Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Volkswirtschaftsdepartement EVD
Bundesamt für Landwirtschaft BLW

Strategy to support endangered livestock breeds in Switzerland

Global Diversity, Rome, May 5th 2010, Dr. Catherine Marguerat, FOAG, Switzerland

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1. **Biodiversity is changing**
   - a. *Agriculture needs Biodiversity*
   - b. *Diversity in Species*
   - c. *Biodiversity monitoring (FOEN)*
   - d. *International year of biodiversity 2010*
2. **Endangered Livestock-Breeds in Switzerland**
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   - *b) Examples of lost breeds*
3. **Legal bindings and dispositions**
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   - b. *CBD and consequences*
   - c. *Period after 1995*
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4. **Conservation of Farm animal genetic ressources/**
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   - b. *Project evaluation*
5. **Examples of funded projects**
6. **National Plan of Action**

1. Biodiversity is changing

a) Agriculture needs Biodiversity …
… Biodiversity needs agriculture

- Biodiversity means variety in ecosystems and species and genetic variety within species
- In agriculture biodiversity means variety in crops and in livestock
- Genetic ressources in plants and livestock are huge and have been created over thousands of years due to geography, changes in climate, influences of society and …

Biodiversity is changing

Switzerland is an alpine, green and agricultural country

It is a priviledged country with a high level of Biodiversity which nevertheless must be observed

Biodiversity is changing

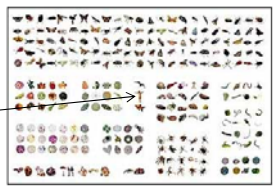
- **Biodiversity is not a new fashion trend for Switzerland, although the term „Biodiversity“ has only been introduced in politics and science around 1985**
- **In the last century we have lost and gained species**
- **In the last century we have lost and gained breeds**
- **Saving Biodiversity will be an important challenge for the 21st century and the future**

Biodiversity is changing

b) Diversity in Species

Diversity in Species in Switzerland				world
	known	estimated	known	est.
species	49‘000	70‘000	1.75 mio	4-20 mio
plants	4‘030	4‘200		
animals	26‘172	41‘125		
birds	399	399		
mammals	83	83		

Mammals within: 2%



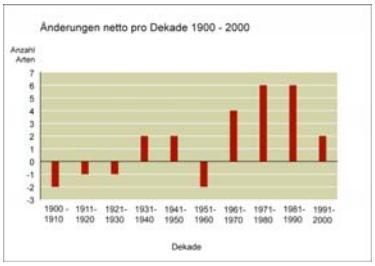
Source: Naturama Aargau

Biodiversity is changing

c) Biodiversity monitoring (FOEN)

Taxonomische Gruppe	Artenzahl 1900	Anzahl Arten, die zwischen 1900 und 2000 stets vorkamen	neue Arten (Zugänge)	verschwundene Arten (Abgänge)	Arten mit mehreren Status-wechseln	netto Artenzahl 2000
Säugetiere ohne Fledermäuse	51	49	8	2	0	57

2 lost species
8 new species
49 mammals (except bats)
57 in total



1900: 659 species
1900 – 2000: + 2% increase in species
+ 8 Mammals: ibex, lynx, beaver, bisam rat, mufflon, racoon, burunduk (squarrel), sika (deer)
- 2 mammals: otter, bear

Biodiversity is changing

- **The number of animal species (mammals, birds, reptiles, amphibians and fish) remained more or less constant between 1997 and 2005; some have disappeared while other new species have become established or re-established. Of the new species, some came alone, others were introduced by men.**
- **There have been considerable fluctuations in the diversity of species in the past. It is thought that species diversity reached its highest point in the middle or end of the 19th century**

Biodiversity is changing

- **With the domestication of animals the genetic variety has been changing and developped over 10‘000 years**
- **18th century: each region and valley with isolated populations of livestock showed typical caracteristics. No specific definitions for breeds, mobility of farmers was low, exchange of breeding animals was within the region**
- **19th century: first breeding organisations, higher mobility, intensification in agriculture, growing knowledge in breeding and political influence favoured specialised breeds ⟶ concentration of breeds**

Biodiversity is changing

Status of different Swiss breeds within species			
	existing	extinct	foreign origin
horses	1	18	>80
cattle	5	30	>30
sheep	8	29	>15
pigs	2	17	5
goats	11	28	4

d) International Year of Biodiversity 2010 Efforts in Switzerland

To mark the international year of Biodiversity, the FOAG produced, together with the Swiss Post, a postal stamp featuring a typical rare breed of Switzerland, the peacock goat as an example of a farm animal contributing to Biodiversity

2. Endangered Livestock Breeds

a) Development and loss of breeds

- ***mid-19th century*: breeders organisations described their breeds, breeding objectives and breeding strategies**
- ***1938*: Reclassification of breeds by Swiss Government in breeds to be encouraged and breeds not to be encouraged. The aim was to organise the unmanageable variety of diversity in breeds and local types ⟶ loss of breeds and types. Some breeds survived thanks to enthusiastic breeders and they are are still here today**
- **Increasing import and crossing with other breeds for economical reasons eliminated old local breeds**

Endangered Livestock Breeds

b) Examples of lost breeds

Swiss Breeds	Extinct	Integrated in
Bündner Oberländer pig	x	
Liviner cow	x	
Freiburger cow	x	
Oberwaldner goat		Coloured Chamois goat
Grindelwaldner cow		Simmental cow
Pruntrut horse		Freiberger horse
…	….	….

Endangered Livestock Breeds

Lost resp. integrated typical Swiss breeds

Freiburger cow

Frutiger cow

	AT RISK (2002) (*09)	2009 (*98)	UNDER OBSERVATION (2002)	2009 (*08;**96; ***95)
CATTLE	Evolène	288	Eringer Original Swiss Braunvieh Original Simmental	7'304 7'881 27'058
HORSES			Freiberger	3'656*
PIGS			Swiss Large White Swiss Landrace	10'833 1'232
SHEEPS	Bündner Oberländer sheep Engadine sheep Mirror sheep Valais Red	778 2'489 1'882 1'112	Brown-headed Meat sheep Swiss Black-Brown Mountian sheep Valais Blacknose sheep Swiss White Mountain sheep	11'342 11'146 14'434 33'745
GOATS	Appenzell goat Grisons striped goat Peacock goat Booted goat Capra Grigia	336 701 438 267 327	Coloured Chamois Saanen goat Nera Verzasca goat Toggenburg goat Valais Blacknecked goat	8'361 7'913 1'418 3'513 2'499
RABBITS			Swiss Feh Swiss Fox	1'000 500
CHICKEN	Schweizerhuhn	228*	Appenzell Barthuhn Appenzell Spitzhauben	1070** 356***
BEES	Dark landrace Bee*			

3. Legal bindings and dispositions

a) Federal Office for Agriculture FOAG

The **FOAG** belongs to the Federal Department of Economic Affairs (FDEA). It promotes multifunctional agriculture, contributing to:

- ensure the provision of adequate food for the population;
- maintain natural resources and rural landscape;
- maintain a decentralisation of settlements throughout the country

Together with cantonal authorities and farmers associations, the FOAG implements decisions taken by the Swiss Parliament or the Government and plays an active role in formulating agricultural policy

Legal bindings and dispositions

b) CBD and consequences

- **1992: Signature of the CBD in Rio de Janeiro**
- **1994: Approval by Swiss Parliament**
- **1994: Deposit of act of ratification**
- **1995: Coming into force**

With the signature, Switzerland expressed its intention to survey, maintain and encourage Biodiversity with appropriate measures

Legal bindings and dispositions

c) Period after 1995

- **1996: Nomination of an ad hoc working group**

✓ **collect all information on the actual situation of Biodiversity in farm animals**
✓ **define the term „Swiss breed“**
✓ **establish inventory and describe the breeds**
✓ **evaluation of cultural, economic and genetic values**
✓ **evaluation of needs for action**

- **1997: Intermediate report of working group**

Legal bindings and dispositions

- **1997: Working group ad hoc with enlarged requirements:**

✓ **Elaborate concrete measures for the maintenance of Swiss breeds including global and specific propositions**
✓ **Elaborate a frame for financial support to be granted**
✓ **Reflexions on coordination, supervision and handling**

- **1998: Final report of working group – propositions:**

➢ **Secretariate for genetic ressources for farm animals specific measures for encouragements**
➢ **Necessary credits for encouragement**

Legal bindings and dispositions

- **1999: Revision of the ordinance for livestock breeding**
- **2002: Nomination of an expert group to evaluate projects**
- **2002: Report to FAO: breed diversity in farm animals**
- **2008: Adaptation of the ordinance for livestock breeding**
- **2009: Round table „National Plan of Action“**
- **2010: Workshop for organisations with endangered breeds**

Legal bindings and dispositions

- **Ordinance of livestock breeding**

Article 16 **grants funds to support the conservation of Swiss breeds (origin Switzerland or at least managed in a herd-book in Switzerland since 1949)**

For funding may apply: recognized breeding associations or organizations meeting specific requirements

- **CHF 900'000** for conservation programs/projects and cryoconservation

Article 17 **grants funds to support research projects for animal genetic ressources (CHF 100'000)**

4. Conservation of Farm Animal Genetic Ressources / Projects

a. Who is involved?

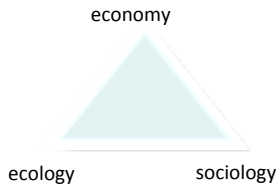
- Individuals
  - Private owners keep stocks of minor breeds (hobby)
- Breeding associations and NGO's
- Government
  - **Federal Office for Agriculture FOAG**

Conservation of Farm Animal Genetic Ressources / Projects

b) Project evaluation by Expert Group

Aspects for eligible projects

Not only



But also

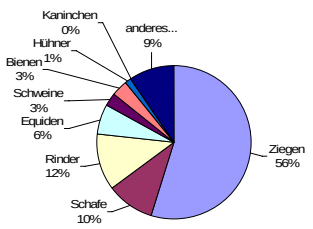
Conservation of Farm Animal Genetic Ressources / Projects

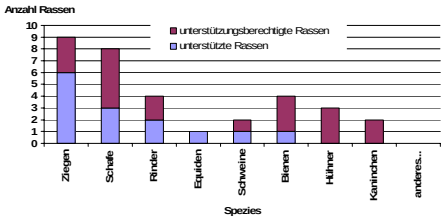
Criteria for eligible projects

- **Relevance of the question / project goals**
- **Reasonable methodical approach / reachability of the goals**
- **Innovation degree of the project / new points of view**
- **Sustainability/ breed conservation and -improvement**
- **Cost-benefit-ratio**

Conservation of Farm Animal Genetic Ressources / Projects

Between 1999 – 2009, a total of 40 projects have been funded for cattle, horses, goats, sheep, pigs, chicken and bees as well as for research (CHF 4.8 mio)





Source SHL: Evaluation of projects 1999 – 2005

5. Examples of funded projects

a. Freiberg Horses – Monitoring of the genetic diversity within the Breed

b. Endangered Swiss Chicken Breed – conservation and promotion

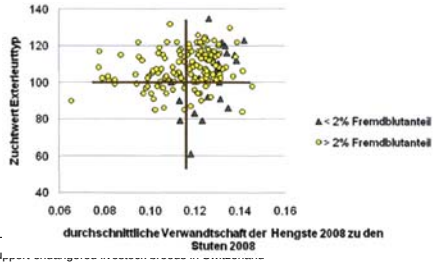
c. Ram Centre

d. Conservation and promotion of the Valais Blacknecked goat

e. Conservation and promotion of Evolène cattle

a) Freiberger Horses – Monitoring of the Genetic Diversity within the Breed

- **Goals of project: Develop a management tool to improve mating decisions within the Freiberger population → mating of potential breeding animals with minimal degree of relationship resp. inbreeding**
- **Combine breeding value and degree of relationship**



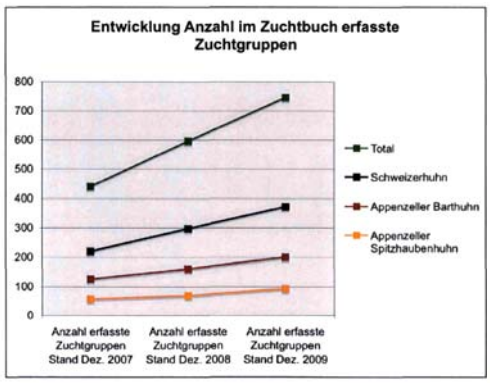
b) Endangered Swiss Chicken – Conservation/Promotion

Appenzell Spitzhauben, Schweizer Huhn and Appenzell Barthuhn

Goals of the project:

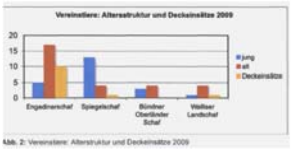
- **Setup a herd-book**
- **Qualitative and quantitative improvement of the breeding animal population**
- **Promotion of marketing products**
- **Public Relation**

Endangered „Swiss Chicken“ – Conservation/Promotion



c) Ram Centre

- **Goals of project**: **Establishment of a centre for rams of the four endangered swiss sheep breeds (Valais Red, Engadine sheep, Bündner Oberländer sheep, Mirror sheep).**
  - **Establish ram Centres on a private basis**
  - **Develop operational concept**
  - **Select males through breeding / mating plans**
  - **Informe and sensibilize breeders**
  - **Promote use of rams**



d) Conservation / Promotion of Valais Blacknecked Goat




- **Goals of project:**
  - **Reduce degree of inbreeding**
  - **Enlarge selection base**
  - **Analyse correlation between curled hair on legs and degree of inbreeding**
  - **Produce flyers to interest new potential breeders**
  - **Produce and sale bags to support new projects**

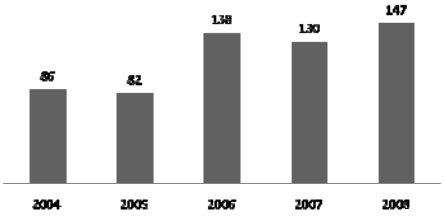
e) Breeding of the Evolèner cattle, ex- situ conservation of the genetic basis




Goals of project:

- **Conservation of the genetic basis (marketing)**
- **Establishment of gene bank**
- **Breeding progress**

Development of Ne



6. National Plan of action

4 Strategic Areas and 23 priorities		Switzerland
Characterization, Inventory and Monitoring of Trends and Associated risks	1-2	+++++
Sustainable Use and Development	3-6	++++
Conservation	7-11	++++
Policies, Institutions and Capacity-building	12-23	+++

Thanks for your attention!