



Country report

supporting the preparation of

The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture,

including sector-specific data contributing to

The State of the World's Biodiversity for Food and Agriculture

- 2013 -

Country: Austria

I. EXECUTIVE SUMMARY

Please provide an executive summary (not more than two pages) that will allow national and international stakeholders to gain a quick overview of the content of the country report.

The executive summary should contain information on:

- key trends and driving forces affecting animal genetic resources management in your country;
- strengths, weaknesses and gaps in capacity to manage animal genetic resources in your country;
- key constraints and challenges with respect to animal genetic resources management in your country;
- priorities and strategic directions for future action (focusing particularly on the next ten years).

Summary

Key trends and driving forces

Geneflow to and from Austria corresponds to the usual pattern. In traditional breeds with transboundary populations geneflow exists between Austria and the neighbouring countries to stabilize and conserve the populations. Export of breeding animals of commercial breeds to developed and developing countries is an important business.

Ongoing intensification of animal production and concentration of the retailer market favour intensively managed, high yielding, specialized breeds for production. On the other side a growing trend towards protection of traditional landscapes, organic production and products of local origin supports conservation and sustainable use of locally adapted and traditional breeds. In the future animal welfare and increasing land loss due to urbanization probably will become important issues.

Strengths, weaknesses and gaps

Management of animal genetic resources generally is highly developed in Austria. An extensive institutional, educational and legal framework for breeding and developing animal genetic resources is in place. Stakeholders are strongly involved into decisions regarding the management of animal genetic resources. Most breeds are developed by the Austrian breeders with only minor influence of imported and/or exotic genetic material only the poultry sector depends almost completely on continually imported hybrid genetics.

Non-production traits like fitness, fertility and adaptability of animal genetic resources currently get more important and are integrated into the genetic improvement strategies as well as production efficiency traits.

Austria has an extensive genebank and part of the material is routinely used in conservation breeding plans. However there are still big gaps in the collection like pig and chicken breeds. The material is mainly semen and DNA. A collection of somatic cells would enhance to possibilities of securing genetic material against loss in vivo.

Specific agricultural education services are oriented primarily towards the needs of farmers. The variety of farm types in Austria is reflected also in the wide range of education and guidance services offered. The Universities of Agriculture and Veterinary Medicine are the main institutions dealing with basic agricultural research.

Key constraints and challenges

Most limiting factors are lack of human resources and funding.

Networking between the sectors animal, plant forestry and aquatic resources would improve the flow of informations, ease the raising of awareness within and between the sectors and the consumer and enable better funding of joint projects.

Priorities and strategic directions

The principles of a socio-ecological system of agriculture are implied in the Austrian Agri-Environmental Programme ÖPUL applying to and integrating all fields of agricultural production. The initiative Agriculture 2020 integrates animal genetic resources into a nation-wide multifunctional model on a socio-economic base. At the core lies the strengthening of a sustainable farm-based agriculture and forestry.

Introduction of low input feed management techniques and appropriate breeds by supporting research on this field and offering financial support to farmers to reduce dependency on protein imports could minimise negative environmental impacts by high energy feed and achieve well adapted, independent and resilient breeds.

II. DATA FOR UPDATING THE PARTS AND SECTIONS OF *THE STATE OF THE WORLD'S ANIMAL GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

FLOWS OF ANIMAL GENETIC RESOURCES

1. Studies of gene flow in animal genetic resources have generally concluded that most gene flow occurs either between developed countries or from developed countries to developing countries. Does this correspond to the pattern of gene flow into and out of your country?

For developed countries, exceptions to the usual pattern would include significant imports of genetic resources from developing countries. For developing countries, exceptions would include significant exports of genetic resources to developed countries, and/or significant imports and/or exports of genetic resources to/from other developing countries.

- yes
- no
- yes but with some significant exceptions

1.1. If you answer "no" or "yes but with some significant exceptions", please provide further details. Please include information on: which species are exceptions and which regions of the world are the sources and/or destinations of the respective genetic material.

2. Have there been any significant changes in patterns of geneflow in and out of your country in the last ten years?

- yes
- no

2.1. If yes, please indicate whether this view is based on quantified data (e.g. import and export statistics collected by the government).

- yes
 no

2.2. If yes, please provide references (preferably including web links) (if relevant, indicate which types of animal genetic resources are covered).

2.3. Please also describe the changes, indicating the species involved, the direction of the changes, and the regions of the world to and from which the patterns of imports and exports have changed.

3. Please describe how the patterns of geneflow described under Questions 1 and 2 affect animal genetic resources and their management in your country.

Note: Please answer this question even if the pattern of geneflow into and out of your country corresponds to the "usual" pattern described in the first sentence of Question 1 and/or has not changed significantly in the last ten years.

General
Geneflow within the region broadens the genetic basis of commercial breeds and increases breeding progress. In traditional breeds with transboundary populations geneflow exists between Austria and the neighbouring countries to stabilize and conserve the populations. Export of breeding animals (In-calf heifers, goats, sheep) of commercial breeds to developed and developing countries is an important business for Austrian breeders.

Cattle
A close co-operation exists between Germany (esp. Bavaria) and Austria. Simmental cattle are managed jointly. The other main cattle breeds also use imported genetics, mainly from semen.

Sheep and goat
Geneflow to Austria is small, mostly breeding animals are imported from neighbour countries.

Pig
Exchange of breeding animals and semen between Austria, Germany and Switzerland.

Poultry
Only imported hybrid material is used commercially. All locally adapted breeds are endangered and kept by hobby breeders.

Horse
The Austrian Warmblood breeders mostly use German genetics (Holstein, Hannover, Oldenburg). Other sport horse breeds are managed as parts of global populations.
The traditional Austrian breeds Haflinger and Noric export breeding animals to developed and developing countries.

LIVESTOCK SECTOR TRENDS

4. Please indicate the extent to which the following trends or drivers of change have affected or are predicted to affect animal genetic resources and their management in your country and describe these effects.

*Note: Relevant impacts on animal genetic resources and their management might include, for example, changes in the type of animal genetic resources kept (e.g. different breeds or species), changes in the uses to which animal genetic resources are put, changes in the geographical distribution of different types of animal genetic resources, increases or decreases in the number of breeds at risk of extinction, changes in the objectives of breeding programmes, changes in the number or type of conservation programmes being implemented, etc. In the text sections, please briefly describe the changes. If possible, provide some concrete examples of the challenges or opportunities presented by the respective drivers and the actions taken to address these challenges or opportunities. If relevant, you may also indicate why a given driver is not affecting animal genetic resources and their management in your country. For a general discussion of drivers of change, please see *The State of the World's Animal Genetic Resources for Food and Agriculture (Part 2, Section A)* (<http://www.fao.org/docrep/010/a1250e/a1250e00.htm>).*

Drivers of change	Impact on animal genetic resources and their management over last ten years	Future impact on animal genetic resources and their management (predicted for the next ten years)	Describe the effects on animal genetic resources and their management
Changing demand for livestock products (quantity)	low	low	trend from dual-purpose cattle to specialized dairy or beef breeds
Changing demand for livestock products (quality)	medium	high	increased interest in some traditional breeds (Murboden cattle, Carinthian sheep, Mangalica pig)
Changes in marketing infrastructure and access	low	low	marketing infrastructure and access are already well developed
Changes in retailing	high	medium	intensively managed high yielding breeds with uniform product quality and quantity are favoured by the ongoing concentration of the Austrian retailers
Changes in international trade in animal products (imports)	low	low	only marginal influence, most imports are special animal products like cheese specialities of controlled origin
Changes in international trade in animal products (exports)	medium	medium	intensively managed high yielding breeds with uniform product quality and quantity are favoured as exports increase
Climatic changes	low	medium	food efficiency and health tolerance will become more important breeding goals - current research topic
Degradation or improvement of grazing land	low	low	grazing land is owned by farmers and well managed
Loss of, or loss of access to, grazing land and other natural resources	low	medium	traditional breeds are affected negatively by loss of extensive grazing like mountain pastures. All animal genetic resources are negatively affected by the ongoing loss of arable land due to urbanization.
Economic, livelihood or lifestyle factors affecting the popularity of livestock keeping	high	high	two trends: Increase in farm size and numbers of animals per farm against diversification, use of traditional breeds and on-farm production and marketing of special high price products
Replacement of livestock functions	low	low	continuing decrease of draught horses (Noric)
Changing cultural roles of livestock	low	low	increasing value of horns of traditional sheep and goat breeds
Changes in technology	medium	low	technology already highly developed - more emphasis on animal welfare and the environment
Policy factors	high	high	more emphasis on animal welfare and the environment (EU: CAP 2015 - 2020)
Disease epidemics	none	none	no significant outbreaks of epidemic diseases in the past 10 years.

OVERVIEW OF ANIMAL GENETIC RESOURCES

5. Please provide the number of locally adapted and exotic breeds kept in your country.

Data on the number of breeds is needed in order to calculate the percentage of breeds subject to the various management activities that are covered in this questionnaire. In line with the request of the Commission on Genetic Resources for Food and Agriculture at its Fourteenth Regular Session (CGRFA-14/13/Report, paragraph 31), FAO will implement the “locally adapted” vs. “exotic breed” classification system in the Domestic Animal Diversity Information System (DAD-IS). Once countries have fully updated their breed lists and classified all breeds in DAD-IS, it will be possible to use these data to obtain the numbers of breeds in each category.

Species	Locally adapted breeds	Exotic breeds
Cattle (specialized dairy)	0	3
Cattle (specialized beef)	0	12
Cattle (multipurpose)	10	0
Sheep	9	16
Goats	7	6
Pigs	5	2
Chickens	3	0

CHARACTERIZATION

To provide further details of your country’s activities in the field of characterization, surveying and monitoring, please go to Strategic Priority Area 1 of the “Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013” (below).

6. Please provide an overview of the current state of characterization in your country by indicating the extent to which the activities shown in the following table have been carried out.

Note: Please focus on characterization studies that have been conducted within the last ten years (baseline surveys of population size may have been conducted in the more distant past). Recall that some types of characterization study on your country’s breeds may have been conducted outside your country. For the first two columns, please insert the number of breeds; for columns 3 to 8 please choose one of the following categories: none; low (approximately <33%); medium (approximately 33–67%); high (approximately >67%).

Species	Baseline survey of population size	Regular monitoring of population size	Phenotypic characterization	Molecular genetic diversity studies – within breed	Genetic diversity studies based on pedigree	Molecular genetic diversity studies – between breed	Genetic variance component estimation	Molecular genetic evaluation
Cattle (specialized dairy)	0	3	high	high	high	high	high	high
Cattle (specialized beef)	0	12	high	low	high	high	medium	medium

Species	Baseline survey of population size	Regular monitoring of population size	Phenotypic characterization	Molecular genetic diversity studies – within breed	Genetic diversity studies based on pedigree	Molecular genetic diversity studies – between breed	Genetic variance component estimation	Molecular genetic evaluation
Cattle (multipurpose)	10	0	high	high	high	high	medium	medium
Sheep	25	25	high	high	high	high	low	none
Goats	13	13	high	high	high	high	low	none
Pigs	7	7	high	high	medium	high	high	medium
Chickens	3	3	high	none	none	none	none	none

INSTITUTIONS AND STAKEHOLDERS

To provide further details of your country's activities in the field of institutions and stakeholders, please go to Strategic Priority Area 4 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

7. Please indicate the state of your country's capacities and provisions in the following areas of animal genetic resources management.

	Score
Education	high
Research	high
Knowledge	high
Awareness	medium
Infrastructure	high
Stakeholder participation	high
Policies	high
Policy implementation	high
Laws	high
Implementation of laws	high

8. Please provide further information regarding your country's capacities in each of the above-mentioned areas of management. If relevant, please indicate what obstacles or constraints your country faces in each of these areas and what needs to be done to address these constraints. You may also provide information on any particular successes achieved in your country in any of these areas and on the reasons for these successes.

	Description
Education	Specific agricultural education services are offered from the ninth grade onwards. The available offer is oriented primarily towards the needs of farmers. The variety of farm types in Austria is reflected also in the wide range of education and guidance services offered.
Research	The Universities of Agriculture and Veterinary Medicine are the main institutions dealing with basic agricultural research. Research projects on topics that fall within the competence of the Ministry of Life are either conducted by the Ministry's own research institutes or, under research contracts, carried out by external research agencies.
Knowledge	No restrictions to the access to knowledge exist.
Awareness	Despite the efforts of public and private stakeholders to raise awareness consumers still have an idealized and unreal image of animal production.
Infrastructure	Development of rural infrastructure is enhanced by national programs supported by the government and federal countries.
Stakeholder participation	Stakeholders are strongly involved into decisions regarding the management of animal genetic resources.
Policies	Agricultural policies comply with the Common Agricultural Policy of EU (CAP) with special emphasis on rural development.
Policy implementation	Austria runs the Agri-environmental Programme ÖPUL. ÖPUL is Austria's programme for the promotion of an agriculture which is appropriate to the environment, extensive and protective of natural habitats and intends to enhance the environmentally benign management of agricultural areas. Austria chose an integral, horizontal approach for ÖPUL which aims at the participation of Austrian farmers all over the country. The participation is on a voluntary basis.
Laws	Legislation is in accordance with EU-legislation.
Implementation of laws	Austria's laws favorable to the sustainable use, development and conservation of animal genetic resources are being successfully implemented.

9. What steps have been taken in your country to engage or empower the various stakeholders in animal genetic resources management (e.g. establishment of livestock keepers' organizations, development of biocultural community protocols)?

Note: Biocultural community protocol: a document that is developed after a community undertakes a consultative process to outline their core cultural and spiritual values and customary laws relating to their traditional knowledge and resources. For a discussion of the potential role of biocultural community protocols in the conservation of animal genetic resources, please see the guidelines In vivo conservation of animal genetic resources (<http://www.fao.org/docrep/018/i3327e/i3327e.pdf>).

Intensive cooperation between official and private stakeholders has been in place since 1950. Infrastructure and organization of animal breeding are well developed (see Austria's report on legal and policy frameworks affecting the management of animal genetic resources, section I) and have been made available to stakeholders.

BREEDING PROGRAMMES

Note: Breeding programmes: systematic and structured programmes for changing the genetic composition of a population towards a defined breeding goal (objective) to realize genetic gain (response to selection), based on objective performance criteria. Breeding programmes typically contain the following elements: definition of breeding goal; identification of animals; performance testing; estimation of breeding values; selection; mating; genetic gain and transfer of genetic gain. Breeding programmes are usually operated either by a group of livestock breeders organized in a breeders' association, community-based entity or other collective body; by a large commercial breeding company; or by the government.

To provide further details of your country's activities in the field of breeding programmes, please go to Strategic Priority Area 2 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

10. Who operates breeding programmes in your country?

Note: the objective of this question is to identify which stakeholders lead or organize the breeding programmes that exist in your country. Stakeholder participation in the implementation of the various elements of breeding programmes is covered under Question 15. If you wish to provide further information on the activities of the various stakeholder groups (including collaborative activities on an international scale), please provide it in the text section of Question 15.

Species	Government	Livestock keepers organized at community level	Breeders' associations or cooperatives	National commercial companies	External commercial companies	Non-governmental organizations	Others
Cattle (specialized dairy)	no	no	yes	no	no	no	no
Cattle (specialized beef)	no	no	yes	yes	no	no	no
Cattle (multipurpose)	yes	no	yes	yes	no	yes	no
Sheep	yes	no	yes	no	no	yes	no
Goats	yes	no	yes	no	no	yes	no
Pigs	yes	no	yes	yes	yes	yes	no
Chickens	no	no	yes	no	yes	yes	no

10.1. If you choose the option "others", please indicate what kind of operator(s) this refers to.

11. For how many breeds in your country are the following activities undertaken?

Note: Please do not include activities that are only undertaken for experimental purposes, i.e. include only activities that directly serve or involve livestock keepers. However, please include activities even if they do not at present form part of a breeding programme. The intention is to obtain an indication of whether the "building blocks" of a breeding programme are available or being developed in your country. Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Tools															
	Animal identification		Breeding goal defined		Performance recording		Pedigree recording		Genetic evaluation (classic approach)		Genetic evaluation including genomic information		Management of genetic variation (by maximizing effective population size or minimizing rate of inbreeding)		Artificial insemination	
	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	3	0	3	0	3	0	3	0	3	0	3	0	0	0	3
Cattle (specialized beef)	0	12	0	12	0	12	0	12	0	12	0	4	0	0	0	12
Cattle (multipurpose)	10	0	10	0	10	0	10	0	10	0	4	0	9	0	10	0
Sheep	9	16	9	16	9	16	9	16	9	16	0	0	8	0	0	0
Goats	7	6	7	6	7	6	7	6	7	6	0	0	7	0	2	3
Pigs	5	2	5	2	5	2	5	2	5	2	3	2	2	0	5	2
Chickens	3	0	3	0	3	0	3	0	0	0	0	0	3	0	0	0

12. Please indicate how many of the breeds in your country are subject to breeding programmes applying the following breeding methods.

Note: Loc = Locally adapted breeds; Ex = Exotic breeds.

Species	Breeding method			
	Straight/pure-breeding only		Straight/pure-breeding and cross-breeding	
	Loc	Ex	Loc	Ex
Cattle (specialized dairy)	0	3	0	0
Cattle (specialized beef)	0	12	0	0
Cattle (multipurpose)	7	0	3	0
Sheep	9	16	0	0
Goats	7	6	0	0
Pigs	3	2	2	0
Chickens	3	0	0	0

13. Please indicate the state of research and training in the field of animal breeding in your country.

Species	Training	Research
Cattle (specialized dairy)	high	high
Cattle (specialized beef)	high	high
Cattle (multipurpose)	high	high

Species	Training	Research
Sheep	medium	high
Goats	medium	high
Pigs	high	high
Chickens	high	high

14. Please indicate the extent to which livestock keepers in your country are organized for the purposes of animal breeding.

Species	Organization of livestock keepers
Cattle (specialized dairy)	high
Cattle (specialized beef)	high
Cattle (multipurpose)	high
Sheep	high
Goats	high
Pigs	high
Chickens	high
Horses	high

15. Please indicate the level of stakeholder involvement in the various elements of breeding programmes in your country.

Note: If your country has different types of breeding programme, the level of involvement of the various stakeholders may vary from one type of programme to another. In answering this question please try to indicate the overall degree of involvement of the various stakeholder groups.

Cattle (specialized dairy)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	medium	medium	high	low	none	low	none	none
Animal identification	high	none	high	high	none	none	none	none
Recording	medium	none	high	high	low	none	none	none
Provision of artificial insemination services	none	none	high	medium	high	low	none	none
Genetic evaluation	medium	high	high	low	high	high	none	none

Cattle (specialized beef)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	medium	medium	high	medium	none	low	none	none
Animal identification	high	none	high	high	none	none	none	none
Recording	medium	none	high	high	none	none	none	none
Provision of artificial insemination services	none	none	high	low	medium	low	none	none
Genetic evaluation	medium	high	high	low	high	low	none	none

Cattle (multipurpose)	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	medium	medium	high	medium	low	none	medium	none
Animal identification	high	none	high	high	none	none	none	none
Recording	high	low	high	high	none	none	medium	none
Provision of artificial insemination services	medium	none	high	medium	medium	medium	low	none
Genetic evaluation	high	high	high	low	high	high	none	none

Sheep	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	medium	low	high	medium	low	none	medium	none
Animal identification	high	none	high	high	none	none	none	none
Recording	low	low	high	high	none	none	none	none
Provision of artificial insemination services	low	medium	none	none	none	none	none	none
Genetic evaluation	high	high	high	low	low	medium	medium	none
Goats	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	medium	low	high	medium	none	none	medium	none
Animal identification	high	none	high	high	none	none	none	none
Recording	low	low	high	high	none	none	none	none
Provision of artificial insemination services	medium	high	low	low	none	none	none	none
Genetic evaluation	medium	high	high	low	none	none	medium	none

Pigs	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	low	low	high	medium	high	low	low	none
Animal identification	high	low	high	high	medium	none	medium	none
Recording	low	low	high	high	high	none	medium	none
Provision of artificial insemination services	low	low	high	high	high	medium	none	none
Genetic evaluation	medium	high	high	medium	high	low	none	none

Chickens	Government	Research organizations	Breeders' associations or cooperatives	Individual breeders/livestock keepers	National commercial companies	External commercial companies	Non-governmental organizations	Others
Setting breeding goals	none	none	medium	high	none	high	medium	none
Animal identification	low	none	high	high	none	medium	low	none
Recording	none	medium	high	high	none	high	medium	none
Provision of artificial insemination services	none	none	none	none	none	high	none	none
Genetic evaluation	none	medium	high	medium	none	high	medium	none

15.1. If you choose the option "others", please indicate what kind of operator(s) this refers to.

15.2. Please provide further information on the roles that the stakeholders identified in the table play in the implementation of the various activities. If relevant, please also provide further information on the organizational roles played by the stakeholders identified in Question 10.

For organisation of breeding matters of animal genetic resources in Austria see Austria's report on legal and policy frameworks affecting the management of animal genetic resources, section I. For organisation of breeding programmes for traditional rare breeds, please see www.oengene.at .

16. Does your country implement any policies or programmes aimed at supporting breeding programmes or influencing their objectives?

Species	Policies or programmes
Cattle (specialized dairy)	yes
Cattle (specialized beef)	yes
Cattle (multipurpose)	yes
Sheep	yes
Goats	yes
Pigs	yes
Chickens	yes

16.1. Please describe these policies or programmes, indicating whether or not they include any measures specifically aimed at supporting breeding programmes for locally adapted breeds or any measures specifically aimed at supporting breeding programmes for exotic breeds (including breed-replacement programmes). Please indicate whether different types of programme are promoted in different production systems (and describe the differences).

Species	Description of policies or programmes
Cattle (specialized dairy)	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.
Cattle (specialized beef)	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.
Cattle (multipurpose)	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.
Sheep	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.
Goats	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.
Pigs	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.

Species	Description of policies or programmes
Chickens	The Federal Countries are responsible for animal breeding legislation and genetic improvement strategies. Breeding ordinance regulates all necessary breeding activities in breeding programs according to EU regulations for local and exotic breeds in the same way, no different types.

17. Please describe the consequences of your country's breeding policies and programmes, or lack of breeding policies and programmes, for your country's animal genetic resources and their management.

Species	Description of consequences
Cattle (specialized dairy)	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Cattle (specialized beef)	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Cattle (multipurpose)	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Sheep	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Goats	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Pigs	Non-production traits like fitness, fertility and adaptability currently get more important and are integrated into the genetic improvement strategies.
Chickens	in situ conservation of endangered locally adapted breeds

18. Please describe the main constraints to the implementation of breeding programmes in your country and what needs to be done to address these constraints. You may also provide information on any particular successes achieved in your country with respect to the establishment and operation of breeding programmes and on the factors that have contributed to these successes.

There are no constraints to the implementation of breeding programs in Austria.

19. Please describe future objectives, priorities and plans for the establishment or further development of breeding programmes in your country.

Species	Description of future objectives, priorities and plans
Cattle (specialized dairy)	All breeding programs are constantly reviewed and adapted if necessary (see 17)
Cattle (specialized beef)	All breeding programs are constantly reviewed and adapted if necessary (see 17)
Cattle (multipurpose)	All breeding programs are constantly reviewed and adapted if necessary (see 17). For small populations of traditional locally adapted breeds a special breeding program software is under development.
Sheep	All breeding programs are constantly reviewed and adapted if necessary (see 17). For small populations of traditional locally adapted breeds a special breeding program software is under development.
Goats	All breeding program are constantly reviewed and adapted if necessary (see 17). For small populations of traditional locally adapted breeds a special breeding program software is under development.
Pigs	All breeding programs are constantly reviewed and adapted if necessary (see 17). For small populations of traditional locally adapted breeds a special breeding program software is under development.
Chickens	Breeding programs are constantly reviewed and adapted if necessary.

CONSERVATION

To provide further details of your country's activities in the field of conservation, please go to Strategic Priority Area 3 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources 2007–2013" (below).

20. Please provide an indication of the extent to which your country's breeds are covered by conservation programmes.

Please focus on at-risk breeds and breeds for which there are serious grounds for concern about their potential to fall into the at-risk category in the near future. Countries should not reduce their scores because of a lack of conservation programmes for breeds that are clearly not at risk. The main purpose of this question is to obtain an indication of the extent to which your country's conservation programmes meet the objective of protecting breeds from extinction. If your country has no official national criteria for classifying breed risk status or lacks the relevant data for identifying which breeds are at risk, please base your answers on estimations. Please also note that Question 8 of the "Progress report on the implementation of the Global Plan of Action for Animal Genetic Resources – 2007 to 2013" (below) requests countries to provide information on the criteria they use to assess the risk status of animal genetic resources.

Note: n/a = no programmes implemented because all breeds of this species present in the country are secure.

Species	In situ conservation	Ex situ in vivo conservation	Ex situ in vitro conservation
Cattle (specialized dairy)	n/a	n/a	high
Cattle (specialized beef)	n/a	n/a	high
Cattle (multipurpose)	high	medium	high
Sheep	high	medium	high
Goats	high	medium	high
Pigs	high	medium	high
Chickens	high	high	none
Horses	medium	high	low

21. Does your country use formal approaches to prioritize breeds for conservation?

- yes
 no

21.1. If so, which of the following factors are considered?

Note: See Sections 2 and 3 of the FAO guidelines *In vivo conservation of animal genetic resources* (<http://www.fao.org/docrep/018/i3327e/i3327e.pdf>).

	Considered in formal prioritization approaches
Risk of extinction	yes
Genetic uniqueness	yes
Genetic variation within the breed	yes
Production traits	no
Non-production traits	no
Cultural or historical importance	yes
Probability of success	yes

22. Please indicate which of the following methods are used as elements of in situ conservation programmes in your country and which operators are managing them.

Note: Operators: the sector(s) that initiate(s) and manage(s) the respective activities. If both sectors undertake the respective activity, please answer "yes" in both rows. Please answer "yes" if the respective sector only works with some of the species targeted. If necessary, details of which sector addresses which species can be provided in the textual response. Information on what kinds of public- or private-sector organizations undertake the activities can also be provided, if necessary, in the textual response. Species targeted: Please answer "yes" if there are any such activities targeting the respective species, whether they are undertaken by the public sector, private sector or both.

Operators / Species targeted	Promotion of niche marketing or other market differentiation	Community-based conservation programmes	Incentive or subsidy payment schemes for keeping at-risk breeds	Development of biocultural community protocols	Recognition/award programmes for breeders	Conservation breeding programmes	Selection programmes for increased production or productivity in at-risk breeds	Promotion of at-risk breeds as tourist attractions	Use of at-risk breeds in the management of wildlife habitats and landscapes	Promotion of breed-related cultural activities	Extension programmes to improve the management of at-risk breeds	Awareness-raising activities providing information on the potential of specific at-risk breeds
Public sector	yes	no	yes	no	yes	yes	yes	yes	yes	yes	no	yes
Private sector	yes	no	no	no	yes	yes	no	yes	yes	yes	no	yes
Cattle (specialized dairy)	no	no	no	no	no	no	no	no	no	no	no	no
Cattle (specialized beef)	no	no	no	no	no	no	no	no	no	no	no	no
Cattle (multipurpose)	yes	no	yes	no	yes	yes	yes	yes	yes	yes	no	yes
Sheep	yes	no	yes	no	yes	yes	yes	yes	yes	yes	no	yes
Goats	yes	no	yes	no	yes	yes	yes	yes	yes	yes	no	yes
Pigs	yes	no	yes	no	no	yes	yes	yes	no	no	no	yes
Chickens	yes	no	no	no	yes	yes	yes	yes	no	no	no	yes
Horses	no	no	yes	no	yes	yes	no	yes	yes	yes	no	yes

22.1. Please provide further details of the activities recorded in the table and any other in situ conservation activities or programmes being implemented in your country.

The conservation activities do not include specialized beef or dairy cattle breeds. All traditional Austrian cattle breeds are multipurpose.
The full text (English version) of the Austrian gene conservation program is available at www.oengene.at.

23. Does your country have an operational in vitro gene bank for animal genetic resources?

In vitro gene bank: a collection of documented cryoconserved genetic material, primarily stored for the purpose of medium- to long-term conservation, with agreed protocols and procedures for acquisition and use of the genetic material.

- yes
 no

23.1. If your country has no in vitro gene bank for animal genetic resources, does it have plans to develop one?

- yes
 no

23.2. If yes, please describe the plans.

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24. If your country has an in vitro gene bank for animal genetic resources, please indicate what kind of material is stored there.

	Stored in national genebank
Semen	yes
Embryos	no
Oocytes	no
Somatic cells (tissue or cultured cells)	yes
Isolated DNA	yes

25. If your country has an in vitro gene bank for animal genetic resources, please complete the following table.

Species	Number of breeds for which material is stored	Number of breeds for which sufficient material is stored	Does the collection include material from not-at-risk breeds?	Have any extinct populations been reconstituted using material from the gene bank?	Have the gene bank collections been used to introduce genetic variability into an in situ population?	Have the gene bank collections been used to introduce genetic variability into an ex situ population?	Do livestock keepers or breeders' associations participate in the planning of the gene banking activities?
Cattle (specialized dairy)	3	1	yes	no	no	no	yes
Cattle (specialized beef)	7	2	yes	no	no	no	yes
Cattle (multipurpose)	11	11	yes	no	yes	no	yes
Sheep	10	6	yes	no	no	no	yes
Goats	10	6	yes	no	yes	yes	yes
Pigs	3	0	yes	no	yes	yes	yes
Chickens	0	0	no	no	no	no	no
Horses	7	1	yes	no	yes	yes	yes

25.1. Please provide further details of the activities recorded in the table (including any examples of the use of gene bank material to reconstitute populations or introduce genetic variability) and any other in vitro conservation activities or programmes being implemented in your country.

Genebank material is routinely used in conservation breeding plans to minimize inbreeding in in situ populations.

26. Does your country have plans to enter into collaboration with other countries to set up a regional or subregional in vitro gene bank for animal genetic resources?

- yes
 no

26.1. If yes, please describe the plans, including a list of the countries involved.

Austria is a member of the ERFP Working Group Ex Situ Conservation and involved in the process of establishing a regional network of national genebanks. Members are Albania, Austria, Belgium, Bulgaria, Croatia, France, Germany, Hungary, Italy, Latvia, Luxembourg, Montenegro, Norway, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and FAO.

27. If there have been any cases in your country in which breeds that were formerly classified as at risk of extinction have recovered to a position in which they are no longer at risk, please list the breeds and describe how the recovery was achieved.

All breeds that were classified at risk of extinction have recovered but are still classified as endangered by EU criteria.

REPRODUCTIVE AND MOLECULAR BIOTECHNOLOGIES

28. Please indicate the level of availability of reproductive and molecular biotechnologies for use in livestock production in your country.

Note: low = at experimental level only; medium = available to livestock keepers in some locations or production systems; high = widely available to livestock keepers.

Species	Biotechnologies								
	Artificial insemination	Embryo transfer	Multiple ovulation and embryo transfer	Semen sexing	In vitro fertilization	Cloning	Genetic modification	Molecular genetic or genomic information	Transplantation of gonadal tissue
Cattle (specialized dairy)	high	high	high	high	low	none	none	high	none
Cattle (specialized beef)	high	high	high	medium	low	none	none	high	none
Cattle (multipurpose)	high	high	high	high	low	none	none	high	none
Sheep	medium	low	none	none	low	none	none	low	none
Goats	high	low	low	none	low	none	none	low	none
Pigs	high	low	low	low	none	none	none	high	none
Chickens	high	none	none	none	none	none	none	high	none

28.1. Please provide additional information on the use of these biotechnologies in your country.

Use of genetically modified animal genetic resources for food and agricultural purposes is not allowed in Austria.

29. If the reproductive and/or molecular technologies are available for use by livestock keepers in your country, please indicate which stakeholders are involved in providing the respective services to the livestock keepers.

	Stakeholders					
	Public sector	Breeders' associations or cooperatives	National non-governmental organizations	Donors and development agencies	National commercial companies	External commercial companies
Artificial insemination	yes	yes	yes	no	yes	yes
Embryo transfer	yes	yes	yes	no	yes	yes
Multiple ovulation and embryo transfer	no	yes	yes	no	yes	yes
Semen sexing	no	yes	yes	no	yes	yes
In vitro fertilization	yes	no	no	no	no	yes
Molecular genetic or genomic information	yes	yes	yes	no	yes	yes

29.1. Please provide additional information on the roles that the providers identified in the table play in the provision of biotechnology services in your country.

Artificial insemination (AI) centres are owned either by the public sector or privately and provide AI, embryo transfer (including multiple ovulation) and semen sexing services. In vitro fertilization is used in research only. Molecular and genetic information obtained from public (Universities and research institutes) or private facilities is used by the bodies responsible for the further development of breeding programs and AI centres.

30. Please indicate which biotechnologies your country is undertaking research on.

Biotechnologies	Public or private research at national level	Research undertaken as part of international collaboration
Artificial insemination	yes	yes
Embryo transfer or MOET	yes	yes
Semen sexing	yes	yes
<i>In vitro</i> fertilization	yes	yes
Cloning	no	no
Genetic modification	no	no
Use of molecular genetic or genomic information for estimation of genetic diversity	yes	yes

Biotechnologies	Public or private research at national level	Research undertaken as part of international collaboration
Use of molecular genetic or genomic information for prediction of breeding values	yes	yes
Research on adaptedness based on molecular genetic or genomic information	yes	yes

30.1. Please briefly describe the research.

31. Please estimate the extent to which artificial insemination (using semen from exotic and/or locally adapted breeds) and/or natural mating is used in your country's various production systems.

Note: low = approximately <33% of matings; medium = approximately 33–67% of matings; high = approximately >67% of mating; n/a = production system not present in this country.

Cattle (specialized dairy)	Ranching or similar grassland-based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	none	n/a	none	none	n/a
Artificial insemination using nationally produced semen from exotic breeds	low	n/a	low	low	n/a
Artificial insemination using imported semen from exotic breeds	medium	n/a	medium	high	n/a
Natural mating	low	n/a	low	low	n/a

Cattle (specialized beef)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	low	n/a	low	n/a	n/a
Artificial insemination using nationally produced semen from exotic breeds	low	n/a	medium	n/a	n/a
Artificial insemination using imported semen from exotic breeds	low	n/a	low	n/a	n/a
Natural mating	high	n/a	high	n/a	n/a
Cattle (multipurpose)	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	high	n/a	high	high	n/a
Artificial insemination using nationally produced semen from exotic breeds	low	n/a	low	medium	n/a
Artificial insemination using imported semen from exotic breeds	none	n/a	low	low	n/a
Natural mating	medium	n/a	low	low	n/a

Sheep	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	none	n/a	none	n/a	n/a
Artificial insemination using nationally produced semen from exotic breeds	none	n/a	none	n/a	n/a
Artificial insemination using imported semen from exotic breeds	none	n/a	none	n/a	n/a
Natural mating	high	n/a	high	n/a	n/a
Goats	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	low	n/a	low	n/a	n/a
Artificial insemination using nationally produced semen from exotic breeds	none	n/a	none	n/a	n/a
Artificial insemination using imported semen from exotic breeds	low	n/a	low	n/a	n/a
Natural mating	high	n/a	high	n/a	n/a

Pigs	Ranching or similar grassland-based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	high	high	n/a
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	low	medium	n/a
Artificial insemination using imported semen from exotic breeds	n/a	n/a	low	low	n/a
Natural mating	n/a	n/a	medium	low	n/a
Chickens	Ranching or similar grassland-based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	n/a	n/a	none	none	none
Artificial insemination using nationally produced semen from exotic breeds	n/a	n/a	none	none	none
Artificial insemination using imported semen from exotic breeds	n/a	n/a	none	high	none
Natural mating	n/a	n/a	high	low	high

Horses	Ranching or similar grassland -based production systems	Pastoralist systems	Mixed farming systems (rural areas)	Industrial systems	Small-scale urban or peri-urban systems
Artificial insemination using semen from locally adapted breeds	low	n/a	low	n/a	n/a
Artificial insemination using nationally produced semen from exotic breeds	low	n/a	medium	n/a	n/a
Artificial insemination using imported semen from exotic breeds	low	n/a	medium	n/a	n/a
Natural mating	high	n/a	high	n/a	n/a

32. Please provide further details on the use of reproductive and molecular biotechnologies in animal genetic resources management in your country. Please note any particular constraints to implementing these activities and any problems associated with their use. Please indicate what needs to be done to address these constraints and/or problems. You may also provide information on any particular successes achieved in your country in the use of biotechnologies in animal genetic resources management and on the factors that have contributed to these successes.

The only constraints in the use of reproductive and molecular biotechnologies consist in zoosanitary regulations necessary for compliance with EU-legislation.

III. DATA CONTRIBUTING TO THE PREPARATION OF *THE STATE OF THE WORLD'S BIODIVERSITY FOR FOOD AND AGRICULTURE*

INTEGRATION OF THE MANAGEMENT OF ANIMAL GENETIC RESOURCES WITH THE MANAGEMENT OF PLANT, FORESTRY AND AQUATIC GENETIC RESOURCES

1. Please indicate the extent to which the management of animal genetic resources in your country is integrated with the management of plant, forestry and aquatic genetic resources. Please describe the collaboration, including, if relevant, a description of the benefits gained by pursuing a collaborative approach.

	Extent of collaboration	Description
Development of joint national strategies or action plans	extensive	The principles of a socio-ecological system of agriculture are implied in the Austrian Agri-Environmental Programme ÖPUL applying to and integrating all fields of agricultural production. The initiative Agriculture 2020 (http://www.lebensministerium.at/en/initiatives/Agriculture2020.html) integrates animal genetic resources into a nation-wide multifunctional model on a socio-economic base. At the core lies the strengthening of a sustainable farm-based agriculture and forestry.
Collaboration in the characterization, surveying or monitoring of genetic resources, production environments or ecosystems	none	
Collaboration related to genetic improvement	none	
Collaboration related to product development and/or marketing	limited	Some projects link geographic origin of products, production method and special products of traditional (rare) breeds (Murboden cattle www.murboden.at , Carinthian sheep www.brillenschafe.at)
Collaboration in conservation strategies, programmes or projects	none	
Collaboration in awareness-raising on the roles and values of genetic resources	extensive	Austria tourism benefits from an intact environment and a well farmed cultured landscape. A holistic approach to present genetic resources and biodiversity issues is important for promotion.
Training activities and/or educational curricula that address genetic resources in an integrated manner	none	
Collaboration in the mobilization of resources for the management of genetic resources	extensive	The principles of a socio-ecological system of agriculture are implied in the Austrian Agri-Environmental Programme ÖPUL applying to and integrating all fields of agricultural production. The initiative Agriculture 2020 (http://www.lebensministerium.at/en/initiatives/Agriculture2020.html) integrates animal genetic resources into a nation-wide multifunctional model on a socio-economic base. At the core lies the strengthening of a sustainable farm-based agriculture and forestry.

2. Please describe any other types of collaboration.

3. If relevant, please describe the benefits that could be achieved by strengthening collaboration in the management of genetic resources in the animal, plant, forest and aquatic sectors in your country. If specific plans to increase collaboration are in place, please describe them and the benefits foreseen

Networking between the genetic resources sectors could improve information, make raising of awareness within and between the sectors and the consumer easier and enable better funding of joint projects.

4. Please describe any factors that facilitate or constrain collaborative approaches to the management of genetic resources in your country.

Most limiting factors are lack of human resources and (public) funding.

5. If there are constraints, please indicate what needs to be done to overcome them.

Better funding and more human resources.

ANIMAL GENETIC RESOURCES MANAGEMENT AND THE PROVISION OF REGULATING AND SUPPORTING ECOSYSTEM SERVICES

6. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing the roles of livestock in the provision of regulating ecosystem services and/or supporting ecosystem services?

Regulating ecosystem services: "Benefits obtained from the regulation of ecosystem processes" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at <http://millenniumassessment.org/documents/document.356.aspx.pdf>), page 40. Supporting ecosystem services: "Services necessary for the production of all other ecosystem services" – Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being: synthesis. Washington D.C., Island Press (available at <http://millenniumassessment.org/documents/document.356.aspx.pdf>), page 40.

yes

no

6.1. If yes, please describe these measures and indicate which supporting and/or regulating ecosystem services are targeted, and in which production systems.

Examples of supporting and regulatory ecosystem services provided by livestock might include the following: provision or maintenance of wildlife habitats (e.g. via grazing); seed dispersal (e.g. in dung or on animals' coats); promoting plant growth (e.g. stimulating growth via grazing or browsing); soil formation (e.g. via the supply of manure); soil nutrient cycling (e.g. via supply of manure); soil quality regulation (e.g. affecting soil structure and water-holding capacity via trampling or dunging); control of weeds and invasive species (e.g. via grazing or browsing invasive plants); climate regulation (e.g. by promoting carbon sequestration through dunging); enhancing pollination levels (e.g. by creating habitats for pollinators); fire control (e.g. by removal of biomass that may fuel fires); avalanche control (e.g. grazing to keep vegetation short to reduce the probability that snow will slide); erosion regulation (e.g. indirect via fire control services); maintenance of water quality and quantity (e.g. indirect effect via erosion control); management of crop residues (e.g. consumption of unwanted crop residues by animals); pest regulation (e.g. by destruction of pests or pest habitats); disease regulation (e.g. by destruction of disease vectors or their habitats); buffering of water quantities – flood regulation (e.g. indirect effect via fire and erosion control).

In the current Austrian Agri-Environmental Programme two measures deal with specific ecosystem services:

Management of mountain meadows

Alpine pasturage and shepherding

The measures target control of weeds, maintenance of wildlife habitats and avalanche control via grazing of mountain pastures. The production systems participating in the measures are ranching and rural mixed farming systems.

6.1.1 Please describe what the outcome of these measures has been in terms of the supply of the respective ecosystem services (including an indication of the scale on which these outcomes have been obtained).

6.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

7. Do your country's policies, plans or strategies for animal genetic resources management include measures specifically addressing environmental problems associated with livestock production?

Examples might include choosing to use particular species or breeds because they are less environmentally damaging in a given ecosystem or adapting breeding goals to produce animals that have some characteristic that makes them more environmentally friendly.

yes

no

7.1. If yes, please describe these measures and indicate the environmental problems that are targeted, and in which production systems.

In the current Austrian Agri-Environmental Programme (ÖPUL) the following measures are connected with environmental management

- Organic management
- Environmentally friendly management of arable and grassland surfaces
- Abstention from using yield-increasing agents on field forage land and grassland
- Abandonment of silage
- Mowing of steep surfaces
- Management of mountain meadows
- Alpine pasturage and shepherding
- Grass planting on arable surfaces
- Regional project for groundwater protection and grassland preservation
- Preventive soil and water protection
- Low-loss application of liquid organic fertilizers and biogas manure
- Rare livestock breeds
- Preservation and development of surfaces valuable in terms of nature conservation and important in terms of water protection

The ÖPUL applies to all production systems.

7.1.1 Please describe what the outcome of these measures has been in terms of the reduction of the respective environmental problem (including an indication of the scale on which these outcomes have been obtained).

7.1.2 Please describe what the outcome of these measures has been in terms of the state of animal genetic resources and their management (including an indication of the scale on which these outcomes have been obtained).

8. Please describe any constraints or problems encountered or foreseen in the implementation of measures in your country aimed at promoting the provision of regulating and supporting ecosystem services or reducing environmental problems.

Most limiting factors are lack of human resources and (public) funding.

9. Please provide examples of cases in which the role of livestock or specific animal genetic resources is particularly important in the provision of regulating and/or supporting ecosystem services in your country. Please also describe any examples in which diverse animal genetic resources are important in terms of reducing the adverse environmental effects of livestock production.

The surface and topography of Austria is greatly influenced by the alpine region in the west and by flat planes in the east. Next to fertile and in most cases intensively managed agricultural land these regions contain extensively managed habitats like steep mountain slopes, high altitude grazing planes or dry meadows. Due to traditional grassland management and grazing practices many of these habitats are still protected by Austria's livestock farmers. As a greater part of these habitats are characterized by rough topography, in most cases rare breeds of ruminants are the appropriate choice to manage these lands. They are small framed, flexible to all types of terrain and can cope with low energy feed. Therefore farmers still operating in these habitats help to:

- Keep grass land open and thereby support biodiversity of these meadows and increase landscape diversity.
- Reduce high inputs of energy feed by feeding grass and hay and therefore decreasing energy demanding protein production, nitrogen pollution of water, etc.
- Protect rare breeds as they are the appropriate choice to manage extensive production systems.

10. Please describe the potential steps that could be taken in your country to further expand or strengthen positive links between animal genetic resources management and the provision of regulating and/or supporting ecosystem services or the reduction of environmental problems. If your country has specific plans to take further action in this field, please describe them.

The national Agri-Environmental Program could contain combined measures like for example pasture management and the use of rare breeds to multiply the effect on protection of genetic resources.
Public as well as private land holders could introduce grassland management programs on fallow land like high water dams, water retention area and extensive pasture land which is endangered by shrubs. This would reduce the costs of land management and offer additional grazing to farmers for small rents or even for free.
Introduction of low input feed management techniques and appropriate breeds by supporting research on this field and offering financial support to farmers to reduce dependency on protein imports could minimize negative environmental impacts by high energy feed and achieve well adapted, independent and resilient breeds.

11. Please provide any further information on the links between animal genetic resources management in your country and the provision of supporting and/or regulating ecosystem services and/or the reduction of environmental problems.

IV. PROGRESS REPORT ON THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES – 2007 TO 2013*

Note: Please provide further details in the text boxes below each question, including, if relevant, information on why no action has been taken.

STRATEGIC PRIORITY AREA 1: CHARACTERIZATION, INVENTORY AND MONITORING OF TRENDS AND ASSOCIATED RISKS

- The state of inventory and characterization of animal genetic resources
- The state of monitoring programmes and country-based early warning and response systems
- The state of international technical standards and protocols for characterization, inventory, and monitoring

1. Which of the following options best describes your country's progress in building an inventory of its animal genetic resources covering all livestock species of economic importance (SP 1, Action 1)?

Glossary: An inventory is a complete list of all the different breeds present in a country.

- a. Completed before the adoption of the GPA
- b. Completed after the adoption of the GPA
- c. Partially completed (further progress since the adoption of the GPA)
- d. Partially completed (no further progress since the adoption of the GPA)

Please provide further details:

The animal breeding laws of the Federal countries have been in place since the 1950ies and regulate the official recognition of breeds and breeding organizations. The legislation enables an exact census of locally adapted and exotic breeds and breeding animals.

2. Which of the following options best describes your country's progress in implementing phenotypic characterization studies covering morphology, performance, location, production environments and specific features in all livestock species of economic importance (SP 1, Actions 1 and 2)?

- a. Comprehensive studies were undertaken before the adoption of the GPA
- b. Sufficient information has been generated because of progress made since the adoption of the GPA

- c. Some information has been generated (further progress since the adoption of the GPA)
- d. Some information has been generated (no further progress since the adoption of the GPA)
- e. None, but action is planned and funding identified
- f. None, but action is planned and funding is sought
- g. None

Please provide further details:

The breeding organizations have been responsible for monitoring of the populations, registering of breeding animals and recording of production traits since the 1950ies. The results are published in yearly reports. The central databases are the base of a regular monitoring. A yearly census of all animals of one species is made. The breeding organizations monitor and report the number of breeding animals from the information in the database. A central database for horses is under development. Better monitoring for poultry breeds kept on small farms will be needed in the future.

3. Which of the following options best describes your country's progress in molecular characterization of its animal genetic resources covering all livestock species of economic importance (SP 1)?

- a. Comprehensive studies were undertaken before the adoption of the GPA
- b. Sufficient information has been generated because of progress made since the adoption of the GPA
- c. Some information has been generated (further progress since the adoption of the GPA)
- d. Some information has been generated (no further progress since the adoption of the GPA)
- e. None, but action is planned and funding identified
- f. None, but action is planned and funding is sought
- g. None

Please provide further details:

See 2.

4. Has your country conducted a baseline survey of the population status of its animal genetic resources for all livestock species of economic importance (SP 1, Action 1)?

Glossary: A baseline provides a reference point for monitoring population trends. Population status refers to the total size of a national breed population (ideally, also the proportion that is actively used for breeding and the number of male and female breeding animals).

- a. Yes, a baseline survey was undertaken before the adoption of the GPA
- b. Yes, a baseline survey has been undertaken or has commenced after the adoption of the GPA
- c. Yes, a baseline survey has been undertaken for some species (coverage increased since the adoption of the GPA)
- d. Yes, a baseline survey has been undertaken for some species (coverage not increased since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Data on population status of cattle, horses, sheep, goats and pigs are continually available since the year 1950.

5. Have institutional responsibilities for monitoring the status of animal genetic resources in your country been established (SP 1, Action 3)?

Glossary: Monitoring is a systematic set of activities undertaken to document changes in the population size and structure of animal genetic resources over time.

- a. Yes, responsibilities established before the adoption of the GPA
- b. Yes, responsibilities established after the adoption of the GPA

- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

The following organizations are responsible for the monitoring of animal production and marketing:
 Agrar Markt Austria www.ama.at
 cattle: Zentrale Arbeitsgemeinschaft Rind www.zar.at
 horses: Zentrale Arbeitsgemeinschaft Pferd www.pferdezucht-austria.at
 pigs: Verband österreichischer Schweinebauern www.schweine.at
 sheep and goats: Österreichischer Bundesverband für Schafe und Ziegen www.alpinetgheep.com
 rare breeds: Austrian Association for Rare Endangered Breeds www.oengene.at

6. Have protocols (details of schedules, objectives and methods) been established for a programme to monitor the status of animal genetic resources in your country (SP 2)?

- a. Yes, protocols established before the adoption of the GPA
- b. Yes, protocols established after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

The yearly reports contain at least: total number of animals per breed, registered animals, breeding females, breeding males (not compulsory), number of animals registered during the last year, production data (depending on the species and breed).

7. Are the population status and trends of your country's animal genetic resources being monitored regularly for all livestock species of economic importance (SP 1, Action 2)?

- a. Yes, regular monitoring commenced before the adoption of the GPA
- b. Yes, regular monitoring commenced after the adoption of the GPA
- c. Yes, regular monitoring is being undertaken for some species (coverage increased since the adoption of the GPA)
- d. Yes, regular monitoring is being undertaken for some species (coverage not increased since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

See 5.

8. Which criteria does your country use for assessing the risk status of its animal genetic resources (SP 1, Action 7)?

Glossary: FAO has developed criteria that it uses to allocate breeds to risk-status categories based on the size and structure of their populations (<http://www.fao.org/docrep/010/a1250e/a1250e00.htm>).

- a. FAO criteria
- b. National criteria that differ from the FAO criteria
- c. Other criteria (e.g. defined by international body such as European Union)
- d. None

Please provide further details. If applicable, please describe (or provide a link to a web site that describes) your national criteria or those of the respective international body:

Criteria of the European Union:

- Cattle < 7500 breeding females
 - Sheep, goats < 10000 breeding females
 - Horses < 5000 breeding females
 - Pigs < 15000 breeding females
- Criteria for chicken (national):
- Breeding herds < 200

9. Has your country established an operational emergency response system (<http://www.fao.org/docrep/meeting/021/K3812e.pdf>) that provides for immediate action to safeguard breeds at risk in all important livestock species (SP 1, Action 7)?

- a. Yes, a comprehensive system was established before the adoption of the GPA
- b. Yes, a comprehensive system has been established since the adoption of the GPA
- c. For some species and breeds (coverage expanded since the adoption of the GPA)
- d. For some species and breeds (coverage not expanded since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Following tasks started right after the foundation of the Austrian Association for Rare and Endangered Breeds (OENGENE) in 1982:

1. Survey of the endangered breeds and if they are worth to be conserved:
 - Ecological, historical and cultural importance
 2. Actions for the conservation of the endangered breeds:
 - Conservation in private farms
 - Conservation in public areas (agricultural schools, research institutes)
 - Ex-situ-Conservation with the help of modern technologies (AI, ET)
 - Immediate actions for highly endangered breeds
 3. Support of scientific work for the study of the genetic structure, the adaptability to special environments and attributes of resistance
 4. Public work about the economical, ethical, aesthetic and genetic importance of rare livestock breeds
- Currently there is no emergency plan for chicken breeds.

10. Is your country conducting research to develop methods, technical standards or protocols for phenotypic or molecular characterization, or breed evaluation, valuation or comparison? (SP 2, Action 2)

- a. Yes, research commenced before the adoption of the GPA
- b. Yes, research commenced after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

Support of scientific work for the study of the genetic structure, the adaptability to special environments and attributes of resistance (traditional rare breeds)

Projects funded by OENGENE before and after the adoption of the GPA

Cattle breeds 1982 (blood group polymorphism) and 2009 (genetic characterization)

Sheep breeds 2002 (genetic characterization)

Goat breeds 2004 (genetic characterization) and 2009 (genetic characterization of Blobe Ziege)

Turopolje Pig 2011 (genetic diversity of Austrian, Croatian and Serbian population)

11. Has your country identified the major barriers and obstacles to enhancing its inventory, characterization and monitoring programmes?

- a. Yes

- b. No
- c. No major barriers and obstacles exist. Comprehensive inventory, characterization and monitoring programmes are in place.

Please provide further details. If barriers and obstacles have been identified, please list them:

12. If applicable, please list and describe the measures that need to be taken to address these barriers and obstacles and to enhance your country's inventory, characterization and monitoring programmes:

13. Please provide further comments on your country's activities related to Strategic Priority Area 1: Characterization, inventory and monitoring of trends and associated risks (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

STRATEGIC PRIORITY AREA 2: SUSTAINABLE USE AND DEVELOPMENT

- The state of national sustainable use policies for animal genetic resources
- The state of national species and breed development strategies and programmes
- The state of efforts to promote agro-ecosystem approaches

14. Does your country have adequate national policies in place to promote the sustainable use of animal genetic resources (see also questions 46 and 54)?

- a. Yes, since before the adoption of the GPA
- b. Yes, policies put in place or updated after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details. If available, please provide the text of the policies or a web link to the text:

National policies started in 1982 with rare cattle breeds and were extended to other species in 1995 (sheep, goats, horses), 2001 (pigs) and 2008 (chicken).

15. Do these policies address the integration of agro-ecosystem approaches into the management of animal genetic resources in your country (SP5) (see also questions 46 and 54)?

Glossary: The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (for further information see <http://www.cbd.int/ecosystem/description.shtml>).

- a. Yes
- b. No, but a policy update is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

16. Do breeding programmes exist in your country for all major species and breeds, and are these programmes regularly reviewed, and if necessary revised, with the aim of meeting foreseeable economic and social needs and market demands (SP4, Action 2)?

- a. Yes, since before the adoption of the GPA
- b. Yes, put in place after the adoption of the GPA
- c. For some species and breeds (coverage has increased since the adoption of the GPA)
- d. For some species and breeds (coverage has not increased since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Since 1950 the Federal Countries have been responsible for animal breeding matters and genetic improvement strategies. National working groups on cattle, horses, pigs, sheep and goats co-ordinate the policies in the Federal countries. As the market for breeding animals changes constantly the adaptation of breeding strategies is an ongoing task. Non-production traits like fitness, fertility and adaptability get more important and are integrated into the genetic improvement strategies.

17. Is long-term sustainable use planning – including, if appropriate, strategic breeding programmes – in place for all major livestock species and breeds (SP4, Action 1)?

- a. Yes, since before the adoption of the GPA
- b. Yes, put in place after the adoption of the GPA
- c. For some species and breeds (further progress made since the adoption of the GPA)
- d. For some species and breeds (no further progress made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

See 16.

18. Have the major barriers and obstacles to enhancing the sustainable use and development of animal genetic resources in your country been identified?

- a. Yes
- b. No
- c. No major barriers and obstacles exist. Comprehensive sustainable use and development measures are in place.

Please provide further details. If barriers and obstacles have been identified, please list them:

19. Have the long-term impacts of the use of exotic breeds on locally adapted breeds (e.g. economic, environmental or genetic impacts) and on food security been assessed in your country (SP4, Action 1)?

Glossary:

Exotic breeds are breeds that are maintained in a different area from the one in which they were developed. Exotic breeds comprise both recently introduced breeds and continually imported breeds.

Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

f. No

Please provide further details:

As animal breeding is organised on a private level any imported breed or strain can be used by breeders if the animals fulfill the zoosanitary measures and are not genetically modified organisms. A variety of breeds has been imported to Austria especially during the last years. Some of them have established breeders organizations and joined the official recording schemes. The owners themselves decide about the use of the breed.

Crossbreeding of locally adapted breeds with exotic breeds has to be agreed on by the stakeholders (breeders and breeding organization) and included in the breeding program of the breed. Very few locally adapted breeds have agreed to crossbreeding with defined exotic breeds (Simmental, Pinzgau). In that case the crossbred animals are marked in the herdbook to avoid indiscriminate crossbreeding. The purebred gene pool is conserved in situ and/or in the Austrian Gene Bank of Farm Animals.

20. Have recording systems and organizational structures for breeding programmes been established or strengthened (SP4, Action 3)?

- a. Yes, sufficient recording systems and organizational structures for breeding programmes have existed since before the adoption of the GPA
- b. Yes, sufficient recording systems and organizational structures for breeding programmes exist because of progress made since the adoption of the GPA
- c. Yes, recording systems and organizational structures for breeding programmes are partially in place (and were established or strengthened after the adoption of the GPA)
- d. Yes, recording systems and organizational structures for breeding programmes are partially in place (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Recording of production traits is in the responsibility of the federal countries and regulated in the animal breeding laws. All breeding programmes contain the obligation to record production traits. The recording of production traits has a long tradition in Austria, e.g. milk-recording according to ICAR rules started in 1955.

21. Are mechanisms in place in your country to facilitate interactions among stakeholders, scientific disciplines and sectors as part of sustainable use development planning (SP5, Action 3)?

- a. Yes, comprehensive mechanisms have existed since before the adoption of the GPA
- b. Yes, comprehensive mechanisms exist because of progress made since the adoption of the GPA
- c. Yes, mechanisms are partially in place (and were established or strengthened after the adoption of the GPA)
- d. Yes, mechanisms are partially in place (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

See 5. The organizations act as platforms for exchange of information and support.

22. Have measures been implemented in your country to provide farmers and livestock keepers with information that facilitates their access to animal genetic resources (SP 4, Action 7)?

- a. Yes, comprehensive measures have existed since before the adoption of the GPA
- b. Yes, comprehensive measures exist because of progress made since the adoption of the GPA
- c. Yes, measures partially implemented (and were established or strengthened after the adoption of the GPA)
- d. Yes, measures partially implemented (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

See 5.

23. Has your country developed a national policy or entered specific contractual agreements for access to and the equitable sharing of benefits resulting from the use and development of animal genetic resources and associated traditional knowledge (SP3, Action 2)?

- a. Yes, sufficient measures (policy and/or agreements) have been in place since before the adoption of the GPA
- b. Yes, sufficient measures (policy and/or agreements) are in place because of progress made since the adoption of the GPA
- c. Yes, some measures (policy and/or agreements) are in place (progress has been made since the adoption of the GPA)
- d. Yes, some measures (policy and/or agreements) are in place (but no progress has been made since the adoption of the GPA)
- e. No, but a policy and/or agreements are in preparation
- f. No, but a policy and/or agreements are planned
- g. No

Please provide further details:

At the time no specific policy on access to and equitable sharing of benefits resulting from the use and development of animal genetic resources is in place in Austria. The exchange of animal genetic resources is free and only zoo-hygienic measures are applied. When Austria ratifies the Nagoya Protocol a regulatory framework will be developed accordingly.

24. Have training and technical support programmes for the breeding activities of livestock-keepers been established or strengthened in your country (SP 4, Action 1)?

- a. Yes, sufficient programmes have existed since before the adoption of the GPA
- b. Yes, sufficient programmes exist because of progress made since the adoption of the GPA
- c. Yes, some programmes exist (progress has been made since the adoption of the GPA)
- d. Yes, some programmes exist (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

The training and technical support programs have been run by the Federal Countries since 1950. Participation for farmers is either free of charge or the fees are very low due to subsidies.

25. Have priorities for future technical training and support programmes to enhance the use and development of animal genetic resources in your country been identified (SP 4, paragraph 42)?

- a. Yes, priorities have been identified or updated since the adoption of the GPA
- b. Yes, priorities were identified before the adaption of the GPA but have not been updated
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought

- e. No

Please provide further details:

Technical training and support programmes are continually updated.
Selection of current priority topics: "Efficient Cow" (www.zar.at) "Energy efficient production" (pigs, chicken) "Protein alternatives" (cattle, pigs, chicken) "Do it yourself artificial insemination of goats".

26. Have efforts been made in your country to assess and support indigenous or local production systems and associated traditional knowledge and practices related to animal genetic resources (SP 6, Action 1, 2)?

- a. Yes, sufficient measures have been in place since before the adoption of the GPA
- b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
- c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
- d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

The initiative Agriculture 2020 (<http://www.lebensministerium.at/en/initiatives/Agriculture2020.html>) integrates animal genetic resources into a nation-wide multifunctional model on a socio-economic base. At the core lies the strengthening of a sustainable farm-based agriculture and forestry.

27. Have efforts been made in your country to promote products derived from indigenous and local species and locally adapted breeds, and facilitate access to markets (SP 6, Action 2, 4)?

- a. Yes, sufficient measures have been in place since before the adoption of the GPA
- b. Yes, sufficient measures are in place because of progress made since the adoption of the GPA
- c. Yes, some measures are in place (and were established or strengthened after the adoption of the GPA)
- d. Yes, some measures are in place (but no progress has been made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

All efforts are project-based and most of them depend on external funding. Most projects focus on beef. One project targets sheep (Krainer Steinschaf, www.schirnhof-gmbh.at/cms/?n01csdoz-1k83-bz9l-u4xp-q8y117elvt).

28. If applicable, please list and describe priority requirements for enhancing the sustainable use and development of animal genetic resources in your country:

29. Please provide further comments on your country's activities related to Strategic Priority Area 2: Sustainable Use and Development (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

STRATEGIC PRIORITY AREA 3: CONSERVATION

- The state of national conservation policies
- The state of *in situ* and *ex situ* conservation programmes
- The state of regional and global long-term conservation strategies and agreement on technical standards for conservation

30. Does your country regularly assess factors leading to the erosion of its animal genetic resources (SP 7, Action 2)?

- a. Erosion not occurring
- b. Yes, regular assessments have been implemented since before the adoption of the GPA
- c. Yes, regular assessments have commenced since the adoption of the GPA
- d. No, but action is planned and funding identified
- e. No, but action is planned and funding is sought
- f. No

Please provide further details:

First assessment took place in 1982. Since 1995 evaluation of the situation in 5 to 7 year intervals.

31. What factors or drivers are leading to the erosion of animal genetic resources? Please describe the factors specifying which breeds or species are affected:

Currently genetic erosion is not occurring.

32. Does your country have conservation policies and programmes in place to protect locally adapted breeds at risk in all important livestock species (SP 7, SP 8 and SP 9)?

Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

- a. Country requires no policies and programmes because all locally adapted breeds are secure
- b. Yes, comprehensive policies and programmes have been in place since before the adoption of the GPA
- c. Yes, comprehensive policies and programmes exist because of progress made since the adoption of the GPA
- d. For some species and breeds (coverage expanded since the adoption of the GPA)
- e. For some species and breeds (coverage not expanded since the adoption of the GPA)
- f. No, but action is planned and funding identified
- g. No, but action is planned and funding is sought
- h. No

Please provide further details:

33. If conservation policies and programmes are in place, are they regularly evaluated or reviewed (SP 7, Action 1; SP 8, Action 1; and SP 9, Action 1)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought

- d. No

Please provide further details:

See 30.

34. Does your country have in situ conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Locally adapted breeds are breeds that have been in the country for a sufficient time to be genetically adapted to one or more of traditional production systems or environments in the country. The phrase "sufficient time" refers to time present in one or more of the country's traditional production systems or environments. Taking cultural, social and genetic aspects into account, a period of 40 years and six generations of the respective species might be considered as a guiding value for "sufficient time", subject to specific national circumstances.

- a. Country requires no in situ conservation measures because all locally adapted breeds are secure
- b. Yes for all breeds
- c. For some breeds (coverage expanded since the adoption of the GPA)
- d. For some breeds (coverage not expanded since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

See Annex 1.

35. Does your country have ex situ in vivo conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Ex situ in vivo conservation - maintenance of live animal populations not kept under their normal management conditions - e.g. in zoological parks or governmental farms - and/or outside the area in which they evolved or are now normally found.

- a. Country requires no ex situ in vivo conservation measures because all locally adapted breeds are secure
- b. Yes for all breeds
- c. For some breeds (coverage expanded since the adoption of the GPA)
- d. For some breeds (coverage not expanded since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Populations of locally adapted breeds at risk of extinction are displayed at several Austrian zoos. These populations take part in the conservation programs (see Annex 1).

36. Does your country have ex situ in vitro conservation measures in place for locally adapted breeds at risk of extinction and to prevent breeds from becoming at risk (SP 8 and SP 9)?

Glossary: Ex situ in vitro - conservation, under cryogenic conditions including, inter alia, the cryoconservation of embryos, semen, oocytes, somatic cells or tissues having the potential to reconstitute live animals at a later date.

- a. Country requires no ex situ in vitro conservation measures because all locally adapted breeds are secure
- b. Yes for all breeds
- c. For some breeds (coverage expanded since the adoption of the GPA)
- d. For some breeds (coverage not expanded since the adoption of the GPA)
- e. No, but action is planned and funding identified

- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

Only exception are chicken breeds. Inclusion in the Austrian Genebank of Farm Animals is planned.

37. Please describe the measures (indicating for each whether they were introduced before or after the adoption of the GPA) or provide a web link to a published document that provides further information:

The Austrian Cryo-Conservation Programme
www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&job=grid

38. If your country has not established any conservation programmes, is this a future priority?

- a. Yes
- b. No

Please provide further details:

39. Has your country identified the major barriers and obstacles to enhancing the conservation of its animal genetic resources?

- a. Country requires no conservation programmes because all animal genetic resources are secure
- b. Yes
- c. No
- d. No major barriers and obstacles exist. Comprehensive conservation programmes are in place

Please provide further details. If barriers and obstacles have been identified, please list them:

40. If your country has existing ex situ collections of animal genetic resources, are there major gaps in these collections (SP 9, Action 5)?

- a. Yes
- b. No

If yes, have priorities for filling the gaps been established?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

A project to document the Austrian pig population by means of semen is already under way.

41. Are arrangements in place in your country to protect breeds and populations that are at risk from natural or human-induced disasters (SPA 3)?

- a. Yes, arrangements have been in place since before the adoption of the GPA
- b. Yes, arrangements put in place after the adoption of the GPA
- c. No, but action is planned and funding identified

- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

See 37.

42. Are arrangements in place in your country for extraction and use of conserved genetic material following loss of animal genetic resources (e.g. through disasters), including arrangements to enable restocking (SP 9, Action 3)?

- a. Yes, arrangements have been in place since before the adoption of the GPA
- b. Yes, arrangements put in place after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

See 37.

43. Is your country conducting research to adapt existing, or develop new, methods and technologies for in situ and ex situ conservation of animal genetic resources (SP 11, Action 1)?

- a. Yes, research commenced before the adoption of the GPA
- b. Yes, research commenced since the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details. If yes, please briefly describe the research:

Berger, B., Fischerleitner, F. (2007) Ex situ conservation of endangered farm animal genetic resources in Austria [www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr\[\]=3374](http://www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr[]=3374)
 Berger, B. (2008) Gene banking in rare and traditional pig breeds in Austria with special regard to cryoconservation of Mangalica semen in conservation breeding [www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr\[\]=6017](http://www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr[]=6017))
 Berger, B., Fischerleitner, F. (2010) "Erfahrungen mit der Erhaltungszucht in Österreich" [www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr\[\]=7945](http://www.raumberg-gumpenstein.at/c/index.php?option=com_fodok&Itemid=100033&task=detail&filter_publicnr[]=7945)

44. Does your country implement programmes to promote documentation and dissemination of knowledge, technologies and best practices for conservation (SP 11, Action 2)?

- a. Yes, programmes commenced before the adoption of the GPA
- b. Yes, programmes commenced since the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

45. What are your country's priority requirements for enhancing conservation measures for animal genetic resources? Please list and describe them:

46. Please provide further comments describing your country's activities related to Strategic Priority Area 3: Conservation (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

STRATEGIC PRIORITY AREA 4: POLICIES, INSTITUTIONS AND CAPACITY-BUILDING IMPLEMENTATION AND FINANCING OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

- The state of national institutions for planning and implementing animal genetic resources measures
- The state of information sharing
- The state of educational and research facilities capacity for characterization, inventory, and monitoring, sustainable use, development, and conservation
- The state of awareness of the roles and values of animal genetic resources
- The state of policies and legal frameworks for animal genetic resources

47. Does your country have sufficient institutional capacity to support holistic planning of the livestock sector (SP 12, Action1)?

- a. Yes, sufficient capacity has been in place since before the adoption of the GPA
- b. Yes, sufficient capacity is in place because of progress made after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

48. What is the current status of your country's national strategy and action plan for animal genetic resources (SP 20)?

Glossary: National strategy and action plan for animal genetic resources: a strategy and plan, agreed by stakeholders and preferably government-endorsed, that translates the internationally agreed Global Plan of Action for Animal Genetic Resources into national actions, with the aim of ensuring a strategic and comprehensive approach to the sustainable use, development and conservation of animal genetic resources for food and agriculture.

- a. Previously endorsed national strategy and action plan is being updated (or new version has been endorsed)
- b. Completed and government-endorsed
- c. Completed and agreed by stakeholders
- d. In preparation
- e. Preparation is planned and funding identified
- f. Future priority activity
- g. Not planned

Please provide further details. If available, please provide a copy of your country's national strategy and action plan as a separate document or as a web link:

The Austrian Strategy for Animal Genetic Resources was first developed as part of the National Biodiversity Strategy for the implementation of the Convention on Biodiversity in 1995. It targeted only endangered animal genetic resources. Currently the strategy is expanded to all animal genetic resources and completely re-written. It is planned to be in place in 2015.

49. Are animal genetic resources addressed in your country's National Biodiversity Strategy and Action Plan (<http://www.cbd.int/nbsap/>)?

- a. Yes
- b. No, but they will be addressed in forthcoming plan
- c. No

Please provide further details:

See 48.

50. Are animal genetic resources addressed in your country's national livestock sector strategy, plan or policy (or equivalent instrument)?

- a. Yes
- b. No, but they will be addressed in a forthcoming strategy, plan or policy
- c. No, animal genetic resources are not addressed
- d. No, the country does not have a national livestock sector strategy, plan or policy

Please provide further details. If available, please provide the text of the strategy, plan or policy or a web link to the text:

51. Has your country established or strengthened a national database for animal genetic resources (independent from DAD-IS) (SP 15, Action 4)?

- a. Yes, a national database has been in place since before the adoption of the GPA
- b. Yes, a national database is in place because of progress made since the adoption of the GPA
- c. Yes, a national database is in place but still requires strengthening (progress since adoption of the GPA)
- d. Yes, a national database is in place but still requires strengthening (no progress since adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

In compliance with EU regulations cattle, sheep, goats, horses and pigs must be registered for sanitary reasons and every movement of animals is registered in central databases. This applies to cattle, sheep, goats, pigs and horses. Concerning poultry and rabbits only the farms that keep the animals are registered. Additionally the EFABIS gives an overview of the Austrian breeds of farm animals relevant for food and agriculture.

52. Have your country's national data on animal genetic resources been regularly updated in DAD-IS?

Note that the Commission on Genetic Resources for Food and Agriculture has requested FAO to produce global status and trends reports every two years.

- a. Yes, regular updates have been occurring since before the adoption of the GPA
- b. Yes, regular updates started after the adoption of the GPA
- c. No, but it is a future priority
- d. No

Please provide further details:

53. Has your country established a National Advisory Committee for Animal Genetic Resources (SP 12, Action 3)?

- a. Yes, established before the adoption of the GPA
- b. Yes, established after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details. If a National Advisory Committee has been established, please list its main functions:

In Austria this committee is called "Tierzuchtrat".
Its main functions are comments and expertise on matters concerning animal breeding (and management) at request.
For the legal base see <http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrOO&Gesetzesnummer=20000560>.

54. Is there strong coordination and interaction between the National Focal Point and stakeholders involved with animal genetic resources, such as the breeding industry, livestock keepers, government agencies, research institutes and civil society organizations (SP 12, Action 3)?

- a. Yes, strong coordination has been in place since before the adoption of the GPA
- b. Yes, strong coordination was established after the adoption of the GPA
- c. No, but action is planned and funding identified
- d. No, but action is planned and funding is sought
- e. No

Please provide further details:

The Institute of Organic Farming and Biodiversity of Farm Animals acting as National Focal Point harbours the ÖNGENE and provides a platform for breeding organisations, farmers, government institutions, non-government organisations and research.

55. Does the National Focal Point (or other institutions) undertake activities to increase public awareness of the roles and values of animal genetic resources (SP 18)?

- a. Yes, activities commenced before the adoption of the GPA
- b. Yes, activities commenced after the adoption of the GPA
- c. No, but activities are planned and funding identified
- d. No, but activities are planned and funding is sought
- e. No

Please provide further details:

56. Does your country have national policies and legal frameworks for animal genetic resources management (SP 20)?

- a. Yes, comprehensive national policies and legal frameworks were in place before the adoption of the GPA and are kept up to date
- b. Yes, comprehensive and up-to-date national policies and legal frameworks in place because of progress made since the adoption of the GPA
- c. Yes, some national policies and legislation in place (strengthened since the adoption of the GPA)
- d. Yes, some national policies and legislation in place (not strengthened since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought

- g. No

Please provide further details:

57. Which of the following options best describes the state of training and technology transfer programmes in your country related to inventory, characterization, monitoring, sustainable use, development and conservation of animal genetic resources (SP14, Action 1)?

- a. Comprehensive programmes have been in place since before the adoption of the GPA
- b. Comprehensive programmes exist because of progress made since the adoption of the GPA
- c. Some programmes exist (further progress since the adoption of the GPA)
- d. Some programmes (no further progress since the adoption of the GPA)
- e. None, but action is planned and funding identified
- f. None, but action is planned and funding is sought
- g. None

Please provide further details:

58. Have organizations (including where relevant community-based organizations), networks and initiatives for sustainable use, breeding and conservation been established or strengthened (SP 14, Action 3)?

- a. Yes, comprehensive organizations, networks and initiatives have existed since before the adoption of the GPA
- b. Yes, comprehensive organizations, networks and initiatives exist because of progress made since the adoption of the GPA
- c. Yes, some organizations, networks and initiatives exist (established or strengthened since adoption of the GPA)
- d. Yes, some organizations, networks and initiatives exist (but no progress made since adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

59. Are there any national NGOs active in your country in the fields of:

Characterization?

- a. Yes
- b. No

Sustainable use and development?

- c. Yes
- d. No

Conservation of breeds at risk?

- e. Yes
- f. No

If yes, please list the national NGOs and provide links to their web sites:

ÖNGENE www.oengene.at

ZAR www.zar.at

OEBSZ <http://alpinetgheep.com/400-0-Oesterreichischer-Bundesverband-fuer-Schafe-und-Ziegen.html>

Arche Austria www.arche-austria.at

60. Has your country established or strengthened research or educational institutions in the field of animal genetic resources management (SP 13, Action 3)?

- a. Yes, adequate research and education institutions have existed since before the adoption of the GPA
- b. Yes, adequate research and education institutions exist because of progress made since the adoption of the GPA
- c. Yes, research and education institutions exist but still require strengthening (progress made since the adoption of the GPA)
- d. Yes, research and education institutions exist but still require strengthening (no progress made since the adoption of the GPA)
- e. No, but action is planned and funding identified
- f. No, but action is planned and funding is sought
- g. No

Please provide further details:

LFZ Raumberg-Gumpenstein www.raumberg-gumpenstein.at

More than 200 agricultural schools, research and educational institutions of the Federal Countries, University of Natural Resources and Life Sciences www.boku.ac.at, University of Veterinary Medicine www.vetmeduni.ac.at

61. Please provide further comments describing your country's activities related to Strategic Priority Area 4: Policies, Institutions and Capacity-building (including regional and international cooperation)

Note: It is not necessary to duplicate information provided in previous sections. Where relevant, please provide cross-references.

IMPLEMENTATION AND FINANCING OF THE GLOBAL PLAN OF ACTION FOR ANIMAL GENETIC RESOURCES

- The state of international collaboration for planning and implementing animal genetic resources measures
- The state of financial resources for the conservation, sustainable use and development of animal genetic resources

62. Has your country established or strengthened international collaboration in (SP 16):

Characterization?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Sustainable use and development?

- e. Yes
- f. No, but action is planned and funding identified
- g. No, but action is planned and funding is sought
- h. No

Conservation of breeds at risk?

- i. Yes
- j. No, but action is planned and funding identified
- k. No, but action is planned and funding is sought
- l. No

Please provide further details:

Austria is an active part of the European Regional Focal Point.

63. Are there any international NGOs active in your country in the fields of:
Characterization?

- a. Yes
- b. No

Sustainable use and development?

- c. Yes
- d. No

Conservation of breeds at risk?

- e. Yes
- f. No

If yes, please list the international NGOs:

64. Has national funding for animal genetic resources programmes increased since the adoption of the GPA?

- a. Yes
- b. No

Please provide further details:

In 2013 the funding of the ÖPUL measure "Rare Breeds" amounted to 4,535.240.- €. That is an increase of 25,8% since 2007.

65. Has your country received external funding for implementation of the GPA?

- a. Yes
- b. No
- c. No, because country generally does not receive external funding

Please provide further details:

66. Has your country supported or participated in international research and education programmes assisting developing countries and countries with economies in transition to better manage animal genetic resources (SP 15 and 16)?

- a. Yes, support or participation in place before the adoption of the GPA and strengthened since
- b. Yes, support or participation in place before the adoption of the GPA but not strengthened since
- c. Yes, support or participation in place since the adoption of the GPA
- d. No, but action is planned and funding identified

- e. No, but action is planned and funding is sought
- f. No

Please provide further details:

Funding of development assistance did not increase since 2007.

67. Has your country supported or participated in programmes aimed at assisting developing countries and countries with economies in transition to obtain training and technologies and to build their information systems (SP 15 and 16)?

- a. Yes, support or participation commenced before the adoption of the GPA and strengthened since
- b. Yes, support or participation commenced before the adoption of the GPA but not strengthened since
- c. Yes, support or participation commenced since the adoption of the GPA
- d. No, but action is planned and funding identified
- e. No, but action is planned and funding is sought
- f. No

Please provide further details:

See 66.

68. Has your country provided funding to other countries for implementation of the Global Plan of Action?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No
- e. No, because country is generally not a donor country

Please provide further details. If relevant, specify whether funding was bilateral or multilateral; research cooperation or aid; and to whom and for what it was given:

69. Has your country contributed to international cooperative inventory, characterization and monitoring activities involving countries sharing transboundary breeds and similar production systems (SP 1, Action 5)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

Austria is an active part of the European Regional Focal Point.

70. Has your country contributed to establishing or strengthening global or regional information systems or networks related to inventory, monitoring and characterization of animal genetic resources (SP 1, Action 6)?

- a. Yes
- b. No, but action is planned and funding identified

- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

Austria is an active part of the European Regional Focal Point. The Institute of Organic Farming and Biodiversity of Farm Animals was partner in the EFABISnet project.

71. Has your country contributed to the development of international technical standards and protocols for characterization, inventory and monitoring of animal genetic resources (SP2)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

Austria is an active part of the European Regional Focal Point. The Institute of Organic Farming and Biodiversity of Farm Animals was partner in the EFABISnet project.

72. Has your country contributed to the development and implementation of regional in situ conservation programmes for breeds that are at risk (SP 8, Action 2; SP 10, Action 1)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

73. Has your country contributed to the development and implementation of regional ex situ conservation programmes for breeds that are at risk (SP 9, Action 2; SP 10, Action 3; SP 10, Action 4)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

Austria is an active part of the European Regional Focal Point. The Institute of Organic Farming and Biodiversity of Farm Animals was partner in the EFABISnet project.

74. Has your country contributed to the establishment of fair and equitable arrangements for the storage, access and use of genetic material stored in supra-national ex situ gene banks (SP9, Action 3)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

75. Has your country participated in regional or international campaigns to raise awareness of the status of animal genetic resources (SP19)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

ÖNGENE is an active partner of the International Association for the Conservation of Animal Breeds in the Danubian Region (DAGENE) and has repeatedly hosted the yearly DAGENE workshop (last time 2012).

76. Has your country participated in reviewing or developing international policies and regulatory frameworks relevant to animal genetic resources (SP 21)?

- a. Yes
- b. No, but action is planned and funding identified
- c. No, but action is planned and funding is sought
- d. No

Please provide further details:

EMERGING ISSUES

77. In view of the possibility that at some point countries may wish to update the GPA, please list any aspects of animal genetic resources management that are not addressed in the current GPA but will be important to address in the future (approximately the next ten years). Please also describe why these issues are important and indicate what needs to be done to address them.

Issues to be addressed in future

Issues to be addressed in future (next ten years)	Reasons	Actions required
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