

# ANIMAL GENETIC RESOURCES IN SLOVENIA

## COUNTRY REPORT FOR 2009

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

Characterization, inventory and monitoring of trends in Slovenia are comprehend with running the "Register of breeds with zootechnical assessment". Register included the following information about each breed by species:

- basic data (population size, location, risk status, phenotypic characteristics, geographical distribution within the country);
- in situ and ex situ conservation (number of pure breed animals);
- whereas data about breed is included in international database;
- breeding program (breeding goal, herd book, production characteristics, biological characteristics, breeding value),
- assessing genetic value of the breed;
- zootechnical assessment and actions (short-term and long-term actions).

The data from the register were used to monitor trends in population numbers and therefore to took all necessary steps for determine conservation activities. Once per year risk status of the breed was assessed. For each breed report was completed regarding breeding environment and assessment, number of animals, short introduction about breed status, breeding and selection methods and their application.

Number of registered breeds were 11 breeds of cattle, 11 breeds of horses, 7 breeds of pigs, 6 breeds of sheep, 4 breeds of goat, 7 breeds of chicken, one honex bee and two breed of rabbit.

Table 1: Assesed number of Slovenian indigenou pure breed farm animals per year from the 2003-2009

Breed /Year	2003	2006	2009
Lipizzan horse	630	1000	800
Slovenia cold blooded horse	1120	2200	3000
Posavje horse	700	630	900
Cika cattle	686	1350	2159
Krškopolje pig	350	529	538
Jezerko-solčava sheep	19200	17000	17200
Bovec sheep	3600	3600	3500
Bela Krajina pramenka	680	850	880
Istrian pramenka	1200	1100	1150
Drežnica goat	550	600	600
Styrian Hen	1200	1000	1200
Carniolan honey bee (number of bee family)	157000	170682	116623
Karst Shepherd	-	665	544

From the table 1 we can see that we managed to conserve all the Slovenian autochthonous breed and even increase the population number. For each breed report was completed regarding breeding environment and assesment, number of animals, short introduction about breed status, breeding and selection methods and their application.

Breed standard that comprises the description of appearance/exterior of a breed, body measurements, morphological and biological characteristics, and data on the principal economic traits for the Bovec sheep and Istrian Pramenka was finished.

Genetic variability for the two breeds of cattle, two breeds of goat, four breeds of sheep, three breed of horses, and four breeds of pigs was be established. Bibliography of historical sources about slovenian local breeds up to 1945 was written and publish on the DIGITAL LIBRARY OF SLOVENIA. Until now 323 books, 126 serial publications, 8 books of regulation and government gazettes, Official Journals, 37 other materials was reviewed. All the published articles about old breeds can be seen at <http://genska-banka.bf.uni-lj.si/gradiva/zgodovinski-viri/>.

First steps were done for monitoring the breeds of ass. During the survey it was found that there is a 73 ass born in 2009, 204 born between 2007- 2008 and 483 ass born in 2006 or older.

## **STRATEGIC PRIORITY AREA 2: SUSTAINABLE USE AND DEVELOPMENT**

Production system for the Cika cattle was assessed concerning value, knowledge and importance. Research was done with questionnaire taken directly from the farmers. The result shown the social, economic and cultural characteristic of keeping animals and traditional knowledge. During the summer Cika cattle graze on the mountain 1000m above sea level. Almost half of the Cika cattle included in research are still milked by hand. The population of the breed increased and they would like to have organized market for the selling of products. The Cika cattle has less veterinary expenses than other breeds of cattle.

Study was done on how are sheep of the Jezersko-solčava breed and Improved Jezersko-Solčava breed resistant to moisture, cold, heat, and their adaptation to altitude. The result of the analysis shown that breeders of both breed think that both breed are resistant and adapted to all mentioned environmental impacts. Jezersko-Solčava breed, according to the farmers' are more resistant to moisture, cold, heat and more flexible than improved Jezersko-Solčava breed. From the results we can conclude that the Jezersko-Solčava and Improved Jezersko-Solčava breed are both well adapted to the local environment.

The research work continue on the traditional technologies and protection of technology for traditional cheese.

The study was done on daily rhythm of fattening rabbits in individual wire cages. The differences in behavior between the two groups of rabbit for each hour of the day were calculated.

Cattle diversity was shown with the distribution of specific breed on the local territory or wider on all country. Result shown rapid decline in the number of farms raising cattle. On the other hand, farm size, number of cattle per farm is increasing. The trend of increasing farm size is positive, but nevertheless remain Slovenian farms compared with other European countries are relatively small.

Market research was carried out for locally typical products and protected cheese. Consumers were asked about knowledge of the protected, ecological, mountain, rural and traditional cheeses and which elements have a significant impact on their decision when choosing and buying cheese. Further in another survey we asked consumers about the perception of protected, ecological, indigenous and traditional meat products with an emphasis on "Kranjska sausage" as one of the most recognizable proprietary products of animal origin.

## **STRATEGIC PRIORITY AREA 3: CONSERVATION**

In 2009, in addition to the current freezing of tissues, which are performed routinely in the collection of samples for studies of genetic diversity major operation was to collect the samples of bees (945 samples). In 2009 we also developed two primary cell culture of mammary gland epithelial cells goats, which represent a convenient source of epithelial tissue for the constructed expression studies, allowing the cultivation of large quantities of cells for isolation of stem cells.

In the collection of gametes, we continued to seek and collect the semen of cocks - 12 samples which are available for artificial insemination or in analytical purposes.

A genetic reserve for the bulls has to be stored according to the national law. Total zootechnical assessment was done for all breeds of cattle and selection of bulls for which semen was stored. For every breed of cattle number of preserved semen was defined. Semen is by the contract stored in the IA centre in is under the control of Public service for Animal Genetic resources.

In 2009, breeders who bred Bela Krajina Pramenka, Istrian pramenka, Drežnica goat, Cika cattle and Krškopolje pig received de minimis aid. Breeders sign the contract with clear obligations under which they were entitled to the support for autochthonous breed. The support was given to the breed according to the level of threat which taken from the Register.

Three Slovenian autochthonous breeds of sheep got a support as their population is endangered. The Krškopolje pig population is critical. These populations have relatively little-known origin, due to their small size, however, a greater risk of inbreeding. Slovenian autochthonous Cika cattle is classified as high-risk population, however the breed is characterized by great heterogeneity in the frame and body shape, which means that only a small proportion of animals in Cika type best suits the objective of the breed. Origin of horses, cattle and Karst Shepherd was established and estimation of genetic distances between different breeds of domestic animals (pigs, cattle, sheep and dogs). In order to characterize and analyse genetic variability and to found out the purity of the Carniola honey bee about 1.000 samples of Carniolan bee was collected.

Research was done on:

- Lamb meat fatty acid composition of the autochthonous Jezersko-Solčava breed from different farming technologies;
- Meat quality of Cika Cattle;
- Cholesterol content in eggs in Slovenian local breed of fowls.

#### **STRATEGIC PRIORITY AREA 4: POLICIES, INSTITUTIONS AND CAPACITY BUILDING**

Slovenia took an active part in cooperation with the following international organizations: FAO, ERF, EAAP, DAGENE, SAVE regarding exchange of information's, seminars, and technical conferences and other.

Various projects with autochthonous breeds are in progress in 2009. The Heritage sheep project finished in September. The main objective of the project was to conserve autochthonous breed of sheep in the EU in therefore conserve the variability of agriculture. EU project named EFABIS net continue with the adding new data in Cryoconservation. New ERF projects called "Study of origin and conservation strategy of the Pramenka sheep breeds as regional transboundary breed" ; "Management of traditionally transboundary breeds on example of a nearly forgotten breed, the Murinsulaner" and the last "Establishment of an ERF Working Group to support AnGR Cryopreservation Initiatives".

Different data and information about the work on AnGR are add to the web site. Web site was regularly updated.

Education and training in the field of conservation of farm animal genetic resources is performed at the agricultural secondary schools, institutions of higher education, colleges, undergraduate or postgraduate studies at the departments of the Biotechnical Faculty - either as a special course or directly as a part of other subjects within the zootechnical curriculum.

In order to promote awareness and early warning of the public, yearly data on significance and the state of conservation farm animal genetic resources was published on the web site, in the ERF Newsletter, various articles published in the different media, seminar on Biodiversity in Slovenian agriculture in 2009, European biodiversity day. For the promotion of autochthonous breeds the calendar was prepared and spread at different stakeholder.