

SLOVENIAN WAY OF LEGISLATION ON AnGR

D. Kompan

Summary

Slovenian has a long tradition in the conservation of farm animal genetic resources (FAnGR). Here we can find one of the ancient examples in the equine. The Lipizzan horse is one of the oldest cultivated horse breeds in the world. Its name is closely related to Lipica (Slovenia), the place of origin of the Lipizzaner breed, situated in the Slovene Karst (slovenski Kras) region, founded in 1580. Very important is an initiative for the protection of local bee breed *Apis Melifera Carniolica* dated from the year 1920. The conservation of FAnGR in the last century was sporadic and as a consequence many breeds has been lost in Slovenia. Some activities for the protection of breeds have been proposed by some institutions or some individuals since 1983, but there has been no initiative from the government and politics. They even frequently disagree with the conservation of the old local breeds. In the last two decades Slovenia established some programmes for the research and to support the programme for the conservation of local breeds. The first multiyear (2001-2008) programme for the conservation of FAnGR became approved in 2001. The first regulation on this subject was accepted no more than 6 year ago in the Agricultural Act and especially in Animal Breeding Act for local breeds in the year 2002. The special Rule on Conservation of Farm Animal Genetic Resources was approved in 2004.

Introduction

Among the oldest breeds in the tradition of FAnGR conservation, the most popular is the Lipizzan horse breed, which is one of the oldest cultured horse breeds in the world. Its name is closely related to Lipica (Slovenia), the place of origin of the Lipizzaner breed, situated in the Slovene Karst (slovenski Kras) region. The Karst horse had given the foundation to Lipizzan horse breed. The best proof for this statement is the fact that the Lipizzans were recognised under the name »The Karst horses bred in Lipica« (Nürnberg, 1993). The origin of Karst horse dates back to the ancient times.

Drago Kompan, University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Groblje 3, Domžale, Slovenia

Since the Romans knew very well the excellent, sturdy and fast horses bred by the people of this region, they started with systematic breeding and crossing with other horse breeds found in the broad Roman Empire (Krumpak, 1994). In the year 1662, Stubenberg said the following about Karst horses "Well known are the Karst horses because of their strength and extremely long life. They are often able to work even at the age of 30 years (Nürnberg, 1993). The Emperor and later the Dukes had their studs here; the most famous was the Edlinger's stud (in Prestranek)" (Dolenc, 1980). J.V. Valvasor in his work "The Glory of the Duchy of Carniola" (Valvasor, 1994; original title: Die Ehre des Hertzogthums Crain, 1689), gives the following reason for the strength and sturdiness of Karst horses by saying "Throughout Europe, Karst horses bred in Carniola are highly praised because they are sturdy, long-lived and can steadily bear the hard work and riding efforts. From the early age they are so trained by being left to graze on stones and rocks." Further on, Valvasor writes "The land prospers also because of its animal husbandry which is strong and of many sorts. Apart from making the plates and dairy pots full, it brings good money too, especially with horses.

In the year 1920 Slovenian museum association pass »MEMORANDUM FOR PROTECTION OF NATURE. The Carniolan bee should also be protected as a monument of nature... «

But on the other hands, very few breeds were in the same position in the past. Many of them are lost in the last century.

*The state of farm animal genetic resources
In Slovenia in the year 2006*

Register of breeds with a zootechnical assessment

According to the "Regulation on conservation of farm animal genetic resources in Slovenia" for the continuous monitoring of biodiversity in animal husbandry in Slovenia, a Register of breeds with a zootechnical assessment was prepared, also available on the web site: [http.....](http://.....)

In 2006 the Register of breeds with a zootechnical assessment included:

- 13 autochthonous breeds. With the exception of one breed all the other autochthonous breeds have the accepted and legally verified breeding programme. The implementation of breeding programme is one of the basic terms regarding the preservation of autochthonous breeds. Two

breeds are found at the critical point of endangerment, while four of them are already endangered. Four breeds have not been found in the organised *in situ* gene bank yet. There are eleven breeds whose tissue samples are preserved in the tissue deposit bank. Furthermore, the calculation of breeding value will have to be carried out for eight breeds, and breeding program for one of them prepared. In 2006 a dog species was included with one registered breed – kraševac (the karst dog).

- *16 traditional breeds.* For the whole group of traditional breeds, breeding programmes have been accepted and legally verified, representing the basics for the preservation of these breeds. Two breeds are at the critical point on endangerment level, one is already endangered. Tissue samples of seven breeds were included to the tissue deposit bank. Calculation of breeding value will have to be carried out for seven breeds.
- *18 foreign breeds.* With the exception of five breeds in this group, breeding programmes have been accepted and legally verified. In the calculation of the endangerment level, the populations of foreign farm animal breeds outside Slovenia has been considered too. In the tissue deposit bank, tissue samples of eight breeds are being preserved. In thirteen breeds no breeding value has been calculated yet. In the year 2006, four new cattle breeds were added to the Register.

The most important zootechnically assessed breed groups, entered to the Register are seen in Table 1.

Table 1 – MOST IMPORTANT ZOOTECHNICALLY ASSESSED BREED GROUPS IN AGRICULTURE OF SLOVENIA

Breed group	No. of breeds	Breeding programme	Basic zootechnical characterisation	Gene bank	Tissue deposit bank	Breeding value	Zootechnical assessment and measures
Autochthonous	13	12 (92,3%)	13 (100%)	9 (69,2%)	11 (84,6%)	5 (38,5%)	13 (100%)
Traditional	16	16 (100%)	16 (100%)	-	7 (43,8%)	9 (56,3%)	16 (100%)
Foreign	18	13 (72,2%)	18 (100%)	-	8 (44,4%)	5 (27,8%)	17 (94,4%)
Total	47	41 (87,2%)	47 (100%)	9 (19,1%)	26 (55,3%)	19 (40,4%)	46 (97,9%)

(Source: Register of breeds with a zootechnical assessment)

*number of breeding animals *in situ*

The analysis of the most important zootechnically assessed breeds reared in Slovene agriculture, entered into the Register showed, that the state of biodiversity conservation in Slovenia can be considered as satisfactory. The basic zootechnical characterisation is known for all breeds. There are six breeds without the accepted and legally verified breeding programme. The usage of breeds and the implementation of breeding programmes are considered the most important terms under which the FAnGR conservation can be efficient. The gene bank in situ includes nine autochthonous breeds, and there are tissues of 26 breeds preserved in the tissue deposit bank. Breeding value is calculated for nineteen breeds (40.4%), while the zootechnical measures are accepted for 46 breeds (96.9%).

The legal framework on FAnGR in Slovenia

Regulations on the conservation of FAnGR

Regulations on the conservation of biodiversity in farm animal production are complete. The Regulation on conservation of FAnGR was established gradually. The first part of Slovenian legislation we can find in Agricultural Act (2000), which demands the conservation of agricultural biodiversity (agriculture plants and animals). It is declared, that the conservation on agricultural biodiversity programs was done with public services.

Livestock Breeding Act, approved in 2002, comprises the *chapter 6* titled: Conservation of Genetic Variability and Genetic Reserves of Farm Animals.

The following articles that purpose are earmarked:

- Article 66: Conservation of genetic variability
- Article 67: Biotic diversity in animal husbandry
- Article 68: Indigenous breeds
- Article 69: Monitoring and analysing of biotic diversity in animal husbandry
- Article 70: Special protection of the indigenous breeds of *Apis Mellifera*

Article 66 (Conservation of genetic variability)

- (1) The Republic of Slovenia shall ensure and maintain genetic reserves for individual species, breeds and lines of farm animals in the form of a minimum number of farm animals, doses of semen, ova or embryos.
- (2) For the purpose of conservation of breeds and/or lines, and in order to ensure sufficient production of animal products, the breeding programmes shall ensure the genetic variability of farm animals.
- (3) The Minister shall lay down the scope of genetic reserves as well as the manner and procedure of ensuring and maintaining genetic reserves from paragraph 1 of this Article.
- (4) The funds for the purposes of this Article shall be provided from the budget of the Republic of Slovenia.

Article 67 (Biotic diversity in animal husbandry)

- (1) Biotic diversity in animal husbandry shall be represented by all breeds of farm animals in the Republic of Slovenia.
- (2) The safeguarding of biotic diversity in animal husbandry shall be implemented as a public service for the tasks of the gene bank in animal husbandry according to the programme adopted by the Minister for a period of 7 years.
- (3) The biotic diversity safeguarding programme in animal husbandry shall comprise the assessment of the facts and define the objectives and policies for:
 - conservation of all breeds of farm animals bred in the territory of the Republic of Slovenia, with special emphasis being laid on the indigenous breeds in the indigenous environment;
 - in-situ and ex-situ conservation of each breed of farm animals;
 - establishment and operation of gene banks in animal husbandry;
 - fulfilment of international obligations;
 - education and training in the field of conservation of biotic diversity in animal husbandry;
 - promotion of public awareness concerning the importance of conservation of biotic diversity in animal husbandry;
 - connection with other programmes in the field of agriculture.
- (4) The programme from the preceding paragraph shall also define the foreseen financial resources for the implementation of safeguarding of the biotic diversity in animal husbandry, such as: the funds for

implementation of the professional work, direct payments and other supports to breeders and animal holders, as well as to natural and legal persons involved in the conservation of genetic reserves in animal husbandry.

Article 69 (Monitoring and analysing of biotic diversity in animal husbandry)

- (1) Monitoring of biotic diversity in animal husbandry shall denote systematic supervision and analysing of the condition of biotic diversity and shall be carried out as a public service for the tasks of a gene bank in animal husbandry.
- (2) The method of monitoring of biotic diversity in animal husbandry shall be laid down by the Minister.

Regulation on conservation of farm animal genetic resources

The Regulations correspond with the rules in:

- Agriculture Act,
- Animal Breeding Act,
- Biodiversity Action Plan for Agriculture. 2001. – COM 2001 162 final VOLUME III. Brussels, Commission of the European Communities,
- Council Regulation (EC) No 870/2004 of 24 April 2004, establishing a Community programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture and repealing Regulation (EC) No 1467/94 (1).

Article 4 (Register of breeds with a zootechnical assessment)

- (1) The Ministry competent for animal husbandry (hereinafter referred to as: the Ministry) shall provide for regular and constant monitoring of biodiversity for farm animals. To this end a register of breeds with a zootechnical estimation (hereinafter referred to as: Register) shall be kept and filled out every year in the month of December. Register shall be managed by an Organisation appointed as a public-service gene-bank for animal husbandry (hereinafter referred to as: Organisation)
- (2) The Register by breeds and species shall contain, along with a code legend and code system, the data presented in Appendix 1 which shall be an integral part of the Rules.

- (3) The data for keeping the Register shall be obtained from:
- Providers of public services in the domain of professional tasks in animal husbandry,
 - Services for identification and registration - SIR (cattle, small ruminants /sheep and goats/, pigs) in the scope of the Ministry
 - Statistical Office of the Republic of Slovenia - SURS
 - Other databases.

Article 6 (State of use of a breed)

- (1) The Organisation shall, once a year, assess a level of usage of a breed, based on gene percentage of each specific breed in the total population of a given species. On the basis of the assessment the breed shall be divided in the following classes:
 - *widely used* - gene percentage of each respective breed in the total population of the species is more than 30%,
 - *local* - gene percentage of each respective breed in the total population of the species is between 5 and 30%,
 - *the second level of usage* - gene percentage of each respective breed in the total population of the species is less than 5%.
- (2) Percentage of genes for each respective breed shall be determined on the basis of the structure of mating (purebred, crossbred), and of the Register.

Article 7 (Programme for conservation of farm animal genetic resources)

- The Organisation shall lay professional foundations for the programme for conservation of farm animal genetic resources (hereinafter referred to as: Programmes), on the basis of the adopted and certified breeding programmes that have been included in the joint basic breeding programme (hereinafter referred to as: STRP), and other certified breeding programmes, and the data from the Register. The foundations shall comprise programmes of activities by respective years and by the total period of the validity of the Programme. The Organisation shall take account of the Strategy of biodiversity in the Republic of Slovenia, the Slovenian Agri-Environmental Programme, and long-term as well as short-term programmes of advances in animal husbandry in the Republic of Slovenia, legislation regarding biodiversity presently in force both in the European Union and the Republic of Slovenia, and the

programme of the European Union: (Biodiversity Action Plan For Agriculture, programme FAO), and especially the State of World Animal Genetic Resources: SoW - AnGR, and international agreements adopted by the Commission on Genetic Resources for Food and Agriculture: CGRFA.

- (2) Pursuant to the regulations, the programme shall define both for species and breeds in whole as well as by the specific species and breed:
 - monitoring, systematic surveys and analysis of the state of farm animal biodiversity includes for all respective breeds the basic data on animal population, territorial distribution, rearing objectives and methods, application of animal production and determining state thereof, the degree of risk to a breed, and possibilities for conservation of the minimum number of animals, doses of semen, and embryos pursuant to the breeding programmes;

Chapter IV. RECOGNITION OF NEW BREEDS AND LINES OF FARM ANIMALS

Article 24 (Requirements for recognition of new breeds and lines of farm animals)

- The following requirements for the recognition of new breeds and lines of farm animals shall be met:
 - production traits and characteristics of breeds and lines shall not change significantly during at least three successive generations.
 - animals shall have a uniform appearance, which is heritable, and distinct the breed from other breeds or lines within the species.
 - animals shall be geographically specified and restricted.
 - animals shall be adapted to the breeding conditions of a geographical area.
 - significant genetic distance shall separate these animals from other related breeds and lines,
 - population size shall provide for at least 50 animals.

Article 29 (Recognition of new breeds and lines of farm animals)

- (1) Application for recognition of new breeds and lines of farm animals shall be filed with Ministry by the Organisation pursuant to the Act. The application shall include:
 - head office and name of the applicant,
 - evidence for compliance with the provisions from Articles 24, 25, 26, and 27 of the Rules,
 - evidence for keeping of zootechnical documentation according to the Act and zootechnical regulations for given species,
 - estimation of production and other traits shall be drawn up by the Organisation from the Article 98 of the Act. The applicant shall forward the measurements based on the tests carried out for the purposes of a verification of results upon the request of the Organisation.
- (2) A new breed or line of farm animals shall be recognised by the Minister on the basis of the opinion of the Animal husbandry Council.

Chapter VII. GENE BANK OF FARM ANIMAL GENETIC RESOURCES

Article 40 (Scope of conservation of specific indigenous and other breeds in gene bank; in situ conservation)

- (1) The main criterion for the determination of capacity of a gene bank (*in situ* conservation) refers to the number of pure-bred breeding females by the respective species classified as endangered (Article 5). The established gene banks shall operate according to programme pursuant to the principles of conservation, protection and characterisation of a breed, and shall be supplied with breeding and selection resources.
- (2) The gene bank (*in situ* conservation) shall contain at least the minimum number of females as specified in the class "endangered" by species in the table of the Article 5. The number and the ratio between females and males shall enable mating of non- relatives, or, if this is not possible, ensure the least level of mating between relatives. In gene bank are included all indigenous breeds referred to in the Act and the breeds recognized pursuant to the Act.
- (3) The same provisions as established in the previous paragraph shall apply to traditional breeds classified as critical and endangered.

- (4) Gene bank shall normally not include foreign-born breeds (in situ conservation); exceptions should apply to the breeds that can not be purchased on veterinary (health status) and zootechnical (inbreeding, etc.) grounds.
- (5) Yearly zootechnical assessment of breeds, carried out by the Organisation, shall serve as a basis for a decision about inclusion of a specific breed in gene bank.

1. SUBSIDIES

In the year 2004-2006 the Rural developed programme, which include subsidies for breeders of Slovenian local adapted (autochthonous and traditional) farm animals breeds were paid for the following species: horses, cattle, pigs, sheep, goats and hens. The subsidies are 200 € per LU.

2. RECOMMENDATION FOR ZOOTECHNICAL MEASURES

Connected with conservation of animal genetic resources in Slovenia – state 2007:

- To carry out breeding programs for Slovenian breeds of farm animals together with breeding organizations,
- Regulation and legal publication of all missing regulations connected with Animal breeding act,
- Conservation of animal genetic resources, which are adapted on climatic, geographic and other conditions in Slovenia,
- Monitoring and cooperation at all programs connected with farm animals breed arise from ethological, ecological and other regulations,
- Conservation of traditional production systems, traditional knowledge and experience linked with Slovenian autochthonous and traditional breeds of farm animals,
- Introduction of rules for sustainable development for Slovenian animal breeding.
- To bring into force right to farming.

Conclusions

Conservation of FAnGR in Slovenia has a long tradition. However, the conservation is quite different from species to species. In the past some animals were reared for food, some to help with farm work, the others to fulfill the

needs during wars and in conquering new territories, etc. Throughout history, people tried to rear species and animal breeds that suited them most in the fulfillment of breeding goals for which the animals were reared. This way, some new breeds were emerging during the centuries, some were interacting with one-another, some were disappearing in time. Nevertheless, some kind of balance existed within natural conditions and the needs in such a way that numerous breeds were present and adapted to the specific environmental conditions. In hand with the development of science and technology, as well as with world globalization, the spreading of highly productive breeds had started everywhere. As a consequence, less productive breeds were gradually disappearing. Slovenia is well aware of this fact mainly due to the concern of experts who stated to point out this problem more than two decades ago. Particularly active is the cooperation with the Slovene government and its instruments in the form of financial support, subsidies, and the research activities in this respect.

The accepted programmes and legal acts give the opportunity for FAnGR conservation in Slovenia to stay on the present level, or to improve it. Public service is in charge of programme application financed by the government and the Ministry of Agriculture, Forestry and Food of Slovenia. The next seven year programme is in preparation, offering and insuring biodiversity conservation activities in Slovene farm animal production.

REFERENCES

1. Charter for protection of nature published by the Slovenian Museum Association. 1920. Charter for protection of nature published by the Slovenian museum association in 1920 1, 1–4: p. 69–75.
2. <http://www.sigov.si/tnp/s/zgo/spomen.htm>
3. Kompan, D., Šalehar, A., Holcman, A. (1999): Preserved slovenian autochthonous domestic animals. University of Ljubljana, Biotechnical Faculty, Zootechnical Department, Domžale: 39 p.
4. http://www.bfro.uni-lj.si/Kat_center/genska_bank/Default.htm
5. Kompan, D., Šalehar A., Cividini Angela, Malovrh Špela, Čepon M., Hocman Antonija, Milena Kovač, Potočnik K., Žgur S., Štuhec I., Bojkovski Danijela, Dovč P. Klopčič Marija (2007): Conservation of biotic diversity of FAnGR in Slovenia. Report for year 2006, University of Ljubljana, Biotechnical Faculty, Zootechnical department. Domžale, , 936 p.
6. Nürnberg, H. (1993): Der Lipizzaner. Magdeburg, Westarp Wissenschaften, 250 p.

7. Regulation on the conservation of FAnGR. 2004. UrL RS 90/04. http://zakonodaja.gov.si/rpsi/r01/predpis_PRAV3961.html
8. Šalehar A., Kompan D., Kastelic M., Malovrh Špela, Cividini Angela (2006): Local adapted breeds: descriptions, subsidies and definitions. 82 p.
9. http://www.bfro.uni-lj.si/Kat_center/genska_bank/Seznam/brosura_2006.pdf
10. Šalehar A., Čepon M., Žan M., Kompan D. (2004): Livestock geography in Slovenia in year 2000. Domžale, , 28 p.
11. http://www.bfro.uni-lj.si/Kat_center/genska_bank/PROSTORSKA%20RAZŠIRJE-NOST%20REJE%20DOMAČIH%20ŽIVALI.pdf
12. Šalehar, A., Kompan D., Čepon M., Kavčič S., Bojkovski Danijela, Žan Lotrič Metka, Habe F., Holcman Antonija, Osterc J., Kovač Milena, Kermauner Ajda, Horvat S., Žamut Marija, Pohar J., Žgur S., Dovč P., Klopčič Marija (2003): The state of farm animal genetic resources in Slovenia. Ljubljana, Ministry of agriculture, forestry and food, University of Ljubljana, Biotechnical Faculty, Zootechnical department. Domžale, , 135 p.
13. http://www.bfro.uni-lj.si/Kat_center/genska_bank/Fao%20publikacija.pdf
14. Šalehar, A., Kompan, D., Holcman, A., Čepon, M., Žan, M. (2001): Conservation of biodiversity in animal husbandry in Slovenia from 2001 to 2008. University of Ljubljana, Biotechnical Faculty, Zootechnical department. Domžale: 37 p.
15. http://www.bfro.uni-lj.si/kat_center/genska_bank/PROGRAM%202001-2008-splet.pdf
16. The Agricultural Act. Ur.l. RS, št. [54/2000](#), [16/2004](#) Odl.US: U-I-211/00-16, [45/2004-ZdZPKG, 20/2006](#)
17. http://zakonodaja.gov.si/rpsi/r09/predpis_ZAKO1289.html
18. The livestock breeding Act. Ur.l. RS, št. [18/2002](#), [110/2002-ZUreP-1 \(8/2003 - popr.\)](#), [110/2002-ZGO-1](#), [45/2004-ZdZPKG](#);
19. http://zakonodaja.gov.si/rpsi/r08/predpis_ZAKO1548.html
20. The contribution to the knowledge about the origin of Lipizzan horse breed. DAD-NET, 27.1.2007, 2 p.
21. Valvasor, J. (1994): V. Die Ehre des Hertzogthums Crain, 1689. Selected Chapters. Ljubljana, Mladinska knjiga, p. 19, 80