

# NATIONAL PROGRAM FOR FARM ANIMAL GENETIC RESOURCES

Achievements and next perspectives

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**NÁRODNÍ CENTRUM**  
pro genetické zdroje zvířat

## Development of breeds



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Numbers of registered purebred animals					number of holdings
year	1996	2000	2010	2017	2017
Czech Red cattle	85	90	165	280	30
Czech Red-pied cattle(unimproved)			8	85	8
White goat	1800	1750	1900	2200	102
Brown goat	150	475	870	1020	93
Šumavka sheep	1580	2400	2540	2400	25
Valaska sheep		47	380	980	52
Prestice pig	430	370	210	450	18
Old Kladruby horse (private)	30	200	240	240	140
Old Kladruby horse (National Stud)				160	2
Hutsul horse	55	110	165	170	30
Silesian noriker horse		140	290	370	150
Czech-Moravian belgian draught		180	450	500	180
Czech Gold-speckled hen	520	500	210	190	10
Czech goose	165	220	190	200	28
Rabbits/7 breeds		1400	940	920	100
Nutria/3 breeds		170	260	240	10



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**Breeding nucleus for both breeds in the Institute of Animal Science provides breeding bulls for ID production and cryo preservation**

**Bulls distributed to holdings according to a plan designed to maintain diversity**

**Embryos from the deliberate insemination are cryopreserved.**



## **Red cattle**

**SNP chip analysis to determine possible differences between subpopulations revitalised for 4-5 generations by two different methods (by starting with embryos with higher inbreeding rate and by repeated crossing red-pied cows with red bulls)**



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## **Šumavka sheep: stable population**

**Hence a risk of reducing genetic diversity as production of breeding rams is provided by only 6 large farms where half of the current population is concentrated.**



## **Valaška sheep**

**Well developing population**

**Successful recovery of the original coloured types, which were systematically removed in the 2nd half of the last century by selection for the pure white fleece**



**Increased use of intensive exotic breeds for crossing to meet market demand for goat products**

**Breeding bucks provided mostly by smallholdings and hobby breeders, which account for about half of the entire population**

**Insemination so far almost not used**

**Low efficiency of frozen doses (low conception rate)**



**Perspective:**

**to focus on revealing the causes of this phenomenon and optimizing the methods of collecting and freezing semen eventually develop the IVF method and cryopreservation of embryos.**



**Breed recovery: individual production plans as a combination of purebred breeding and production of hybrids for local markets**

**Availability of suitable boars and increased use of (insemination)**

**Alternative technologies that have proven successful (seasonal grazing)**

**Successful marketing and promotion of the specific properties and quality of the meat – protected label for purebred animals**

**Perspective:**

**Genotyping for specific features related to the characteristics of the meat (the way of fat distribution in the muscle) and especially the resistance against intestinal bacteria that affect diarrheal diseases in piglets**

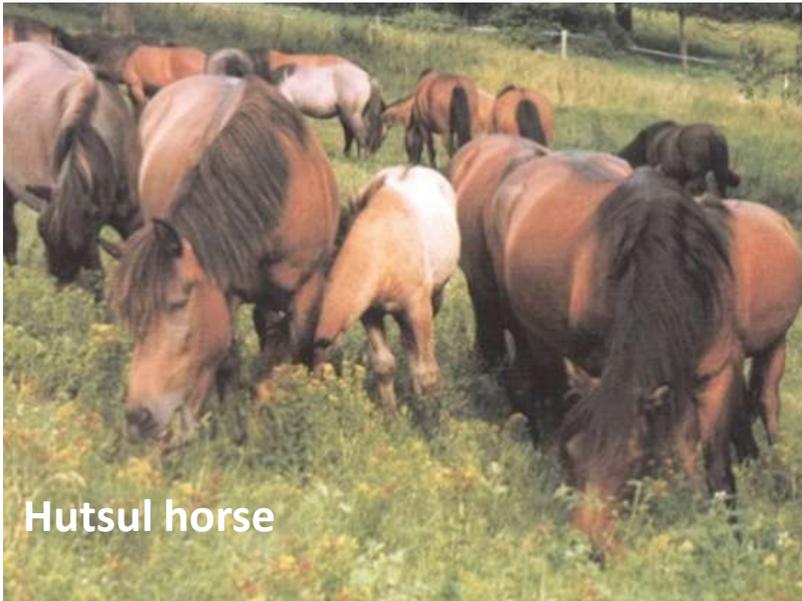
**The results will be used in deliberate insemination**



**Common condition of all the local breeds:  
stagnation**



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Hutsul horse



Czech-moravian belgian horse

**The market is saturated with other attractive hobby breeds**

**Low number of mares in active reproduction – uncertain perspective for sales or use of foals**

## Old Kladruby horse

**160 head nucleus hold as the National Heritage Monument protected in the National Stud Kladruby**

**Another 240 in 140 private holdings**



**In vitro preservation with problems - increasing number of stallions show unsuitable for cryo conservation, or with the low quality of sperm after thawing**



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**Silesian noriker horse**



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**Limited opportunity for work –  
in forestry prevail harvesters, even  
in protected areas**

**Low number of mares in active  
reproduction**

**Insemination rarely used**

**Some loggers prefer crossbreeding  
with more powerful foreign cold  
bloods**

**Unsatisfactory availability of stallions/  
deployment to breeding stations in areas  
where given breed is not much concentrated**

**Proposed procedure:**

**on the basis of molecular genetic analyses, the nucleus of the genetically most  
typical representatives will be determined, an individual mating plan will be  
designed and supported by the national subsidy.**

**Bred and developed for fur production during the last century**

**Ban of fur animals farming since 2018**

**Nutria now kept primarily for meat**

**100% hobby and self-supplier holdings**



**3 breeds**



**7 breeds/ colour types**

**Cryo preservation yet not developed**

**Research on meat qualities in progress**

**Perspective: uncertain**

**Czech Gold-speckled hen**



**Only 10 hobby breeders (200 hens)  
High degree of inbreeding  
Problems with performance control**

**Czech goose  
Population increasing, but also shows  
rather high inbreeding rate**

**Increasing risk of epidemic diseases**

**Possible solution:**

**establishment of a preservation nucleus**

**currently we look for options for its  
location, which must guarantee its  
stability over a reasonable long-term  
horizon.**

