

FARM ANIMAL GENETIC RESOURCES IN SLOVAKIA

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ABSTRACT

Despite lower production and abilities to compete with high-productive breeds, local breeds are still important for countries as their heritage. The cultural and environmental roles of these breeds have to be taken into account and proper efforts have to be put on their conservation and sustainable utilization. The legislative basis, activities, support and state of endangered of animal genetic resources in Slovak Republic will be presented in the paper.

Key words: animal genetic resources; monitoring; conservation; local breed

INTRODUCTION

In the past decades there was a decreasing trend in the population size of indigenous breeds in Slovak republic. This was mainly due to lower productivity of local breeds and lower abilities to compete with high-productive imported breeds. However local breeds keep their historical value, they are important in production of local animal products and help in supporting the employment in the marginal regions. In the present the cultural and environmental values of local breeds are recognized.

Legislation

The state administration promotes the conservation of the biological diversity of farm animals by passing and sticking to legislative measures the most important of which is Act No. 194 of 1998 on Farm animal breeding. This act specifies the rights and duties of authorized organizations and certified breeders' associations to carry out their professional activities connected with animal breeding. The breeding programs are developed for all major livestock species and breeds

and are regularly updated. The breeding is performed with respect to minimize inbreeding in the populations.

The breeding Act No. 194/1998 includes the paragraph treating the issue of „protected farms“. Under §2 section 7 of act 194/1998 protected farms are defined as farms keeping animals of endangered breeds that are used for conservation of breed gene pool and maintenance of its historical value. Under §13 section 2 of act 194/1998 the transfer of breeding stock and genetic reserves originating from such farms is controlled and permitted only after approval of the state. In the present such legislation is not sufficient and legislation ensuring capacities (personal and financial) for management of animal genetic resources and legal basis for running the national gene bank is needed. The long-term national program for animal genetic resources protection should be adopted in order to ensure minimization of extinction risk and support for sustainable utilization of local breeds. As the European Union signed Nagoya protocol in 2011 and is preparing the regulation establishing rules governing access and benefit sharing for genetic resources and traditional knowledge associated with genetic resources Slovak Republic will also have to adopt this legislation in the near future.

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Monitoring

The important part of animal genetic resources issue is their identifying and monitoring. Slovakia was the member of EFABIS (European Farm Animal Biodiversity Information System) project financed by EU (2002-2005) with aim to create a net of databases enabling regular and automated synchronization of data among the single national nodes. In the present the Slovak EFABIS node is updated on yearly base. National EFABIS node is hosted and managed by Animal

Production Research Centre Nitra. The monitoring of animal genetic resources is performed via cooperation with Breeding Services of the Slovak Republic, s.e. and authorized breeders' organizations of respective breeds. There were 48 breeds population data updated for year 2011. Detailed numbers are presented in table 1. There are several other breeds monitored in Slovakia. However, these are not registered in the database as these are mainly recently imported exotic breeds reared mostly in one farm.

Table 1: List of updated population data by species

| | Breeds together | Updated for year 2011 | Extinct | Not updated |
|----------------|-----------------|-----------------------|---------|-------------|
| Cattle | 14 | 11 | 3 | 0 |
| Goose | 4 | 2 | 0 | 2 |
| Duck | 3 | 1 | 0 | 2 |
| Goat | 3 | 2 | 1 | 0 |
| Rabbit | 43 | 0 | 0 | 0 |
| Chicken | 30 | 15 | 0 | 15 |
| Horse | 11 | 0 | 0 | 0 |
| Turkey | 1 | 0 | 0 | 0 |
| Sheep | 11 | 11 | 0 | 0 |
| Pig | 10 | 6 | 2 | 2 |
| Japanese quail | 4 | 0 | 0 | 0 |

Conservation

The most of animal genetic resources conservation is realized via rearing of animals on the farms. Beside *in situ* conservation which is supported via Rural Development Programme (RDP) there are *ex situ in vivo* and *ex situ in vitro* conservation efforts aimed on maintaining breeding animals and sperm of endangered local breeds.

The local breeds including original type of Valachian sheep, Oravka chicken, Zobor and Nitra rabbit, Mangalica pig and Japanese quail are maintained in *ex situ in vivo* conditions at Animal Production Research Centre Nitra. Slovak University of Agriculture in Nitra is active in *ex situ* conservation of Oravka chicken.

The efforts for *ex situ in vitro* conservation exist in Slovakia though not organized. Insemination centers and National Stud keep the samples, mainly the sperm for the commercial use. Since 2009 Animal Production Research Centre Nitra hosts and manages the database CRYOWeb with aim to register the samples of endangered breeds of farm animals available for long-term conservation. In the present there are samples kept

and registered at APRC Nitra and partner insemination center.

Support

State incentives have been provided for live animals (purebred females) reared in their natural environment since the mid-1990s. However, this support varied in both the amount per head and the breeds to cover, as public funds are limited (Oravcová *et al.*, 2004).

In 2003 the autochthonous and possibly endangered breeds and species under state incentives were as follows: the Slovak Spotted and Slovak Pinzgau cattle, the Valachian sheep, the Hutsul, Lipitsa, Furioso, Nonius, Shagya-Arab, Noric of Murany and Slovak Sport Pony horse breeds. Since January 2003 state subsidies had covered other sheep, hen and quail breeds like the Improved Valachian and Tsigai sheep, Oravka hens, Japanese quails as well as breeding animals of geese.

After Slovakia entered the European Union the funding scheme was changed. During period 2004-2006 the support was provided via Rural Development Plan

(2004-2006). List of supported species and breeds are listed in table 2. Since 2007 Slovakia has provided the support for the conservation of genetic resources in agriculture via Rural Development Programme (2007-2013) in accordance with Council Regulation (EC)

No. 1698/2005 and Commission Regulation (EC) No. 1974/2006. The support is provided as the compensation of income loss due to lower production (RDP 2007-2013). Species and breeds eligible for this support are listed in table 3.

Table 2: Species and breeds supported via RDP 2004-2006

| Species | Breed |
|---------|---|
| Sheep | Valachian (original type) |
| Goat | White Shorthaired |
| Horse | Slovak Warmblood, Hutsul, Furioso, Nonius, Slovak Sport Pony, Lipitsa, Shagya Arab, Noric of Murany |
| Chicken | Oravka, Plymouth Rock, Rhode Island Red, New Hampshire, Vlaška, Sussex |
| Goose | Slovak White, Suchovy |
| Turkey | Bronze |

Table 3: Species and breeds supported via RDP 2007-2013

| Species | Breed |
|---------|---|
| Cattle | Slovak Pinzgau |
| Sheep | Valachian (original type) |
| Goat | White Shorthaired |
| Horse | Slovak Warmblood, Hutsul, Furioso, Nonius, Slovak Sport Pony, Lipitsa, Shagya Arab, Noric of Murany |
| Chicken | Oravka, Plymouth Rock, Rhode Island Red, New Hampshire, Vlaška, Sussex |
| Goose | Slovak White, Suchovy |

Table 4: Number of registered purebred females of supported breeds

| Breed | 2004 | 2009 | 2011 |
|-------------------|-------|------|------|
| Pinzgau | 2258* | 1600 | 1763 |
| Valachian | 40 | 30 | 102 |
| White Shorhaired | 769 | 744 | 934 |
| Slovak Warmblood | 280 | 1857 | 1650 |
| Hutsul | 60 | 119 | 129 |
| Furioso | 67 | 267 | 156 |
| Nonius | 19 | 58 | 22 |
| Slovak Sport Pony | 35 | 177 | 92 |
| Lipitsa | 70 | 140 | 152 |
| Shagya Arab | 80 | 156 | 171 |
| Noric of Murany | 54 | 239 | 100 |

* year 2008

State of supported breeds

In tables 4 and 5 numbers of registered purebred females reported by Oravcová *et al.* (2010) are presented and updated with numbers for the year 2011.

Oravcová *et al.* (2010) attributed the decrease of Pinzgau registered cows in the first period (2004-2009) to crossbreeding. In next two years the number of Pinzgau registered cows stabilized with slight increase.

The numbers of registered purebred sheep and goats were stabilized in the first period and increased in the second period (2009-2011).

In horses number of registered purebred mares increased in the first period and Oravcová *et al.* (2010) stated support fostered this increase. However in the second period numbers were decreasing in some breeds while stabilized in Hutsul, Lipitsa and Shagya-Arab.

Situation in poultry is the most alarming. Despite the support no farmer submitted request for subsidies and the numbers of purebred registered females have been falling during both periods except Slovak White goose in the first period.

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Table 5: Number of poultry purebred females in registered farms of Slovak association of breeders

| Breed / Species | 2007 | 2009 | 2011 |
|----------------------|------|------|------|
| Oravka / chicken | 623 | 485 | 295 |
| Slovak White / goose | 46 | 56 | 29 |
| Suchovy / goose | 96 | 85 | 25 |

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