

**GENE RESERVES CHARACTERISTICS AND RISK
POPULATIONS IDENTIFICATION IN SLOVAK HORSES****J. Buleca Jr., I. Valocký, I., Š. Karahuta, J. Buleca, D. Takáčová****Summary**

Submitted work is focused to appraisal and breed characteristics of gene reserves of horses in the Slovak Republic. From available data number of animals of the breeds, bred in the Slovak Republic as well as their comparison to neighbouring European countries were found out. Based on the categorisation of risk populations according to number and structure of breeds is possible to measure the level of their endangering. In complicated situation of past few years the Slovak Republic almost lost historically important breeds Furioso and Nonius, which were connected to our history as a part of cultural heritage. According to breeding documentation 8 endangered breeds are bred in the Slovak Republic, for which it non-recurring financial subsidies are available (namely Lipizzaner, Shagya Arabian, Slovak Warm Blooded horse, Furioso, Nonius, Slovak Sport Pony, Hucul and Muráň Plain type of Norik breed). Critically endangered breeds, which number is less than 100 breeding mares and maximum of 5 breeding stallions could be designed as extreme case of population loss risk (Nonius and Lipizzaner breeds). On behalf of rare gene pool protection it is important to use all the possibilities to increase the population number.

Key words: horses, breeds, endangered population.

Introduction

Changes of conditions in production systems as well as significant competition of the breeds create expectations of risks, which will negatively influence surviving of farm animals species including the horses. Within this context some breeds strengthen their position and expanded to different countries, while the others, not based on commercialization, started to decrease their number and became endangered (Kadlečík and Kasarda, 2007). Identification and characteristics of risk population according to the number of animals of the breed were described by Bodó (1992) and Kadlečík et al. (2007) as follows:

Ján Buleca Jr., Igor Valocký, Ján Buleca, Danka Takáčová, University of Veterinary Medicine, Komenského 73, 041 81 Košice, Slovakia
Štefan Karahuta, Regional Veterinary and Food Administration, Košice-Environs, Kukučínova 24, Košice, Slovakia

- died out population with no renewing opportunity
- critical populations with less than 100 breeding mares and maximum 5 breeding stallions
- endangered populations (in risk of dying out, with 100–1000 breeding mares and 5–20 breeding stallions)
- vulnerable populations with undesirable changes, endangering individuals, their number could reach 1000–5000 breeding mares and 50–20 breeding stallions
- uncertain or rare population of rare breeds with fast decrease of animals number (usually 5.000–10.000 breeding mares and 5–20 breeding stallions).

In the literature also the groups of unknown breeds, not exactly described yet or newly improved breeds still not recognized, or those in the process of recognition are described (Halo et al., 2004, Zöldág et al., 2008).

Level of breeding and improvement in our region was negatively influenced by privatization mostly followed by bankruptcy of purebred animals breeding in stud farms in the nineties. In present time horse population reach the number around 10,000 only, placing the Slovak Republic to the last position in the horse size population in middle European region. Despite the low horse population size is the breed variability very colourful. Lisáková (2009) indicates that in the 2008 11,068 horses of 27 different breeds were bred in the Slovak Republic. Ministry of Agriculture of the Slovak Republic is planning to increase support of the horse breeding namely in the branches of draught work in agriculture and forestry including agrotourism and also in sport utilization in horse riding and hipotherapy. Annual lump sum investment stimulus per horse over 6 month of age reaches 1.000 Euro. In the reaction to the changes in social and political systems the state of “certified breeding organization” in the area of horse breeding only 3 organizations were assigned by Ministry of Agriculture: Slovak Horse Breeding Association, National Stud in Topoľčianky and Turf Directory in Bratislava. Legislative for improving of level of animal breeding was attached to the nouvelle of the Animal Breeding and Improvement Act No. 194/1998 Coll. of laws.

Results and discussion

For consideration of state of threat and identification of risk populations the population size of horses and breed composition numbers in the Slovak Republic were investigated. The lowest number of horses in the relationship to

human population size (1,000 inhabitants) and also space arrangement of horses on 1 km² (see Table 1) were found.

Table 1: HORSE POPULATION SIZE IN THE SLOVAK REPUBLIC AND NEIGHBOURING COUNTRIES

Country	number of horses (to 31.12.2008)	number of horses /1.000 inhabitants	number of horses /1 km ²
Slovakia	11.068	2,15	0,22
Czech Rep.	67.036	6,48	0,85
Hungary	60.000	5,90	0,64
Poland	350.000	8,97	1,12
Austria	100.000	12,00	1,19

According to number of representation and mentioned criteria 27 horse breeds are bred in the Slovak Republic, out of which 8 breeds could be considered as endangered (Lipizzaner, Shagya Arabian, Slovak Warm Blooded horse, Furioso, Nonius, Slovak Sport pony, Hucul breed and Muráň Plain type of Norik horse). The Nonius and Lipizzaner breeds are considered as critically endangered. Short breed characteristics of gene reserves of following breeds are mentioned according to Kadlečík et al. (2004):

Furioso breed represents warm-blooded breed, improved in the Austro-Ugrian monarchy. Generous riding and carriage riding horse has middle to longer rectangle body frame and usually occurs in bay and white colours. Population size reaches 220–250 horses, studbook consists of 70 breeding mares and 12 breeding stallions. Breed represents the endangered population.

Lipizzaner as warm blooded horse is bred as carriage and sport riding horse, characterized by good health, hardiness and nobleness. Population is represented by 70 to 80 breeding mares and 11 breeding stallions. For the breed improvement National Stud in Topoľčianky is responsible. Based on the population size breed belongs to critically endangered breeds group.

Nonius breed was selected as draught and later as riding horse with possible utilization in agrotourism. After liquidation of the Nový Tekov Stud the breed is characterized as critically endangered in the Slovak Republic.

Norik breed of Muráň Plain type represents cold-blooded type of horse with population size 180–200 animals, basic herd consists of 60 breeding mares and 4 breeding stallion. Typical properties of the breed are hardiness,

undemandingness and williness to work. Norik population belong to endangered breeds.

Hucul breed is smaller mountain breed with typical gaits in walk, suitable for overrunning the mountain obstacles. Breed is used also for load transport and sport riding. Hucul breed origin in individual breeding areas is not completely uniform. Total population size reaches 150–180 animals, nucleus herd is bred in the National Stud in Topoľčianky (50 breeding mares and 10 breeding stallions in 4 breeding lines). Also Hucul breed belongs to endangered breeds.

Shagya Arabian horse represents very noble riding and carriage riding horse with smaller to middle body frame, coat colour is mostly white, less commonly bay or black. Breed is characterized as temperament, tireless with hard constitution (Sambraus, 2006).

Slovak Sport Pony: harmonious sport riding pony with bigger body frame, tireless, with hard constitution. Breeding program contains impact of Shagya Arabian, Traken, Slovak Warm-Blooded horse, Welsh Pony and German Sport Pony (Sambraus, 2006).

Slovak Warm-Blooded Horse was created by merging of several half-blooded breeds or strains bred in the Slovak Republic in the past. Breed is used in riding sport and also in draught work.

Conclusion

Individual horse breeds are defined by often genetic variability of populations, bred in different regions. Different values of breeding characteristics are frequently presented in breed standards of different countries (e. g. colour in Lipizzaner breed). Gene pool conservation activities in endangered horse breeds contributes to conservation and protection of cultural heritage of our regions.

REFERENCES

1. Bodó, I. (1992): The minimum number of preserved populations, In: The management of Global Animal Genetic Resources, FAO Animal Production and Health Paper, 104, p. 91–105
2. Haló, M., Massányi, P., Kršková, L. (2004): Chov koní, SPÚ Nitra, 110 pp.
3. Kadlečík, O. (ed.) (2004): Ohrozené plemená zvierat na Slovensku, SPU Nitra, 100 pp.

4. Lisáková, B. (2009): Slovensko–krajina majestátnych koní, Farmár, 17, Land Press Bratislava, p. 28–31
5. Zöldág, L., Gáspárdi, A., Maróti, A., Buleca, J., Seregi, S., Matiuti, M. (2008): Veterinary Genetics and Animal Breeding, A/3 Ltd., Budapest, 434 pp.
6. Sambraus, H, I. (2006): Atlas plemen hospodářských zvířat, Brázda, Praha, 295 pp.

ZNAČAJKE REZERVA GENA I PREPOZNAVANJE RIZIČNIH POPULACIJA SLOVAČKIH KONJA

Sažetak

Ovaj je rad usredotočen na procjenu i pasminske značajke rezerva gena konja u Slovačkoj Republici. Iz dostupnih podataka otkriven je broj životinja pasmina uzgajanih u Slovačkoj Republici kao i njihova usporedba sa susjednim europskim zemljama. Na temelju kategorizacije rizičnih populacija prema broju i strukturi pasmina moguće je izmjeriti razinu njihovog ugrožavanja. U složenoj situaciji zadnjih nekoliko godina Slovačka Republika je skoro izgubila povijesno važne pasmine Furioso i Nonius koje su povezane s našom poviješću kao dio kulturnog naslijeđa. Prema uzgojnoj dokumentaciji 8 ugroženih pasmina se uzgaja u Slovačkoj Republici za koje je dostupna bespovratna financijska pomoć (to su Lipicanac, Arapski Shagya, Slovački toplokrvni konj, Furioso, Nonius, Slovački športski poni, Hucul i Murian, nizinski tip pasmine Norik). Kritično ugrožene pasmine, čiji je broj manji od 100 rasplodnih kobila i najviše pet rasplodnih pastuha može se smatrati na ekstremnom slučaju gubitak rizičnih populacija (Nonius i Lipicanska pasmina). U ime rijetkih zaštita genofonda važno je koristiti sve mogućnosti povećanja broja populacija.

Ključne riječi: konji, pasmina, ugrožena populacija.

Primljeno: 10.12.2010.