural sciences to the methodology of the social sciences. It comes as no surprise to discover that there are areas where there is room for further development within the methodology.

1. **Language Barriers** The Alpine region encompasses a number of languages and the participants in this research represented the German, French, Italian and Slovenian languages. Due to the fact that the majority of participants were German speaking, the survey was offered primarily in German. The remaining participants received the questionnaire in English. At first this appeared to be no problem to many of the participants but it did lead to some subtle problems. It is not possible to be 100% sure that all participants who received the questionnaire in English really understood all the questions and, if the comments given in answer were correctly understood during the analysis. Due to this, it is suggested that future rounds offer the questionnaires in all of the Alpine languages. The practicalities of this will mean that the possibility for 'free text' comment may have to be restricted, however, as the possibility to comment freely was not fully used this does not seem to present a major problem.
2. **Comments** As has been mentioned above, the opportunity to comment was hardly used. The idea of Delphi is to encourage discussion. However, this cannot be forced. As Appendix VII shows, many of the initial participants who then 'dropped out' of the project did so because of lack of time. In order to encourage more people to actually answer the questions and to make the process more 'user friendly' it is suggested that future rounds do not ask for as many comments but present a larger range of answer options, similar to the design of Questionnaire 3
3. **Problems of Contacting Participants** It is suggested that in future rounds participants should not only receive notification of a new questionnaire by email, they should also be contacted by some other means. These other means would be, ideally, defined by the participant so that it is certain to reach them. This strategy has the advantage of the research team knowing if there are any problems relatively early on in the process, rather than only finding out after the deadline.
4. **Problem of Generalisation** As has been commented by some participants, this form of research is very general and, therefore, does not provide satisfactory results for individual breeds or varieties. These leads to the question: are the combined answers, given by the participants, sufficiently robust to support the conclusions drawn from them?
5. **Selection of Participants** There have been areas identified for further research. The next round should, ideally, incorporate these areas. This may mean that some new participants need to be selected to ensure that these new areas are represented.
6. **Goal of the Project** The goal of this project was set out "a clear picture of how the agricultural genetic resources in the Alps look today and what awaits them in the future". This goal has been partly fulfilled, as can be read above in the Conclusion. However, any further research should take into account the above identified problems. By doing so, the goal of the project will be considerably nearer.

## Acknowledgements

The authors are very grateful for the contributions of all those who participated in the project. It has not been possible in the space available to make reference to every contribution made. It is hoped, however, that the report is a fair summary of the current concerns of the agrobiodiversity experts in the Alpine Region and gives a vision of a possible future policy.

All contributions were made anonymously and are used thus with the permission of the participants.

### Participants represented the following:

Alpinet Gheep  
Arbeitskreis Wald- und Steinschafe  
Bundesamt für Agrarbiologie (A)  
Bundesamt für Landwirtschaft (CH)  
Conservatoire Botanique National  
Euronatur  
European Cooperative Programme for Plant Genetic Resources  
(ECPGR)  
FiBL  
GEH  
Granalpin  
HBLFA Raumberg-Gumpenstein  
Institut de l'Elevage  
Kompetenzzentrum Obstbau-Bodensee  
Landesversuchsanstalt für Spezialkulturen (A)  
Landwirtschaftliches Zentrum SG  
Pro Specie Rara  
Rétropomme  
RARE  
Sadjarsko drustvo Tunjice  
SATIVA Rheinau GmbH  
SKEK  
University of Ljubljana  
University Padova  
Verein Hortus FL  
Verein Rheintaler Ribelmais  
WWF

## References

1. *Agricultural Genetic Resources in the Alps*, Monitoring Institute for Rare Breeds and Seeds in Europe, Bristol Stiftung, Haupt, 2003
2. *Discovery of Grounded Theory: Strategies for Qualitative Research*, Glaser & Strauss, Aldine Transaction, 1967
3. *Institutions for the Earth: Sources of Effective International Environmental Protection*, Haas P. M., Heohane R.O., Levy M. A., Cambridge, Mass., MIT Press, 1993
4. *Implementing the CBD in the Pan-European Region: Agricultural biological diversity*, A discussion paper prepared by The Netherlands in collaboration with IUCN - The World Conservation Union, 2000 <http://enrin.grida.no/biodiv/ru/riga/agri.htm>
5. *Multilingual Thesaurus on Land Tenure*, Food and Agriculture Organization of the United Nations, Rome, 2003  
<http://www.fao.org/DOCREP/005/X2038E/x2038e0b.htm>
6. *Landwirtschaftliche Genressourcen der Alpen: Übersicht, Initiativen und Handlungsbedarf*, Stiftung Pro Specie Rara, Bristol Schriftenreihe Band 4, 1995
7. "Socio-economic and gender sensitive indicators in the management of natural resources" Gender and Population Division, FAO Sustainable Development Department, Rome  
March 2003, [http://www.fao.org/sd/2003/PE09023a\\_en.htm](http://www.fao.org/sd/2003/PE09023a_en.htm)
8. *The Delphi Method: Techniques and Applications*, Harold A. Linstone and Murray Turoff, Editors, Digital Edition 2002.  
<http://www.is.njit.edu/pubs/delphibook/ch3b1.html>
9. The Convention on Biological Diversity homepage: <http://www.cbd.int>
10. International Commission for the Protection of the Alps/CIPRA homepage:  
<http://www.cipra.org>
11. Biodiversity Monitoring in Switzerland: [www.biodiversitymonitoring.ch](http://www.biodiversitymonitoring.ch) Overview of indicators: <http://www.biodiversitymonitoring.ch/english/daten/ueberblick.php>

## Annex I: Example Questionnaire/First Round

### i) Self-rating Questionnaire

*So that we can make sure that we have the right range of experts to answer our questions and so that we know which questions to ask you, it is necessary that you answer the following questions and return this form to us. Please return it by **\*\*/\*\* 2006***

**Where does your knowledge lie?**  
*Please marks all boxes that apply to you.*

Name: \*\*\*\*\*  
 Email address: \*\*\*\*\*@\*\*\*\*\*.ch

	Austrian Alps	French Alps	Italian Alps	Liechtens tein	German Alps	Slovenian Alps	Swiss Alps
Cattle							X
Horses							
Donkeys							
Sheep							
Goats							
Dogs							
Pigs							
Poultry							
Rabbits							
Bees							
Field Crops							X
Potatoes							
Vegetables							
Herbs							
Fruit							
Berries							
Vines							

Which if the above marked subjects do you feel you know **most** about?


For which of the above marked subjects do you feel you know **least** about?


ii) Individually Composed Questionnaire

**Address-Information**

Person, Organisation	*****
Address	*****
Animals	Cattle - CH
Plants	Field Crops - CH

**Endangered domestic breeds of animals in the Alpine region**

**1. Breed Organisations / Organisations running Herdbooks**

Are there any breed organisations/organisations running herdbooks for endangered domestic breeds?

	Yes, for all breeds	Yes, for most breeds	Yes, for a few breeds	No, no organisations	I don't know
Cattle					

Are there now more organisations or less organisations actively working for conservation of rare breeds compared to how many there were in 2000?

	More Organisations	No Change	Less Organisations	I don't know
Cattle				

What changes have occurred? In regard to which kind of organisations?

---



---

**2. Stock \***

According to your knowledge, how has the stock of rare animal breeds changed or developed since 2000?

Breed	Stock clearly increased	Stock slightly increased	Stock remained constant	Stock slightly less	Stock clearly less	I don't know
Cattle						

\* do you have relevant statistics? If so, please could you send them to us).

Comments, special cases, new discoveries of breed, other important incidences relevant to the Alpine region:

---



---

### 3. Marketing of Products from Alpine Region

Are there any products, certification (labels) or specialities made using endangered domestic breeds or are there any such products etc planned?

Breed	Product	Label	Speciality	Planned	I don't know
Cattle					

Comments:

---



---



---

### 4. Cultural and Tourism-related aspects

Are there any endangered animal breeds which are relevant to a national/regional tradition?

Breed	Traditionally extremely relevant	Traditionally slightly relevant	No traditional relevance	I don't know
Cattle				

and/or have a value as a tourist attraction?

Breed	Large attraction	Slight attraction	Nothing special	I don't know
Cattle				

Comments, explanation:

---



---

### 5. Financial Support

Are there any special State-level subsidies for the keeping of endangered domestic breeds?

	Yes, they are well subsidised	Some subsidies	No subsidies	I don't know
Cattle				

Comments, exceptions and specifications (where available: please send relevant documents):

---



---



---



## 6. Need for action

For which endangered domestic breeds do you think there is the greatest and most urgent need for action?

	Urgent action required	Some action required	no action required	I don't know
Cattle				

Comments/further explanations:

---



---



---

## 7. General Situation

What do you think the greatest problems are for endangered domestic breeds? Please mark all factors which, in your opinion, seem relevant.

	Advanced age of keepers	Migration from land to city is large	Pressure to farm intensively	Inbreeding problems	Cross breeding	I don't know
Cattle						

Comments, other factors:

---



---

Are there any domestic breeds in your region which you see as critically endangered? Please list the breeds and comment on what conservation action you feel is necessary.

---



---

## Endangered cultivated plant varieties in the Alpine region

### 1. Active Organisations

For which cultivated plant varieties are there any active governmental or non-governmental organisations?

	Organisation	I don't know
Field Crops		

Have there been any changes regarding the organisations between 2000-2005?

	New and additional	No change	Less organisations	I don't know

	organisations			
Field Crops				

Comments, further explanation:

---



---

## 2. Cultivated Area/Use

How, in your opinion, has the area under cultivation for old plant varieties changed in the last few years?

	Area cultivated has increased	Area cultivated has decreased	No changes	I don't know
Field Crops				

## 3. Conservation

Which conservation methods are in use? What type of Organisation is active in this conservation?

	In-Situ Governmental	In-Situ NGO	Ex-Situ Governmental	Ex-Situ NGO	I don't know
Field Crops					

Comments:

---



---



---

## 4. Products

Are there any products, which are made from old varieties of cultivated plants and are declared as such (through labelling etc) which are now available on the market or are planned?

	Yes, on market	Planned	No	I don't know
Field Crops				

Comments:

---



---



---

## 5. State-Level Support

Is there any state-level financial support for the cultivation of old varieties?

	Yes	No	I don't know
Field Crops			

If yes, what kind of support?

---



---

When no, are there any changes in sight?

---



---

## 6. Need for Action

Which old varieties do you see as needing the greatest and most urgent action?

	Great need for urgent action	No special need	I don't know
Field Crops			

Comments/ additional details:

---



---

## 7. General Situation

What barriers are there in place which prevent the old varieties of cultivated plants from becoming more well-known and widespread?

	Legal Barriers (eg seed keeping)	Market based factors	Less growers, migration away from agricultural areas	Education, subsidies and advice directed towards intensive methods	Basic Knowledge missing, too little publicity, no interest from consumers
Field Crops					

Comments/additional factors:

---



---

---



---

**Waking interest in endangered animal species and varieties of cultivated plants.**

Please mark those actors you see as having an important role in waking interest in endangered animal species and cultivated plants in your country or Alpine region:

	Very important	Important	Not very important	Irrelevant	I don't know
Breeders/Farmers					
Media					
Tourist Associations					
Government					
Experts					
Pressure Groups (e.g. Environmental)					
Interest Groups (e.g. Organic/Breed)					
Community Groups (e.g. Youth, Nature)					
Schools					

Comments/other people or groups you see as important actors:

---



---

What do you see as the most important and urgent action required for the conservation of endangered local animals and plants in the Alpine Region?

---



---

*Many thanks for filling in this questionnaire!*

## Annex II: Example Page from Interim Report/first round

### Fruit and Berries

#### Section 1: Governmental and non-Governmental Support.

The results show that for all or for most types of fruit or berry there are representative organisations.

In Germany, Austria and Liechtenstein there are new organisations.

#### Section 2: Cultivated Area

The results show that the area under cultivation has increased.

#### Section 3: Conservation

The majority of conservation work is undertaken *in situ* by NGOs with some *ex situ* by GOs and NGOs and *in situ* GO.

#### Section 4: Marketing

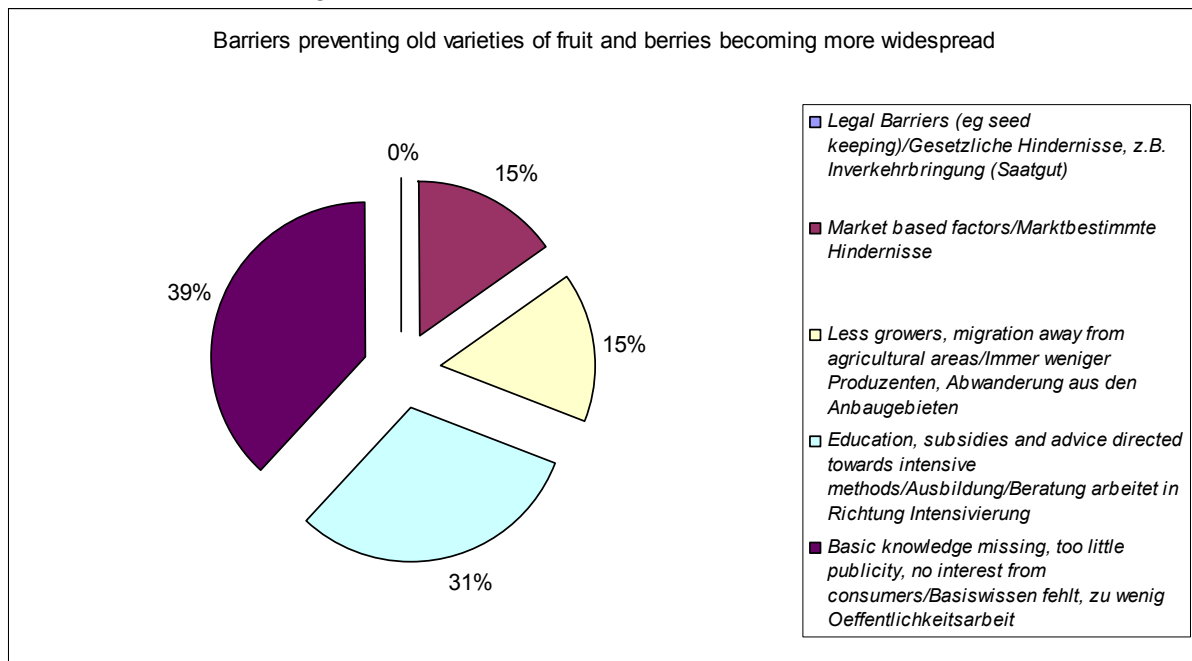
The results show that there are products on the market or there are products planned.

#### Section 5: State Level Support

Only in Italy (South Tyrol) are there subsidies available.

#### Section 6: Need for Action

The results show that urgent action is required.



Annex III: Example Questionnaire/Second Round

Address-Information

Person, Organisation	*****
Address	*****

**Please read the following statements and indicate your level of agreement.**

**General Situation**

	I don't know	Strongly Disagree	Disagree	Agree	Strongly Agree
The stock numbers of traditional breeds of animals in my region of the Alps is well monitored and documented.					
The area under cultivation for old and traditional Alpine varieties is well monitored and documented in my region.					
The existing institutions in the Alpine region are capable of ensuring conservation of rare or traditional breeds or plant varieties.					
Coordination between existing institutions is excellent.					
The goals of conservation of agro-biodiversity are clearly defined.					
Conservation of traditional Alpine agro-biodiversity requires expert-level guidance in order to be successful.					
Breeding of rare and traditional breeds needs to be better monitored in order to prevent cross-breeding and in-breeding.					
The current rules and bureaucracy about seed saving and animal movement make conservation work difficult.					
Often it seems that work on the expert-level of conservation is uncoordinated.					
Generally, there is too little information available to make conservation successful.					

## Public Awareness

	I don't know	Strongly Disagree	Disagree	Agree	Strongly Agree
Tourist organisations could be encouraged to promote the agro-biodiversity of the Alps.					
There are many places open to the general public where the traditional agro-biodiversity of the Alps can be seen.					
Consumers are interested in products made with rare or traditional breeds or plant varieties.					
The current trend towards 'Gourmet' and 'Slow food' is a positive development for old breeds and seeds.					
Restaurants seem interested in using and promoting local, traditional ingredients					
A special label to indicate products made from local and rare breeds and seeds could promote conservation.					
Awareness raising amongst consumers to create a market for the products of traditional Alpine agro-biodiversity is of high priority.					
There is a problem to meet the quality standards expected by modern consumers with the products of traditional Alpine agro-biodiversity.					
The general public is not aware of agro-biodiversity.					
There is no room on the market for yet another speciality, consumers are already confused.					
The general public is more aware of the wildlife of the Alps than the traditional agro-biodiversity.					

## Subsidies

	I don't know	Strongly Disagree	Disagree	Agree	Strongly Agree
Breed organisations running herdbooks should be financially supported.					
Subsidies should only be paid directly to the farmers.					
Subsidies should be linked to the breed kept, endangered species should get higher subsidies.					
More financial support is needed to pay for inventories, databases and expert/scientific level research.					
More financial support for <b>extensive</b> farming would encourage farmers to keep/plant rare breeds or plant traditional varieties					
Farmers need to know more about the subsidies available to them					
There are not enough subsidies available to ensure the effective conservation of traditional plant varieties.					
There are no special subsidies available specifically for <b>autochthonous</b> breeds.					
Most farmers know which subsidies are available to them but they are not interested in rare or traditional breeds or plant varieties.					
Subsidies for <i>in situ</i> conservation are unnecessary.					



## Agriculture in Practice

	I don't know	Strongly Disagree	Disagree	Agree	Strongly Agree
In order for conservation to be successful, <i>in situ</i> conservation must be encouraged.					
Agricultural schools need to also teach about local, traditional farming methods.					
The conservation of traditional Alpine agro-biodiversity is threatened by intensive farming methods.					
Farmers need to be actively engaged into <i>in situ</i> conservation.					
The import of new breeds/varieties is a threat to conservation of traditional Alpine animals and crops.					
Hobby farmers and gardeners should be encouraged to take part in conservation of traditional Alpine agro-biodiversity.					
Animal movement restrictions prevent successful breeding programmes.					
Rural areas and farming are not interesting for most young people.					
The majority of farmers have no knowledge of rare or traditional breeds or plant varieties.					
Farmers will only keep/plant rare breeds or traditional varieties if the products are marketable.					

**If you have any comments you wish to add, please make them here or send an email to [info@monitoring.eu.com](mailto:info@monitoring.eu.com):**

OK

## Annex IV: Results of Second Round

### **Animal Experts**

---

accept + The stock numbers of traditional breeds of animals in my region of the Alps is well monitored and documented.

---

don't know The area under cultivation for old and traditional Alpine varieties is well monitored and documented in my region.

---

accept + The existing institutions in the Alpine region are capable of ensuring conservation of rare or traditional breeds or plant varieties.

---

reject - Coordination between existing institutions is excellent.

---

unsure The goals of conservation of agro-biodiversity are clearly defined.

---

accept ++ Conservation of traditional Alpine agro-biodiversity requires expert-level guidance in order to be successful.

---

accept Breeding of rare and traditional breeds needs to be better monitored in order to prevent cross-breeding and in-breeding.

---

accept + The current rules and bureaucracy about seed saving and animal movement make conservation work difficult.

---

accept + Often it seems that work on the expert-level of conservation is uncoordinated.

---

reject - Generally, there is too little information available to make conservation successful.

---

accept++ Tourismusorganisationen sollten dazu aufgefordert werden, die Agro-Biodiversitaet in den Alpen zu foerdern.

---

unsure Tourist organisations could be encouraged to promote the agro-biodiversity of the Alps.

---

accept ++ There are many places open to the general public where the traditional agro-biodiversity of the Alps can be seen.

---

accept	Consumers are interested in products made with rare or traditional breeds or plant varieties.
accept	The current trend towards 'Gourmet' and 'Slow food' is a positive development for old breeds and seeds.
accept++	Restaurants seem interested in using and promoting local, traditional ingredients
accept ++	A special label to indicate products made from local and rare breeds and seeds could promote conservation.
unsure	Awareness raising amongst consumers to create a market for the products of traditional Alpine agro-biodiversity is of high priority.
accept +	There is a problem to meet the quality standards expected by modern consumers with the products of traditional Alpine agro-biodiversity.
reject -	The general public is not aware of agro-biodiversity.
accept +	There is no room on the market for yet another speciality, consumers are already confused.
accept +	Breed organisations running herdbooks should be financially supported.
unsure	Subsidies should only be paid directly to the farmers.
accept ++	Subsidies should be linked to the breed kept, endangered species should get higher subsidies.
accept +	More financial support is needed to pay for inventories, databases and expert/scientific level research.
accept +	More financial support for <b>extensive</b> farming would encourage farmers to keep/plant rare breeds or plant traditional varieties
accept	Farmers need to know more about the subsidies available to them
don't know	There are not enough subsidies available to ensure the effective conservation of traditional plant varieties.

reject	There are no special subsidies available specifically for <b>autochthonous</b> breeds.
reject	Most farmers know which subsidies are available to them but they are not interested in rare or traditional breeds or plant varieties.
reject -	Subsidies for <i>in situ</i> conservation are unnecessary.
accept ++	In order for conservation to be successful, <i>in situ</i> conservation must be encouraged.
accept ++	Agricultural schools need to also teach about local, traditional farming methods.
accept +	The conservation of traditional Alpine agro-biodiversity is threatened by intensive farming methods.
accept +	Farmers need to be actively engaged into <i>in situ</i> conservation.
accept	The import of new breeds/varieties is a threat to conservation of traditional Alpine animals and crops.
accept +	Hobby farmers and gardeners should be encouraged to take part in conservation of traditional Alpine agro-biodiversity.
unsure	Animal movement restrictions prevent successful breeding programmes.
reject	Rural areas and farming are not interesting for most young people.
unsure	The majority of farmers have no knowledge of rare or traditional breeds or plant varieties.
No data	Farmers will only keep/plant rare breeds or traditional varieties if the products are marketable.

### **Plant Experts**

don't know	The stock numbers of traditional breeds of animals in my region of the Alps is well monitored and documented.
------------	---

reject	The area under cultivation for old and traditional Alpine varieties is well monitored and documented in my region.
unsure	The existing institutions in the Alpine region are capable of ensuring conservation of rare or traditional breeds or plant varieties.
unsure	Coordination between existing institutions is excellent.
unsure	The goals of conservation of agro-biodiversity are clearly defined.
accept ++	Conservation of traditional Alpine agro-biodiversity requires expert-level guidance in order to be successful.
unsure	Breeding of rare and traditional breeds needs to be better monitored in order to prevent cross-breeding and in-breeding.
unsure	The current rules and bureaucracy about seed saving and animal movement make conservation work difficult.
unsure	Often it seems that work on the expert-level of conservation is uncoordinated.
reject	Generally, there is too little information available to make conservation successful.
accept +	Tourismusorganisationen sollten dazu aufgefordert werden, die Agro-Biodiversitaet in den Alpen zu foerdern.
accept +	Tourist organisations could be encouraged to promote the agro-biodiversity of the Alps.
accept ++	There are many places open to the general public where the traditional agro-biodiversity of the Alps can be seen.
accept +	Consumers are interested in products made with rare or traditional breeds or plant varieties.
accept +	The current trend towards 'Gourmet' and 'Slow food' is a positive development for old breeds and seeds.
accept	Restaurants seem interested in using and promoting local, traditional ingredients

accept +	A special label to indicate products made from local and rare breeds and seeds could promote conservation.
reject	Awareness raising amongst consumers to create a market for the products of traditional Alpine agro-biodiversity is of high priority.
accept +	There is a problem to meet the quality standards expected by modern consumers with the products of traditional Alpine agro-biodiversity.
reject	The general public is not aware of agro-biodiversity.
accept +	There is no room on the market for yet another speciality, consumers are already confused.
accept	Breed organisations running herdbooks should be financially supported.
reject	Subsidies should only be paid directly to the farmers.
accept +	Subsidies should be linked to the breed kept, endangered species should get higher subsidies.
accept +	More financial support is needed to pay for inventories, databases and expert/scientific level research.
accept	More financial support for <b>extensive</b> farming would encourage farmers to keep/plant rare breeds or plant traditional varieties
accept +	Farmers need to know more about the subsidies available to them
accept +	There are not enough subsidies available to ensure the effective conservation of traditional plant varieties.
unsure	There are no special subsidies available specifically for <b>autochthonous</b> breeds.
reject	Most farmers know which subsidies are available to them but they are not interested in rare or traditional breeds or plant varieties.
reject	Subsidies for <i>in situ</i> conservation are unnecessary.

accept ++	In order for conservation to be successful, <i>in situ</i> conservation must be encouraged.
accept ++	Agricultural schools need to also teach about local, traditional farming methods.
accept +	The conservation of traditional Alpine agro-biodiversity is threatened by intensive farming methods.
accept +	Farmers need to be actively engaged into <i>in situ</i> conservation.
unsure	The import of new breeds/varieties is a threat to conservation of traditional Alpine animals and crops.
accept ++	Hobby farmers and gardeners should be encouraged to take part in conservation of traditional Alpine agro-biodiversity.
don't know	Animal movement restrictions prevent successful breeding programmes.
reject	Rural areas and farming are not interesting for most young people.
unsure	The majority of farmers have no knowledge of rare or traditional breeds or plant varieties.
accept	Farmers will only keep/plant rare breeds or traditional varieties if the products are marketable.

## **Annex V: Example Participant Profile**

The numbers in this profile represent answer given.

0= I don't know

1= strongly disagree

2= disagree

3= agree

4= strongly agree

### **Section 1. General Situation:**

	<b>Participant X Plant Expert/A</b>
The stock numbers of traditional breeds of animals in my region of the Alps is well monitored and documented.	<b>0</b>
The area under cultivation for old and traditional Alpine varieties is well monitored and documented in my region.	<b>3</b>
The existing institutions in the Alpine region are capable of ensuring conservation of rare or traditional breeds or plant varieties.	<b>4</b>
Coordination between existing institutions is excellent.	<b>3</b>
The goals of conservation of agro-biodiversity are clearly defined.	<b>3</b>
Conservation of traditional Alpine agro-biodiversity requires expert-level guidance in order to be successful.	<b>4</b>
Breeding of rare and traditional breeds needs to be better monitored in order to prevent cross-breeding and in-breeding.	<b>0</b>
The current rules and bureaucracy about seed saving and animal movement make conservation work difficult.	<b>3</b>
Often it seems that work on the expert-level of conservation is uncoordinated.	<b>3</b>
Generally, there is too little information available to make conservation successful.	<b>1</b>

Participant X clearly feels that the conservation of traditional plant varieties in Austria is coordinated on the expert level, that cooperation is excellent and that expert level guidance is



important. However, Participant X also feels that there are rules in place which hinder conservation work. This participant does not feel competent to make a comment about animal conservation.

These profiles are checked for consistency and then compared with the country profiles, other participant profiles and the other collated results.

### **Country Profiles**

Country profiles were simply comprised of grouping the Participants from each country together. These were mainly used for the more concrete statements such as: "There are no subsidies available specifically for autochthonous breeds." If all animal experts from that country answered with the same answer (that is accepted/rejected the statement) the consensus was considered to represent the truth.

### Annex VI – Questionnaire 3

Do you feel that the following sections of the report reflect your opinion?

	Yes	No
<b>Consumer Behavior and Tourism (page 2 of pdf Results Round 2 )</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Farming (page 3 of pdf Results Round 2)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Public Awareness and Attitudes (page 3 of pdf Results Round 2)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No

<b>Concerning Experts (page 4 of pdf Results Round 2)</b>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------

When no, please add comment :

Other Comments :

	Yes	No
<b>Subsidies and Financial Support (page 5 of pdf Results Round 2)</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b><i>in Situ</i> conservation (page 6 of pdf Results Round 2)</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Successes (page 6 of pdf Results Round 2)</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Areas in Need of Development (page 6 of pdf Results Round 2)</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

Do you agree with the following conclusions made by the report?

	Yes	No
<b>Conservation of agrobiodiversity in the Alps should be approached as a partnership between producers/consumers/experts</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>The lack of cohesion in the conservation efforts leads to inefficiency, a lack of transparency and a lack of useable data</b>	<input type="checkbox"/>	<input type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Many of the people working in the field of conservation of Alpine agrobiodiversity do not have knowledge of the whole Alpine region</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When no, please add comment :

Other Comments :

	Yes	No
<b>Inter-institutional coordination, cooperation and collaboration is lacking</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When no, please add comment :

Other Comments :

Please mark as many answers as fit your opinion on the subjects below

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>Internationally agreed guidelines for data collection are...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable

<b>Inter-institutional goal setting is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>Improvement in the monitoring of the State of plant genetic resources in the Alps is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>Improvement in the knowledge of subsidies is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>State financial support for research in the full range of Pressure-State-Response-indicators is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>A label for products made from Alpine agrobiodiversity is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	urgently needed	not urgent	not needed	desirable	desirable but not possible	undesirable but possible	undesirable
<b>The promotion of Alpine agrobiodiversity to tourists is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

Please indicate how important you think the following are:

	very important	important	slightly important	not important
<b>Reserach into how products of Alpine livestock can achieve better quality is...</b>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Other Comments :

	very important	important	slightly important	not important
<b>Market research into quality standards of consumers</b>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Other Comments :

	very important	important	slightly important	not important
<b>Research into the curriculum of agricultural schools in the Alpine region...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	very important	important	slightly important	not important
<b>Inclusion of data from hobby farmers and gardeners into official statistics is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

	very important	important	slightly important	not important
<b>An international meeting to improve cooperation and to set goals is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

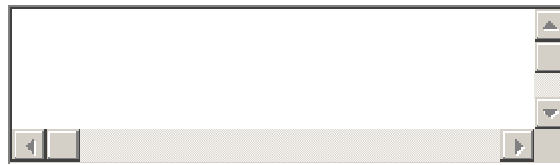
	very important	important	slightly important	not important
<b>An comprehensive information source to explain what financial support is available is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other Comments :

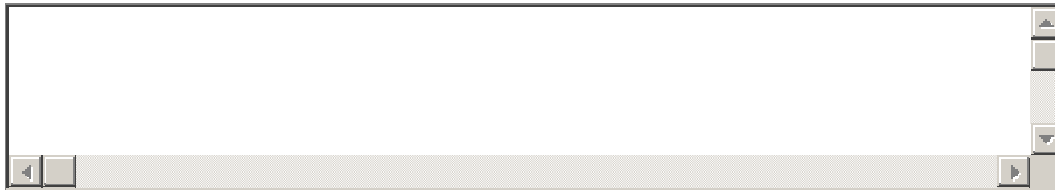
	very important	important	slightly important	not important
<b>Lobbying states to fulfil their obligations under the Convention on Biological Diversity and the Alpine Convention is...</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Other Comments :

An empty rectangular text input field with a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.

**If you have any comments you wish to add, please make them here or send an email to [info@monitoring.eu.com](mailto:info@monitoring.eu.com) :**

An empty rectangular text input field with a thin black border. It features a vertical scrollbar on the right side and a horizontal scrollbar at the bottom, both with standard arrow and track icons.