



HRVATSKI CENTAR  
ZA KONJOGOSTVO  
DRŽAVNA ERGELA LIPIK

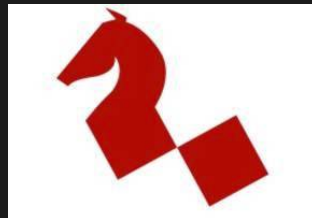
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# Perspective for autochthonous breeds conservation programs as a part of horse breeding reorganization in Republic of Croatia

# INTRODUCTION

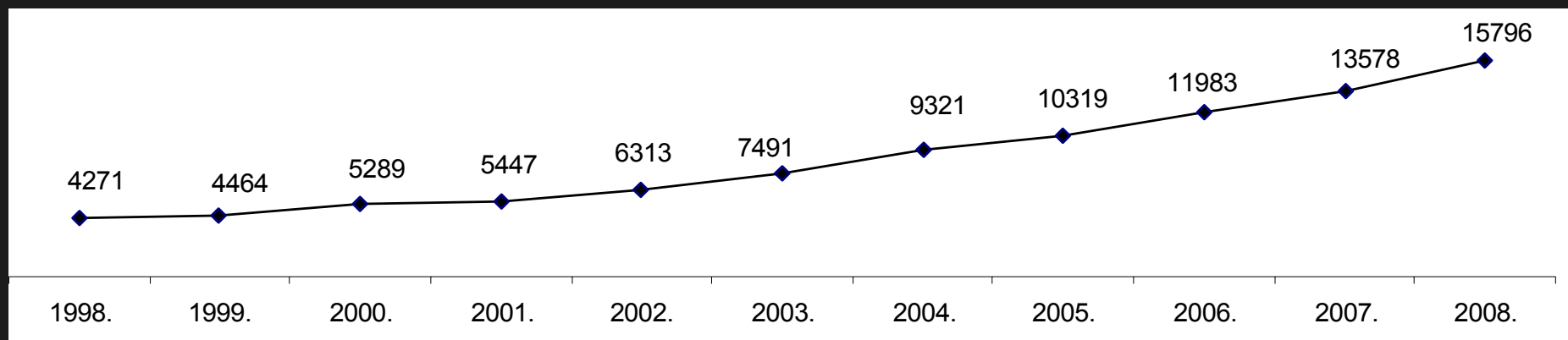
- In last 10 years – continuous increasing number of registered horses
- For almost two decades horse breeding is organized and formed in national register - “Central register for equidea of Croatia” which is run by national head horse breeding authority:

**CROATIAN CENTER FOR HORSE BREEDING – STATE STUD FARM LIPIK**



# INTRODUCTION

- 2008. – 15.196 horses of all breeds and breeding types
  - 62% coldblood, 35% warmblood, 3% ponies



## BREEDING SUPPORT

- Special care by the government – group of autochthonous breeds – higher financial support for breeding
  - Lipizzan, Croatian coldblood, Posavina horse, Murinsulaner
- In 2008.
  - total of 2.620.000,00 euro for entire horse breeding
  - total of 2.270.000,00 euro for autochthonous breeds
- Those four autochthonous breeds make 70% of all registered breeds in Croatia



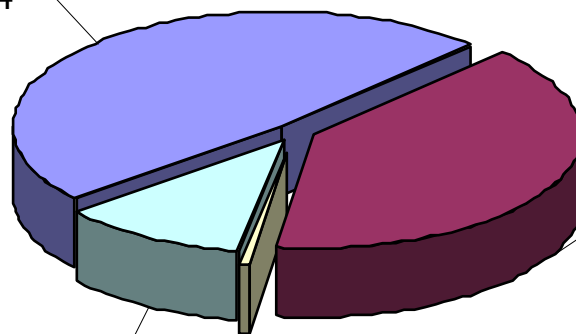
# BREEDING SUPPORT



Croatian  
Coldblood; 5334



Posavina horse;  
4350



Lipizzan; 1231

Murinsulaner; 37





# PURPOSE FOR AUTOCHTHONOUS BREEDS PRESERVATION PROGRAMS

- Value of autochthonous breeds is in history of its development and in adaptation to climate and feeding condition
- Being on the pasture for over 8 months, those breeds are adopted to specific environment which have not been changed
- Disappearance – irreversible loss of genetic value and variability



# PURPOSE FOR AUTOCHTHONOUS BREEDS PRESERVATION PROGRAMS

- Preservation of autochthonous breeds could have many advantages in the future:
  - Resistant breeds could be useful in some parts that are not acceptable for other animals
  - Genetically valuable
  - Traditional and historic national value
  - Part of traditional landscapes and folklore tradition







# BREED PRESERVATION PROGRAMS IN CROATIA

- Based on the financing support system organized by the government
- Not stimulating for breeding goals and are not supported by additional preservation programs
- Horse owners count government support to regular income – not intended for breeding improvement
- Breeding system is organized and accommodated to EU regulations – identification of horses, horse breeders association structure



# CENTRAL REGISTER OF EQUIDAE IN CROATIA

- identification and registration systems for horses on the national level – important role in preservation programs
- Central register for equidae – all breeds and breeding types
- Regulation for identification and registration of equidae (NN 74/07)
- Stud Books exist and are published



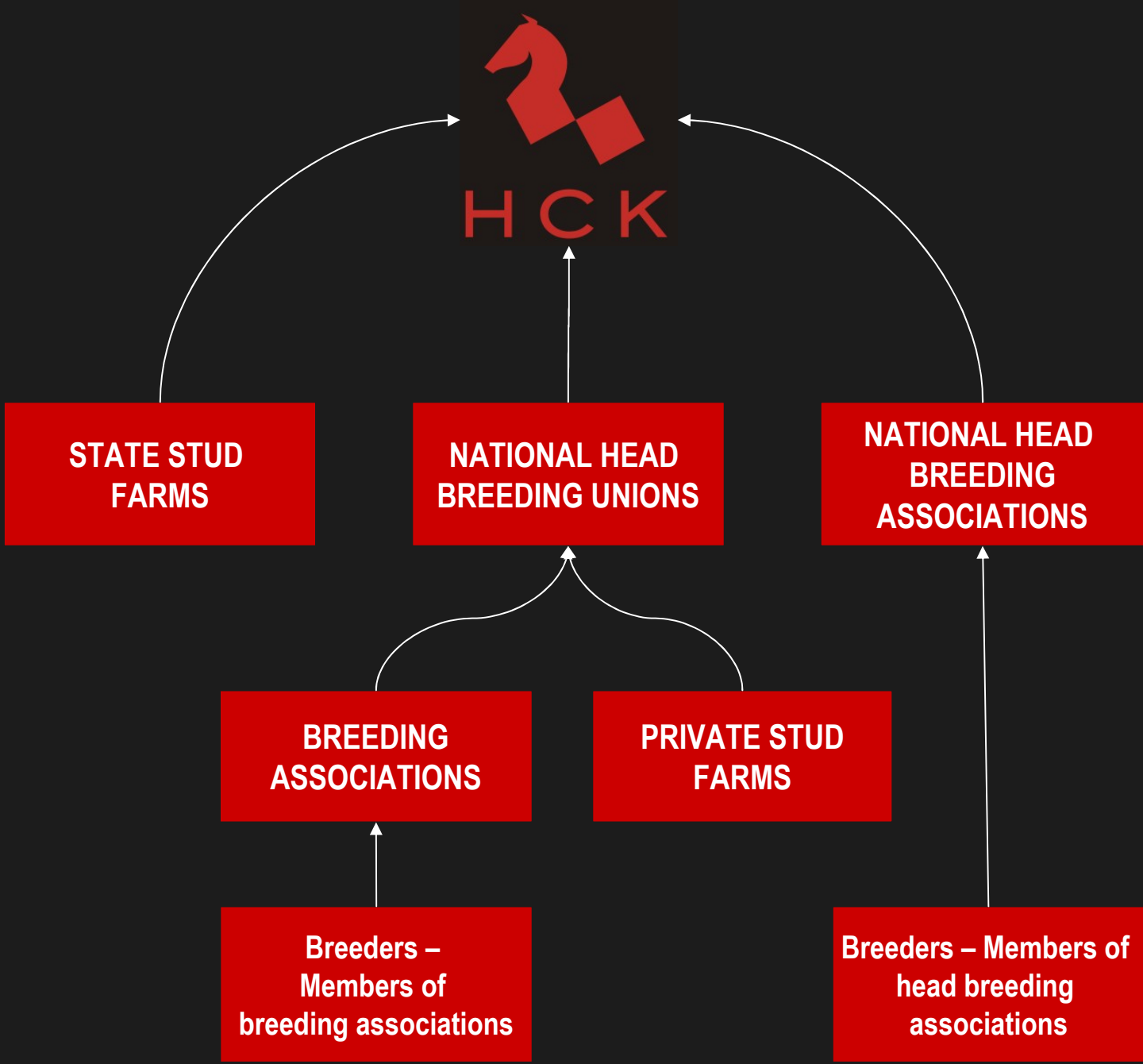


# CENTRAL REGISTER OF EQUIDAE IN CROATIA

- Problem – culture in breeding horses (foal registration)
  - Short pedigrees – inaccurate inbreeding calculation and insufficient data for progeny testing
  - Difficult to set functional preservation programs
- Continuous breeding and selection – positive influence to breeding by breeding goals and to extending pedigrees
- Role of educational programs through breeding associations

# HORSE BREEDING ASSOCIATIONS

- Continuous initiative for organizing horse breeders into associations and unions
  - Unique actions towards horse breeding and government bodies
- Easy information transfer from breeders to national horse breeding authorities
- Breeding reports are periodically sent to Central equidae register



# HORSE BREEDING PROGRAMS

- Selection progress and horse breeding programs are closely connected
  - Influences technological, biological development and marketing of the breed
- Genotype and morphology – determine breeding goals
- Important to follow every breeding parameter especially in small populations
  - Inbreeding depression

# GENOTYPE TYPING AND DNA PARENTAGE TESTING

- Reliable identification and registration of horses
- Reliable implementation of breeding programs
- Widely used and financially acceptable
- In some Stud Books obligatory
- Identification – genotype identity check
- Advantages for horse breeding:
  - Reliable Stud Book of the breed
  - Certainty in estimating breeding value and genetic progress
  - Preservation of autochthonous genotype



# GENOTYPE TYPING AND DNA PARENTAGE TESTING

- DNA laboratory (by ISAG nomenclature) still not present in Croatia
  - Samples sent to foreign laboratories – more expensive analysis
  - Task for the future
- Modern breeding programs and Stud Books demand parentage test for breeding animals





# PRESERVATION PROGRAMS

- Many programs and strategies for preservation programs, especially for autochthonous and rare breeds
  - In situ and Ex situ are used the most

## *In situ*

- preserving programs of the breed in its native breeding environment
- Monitoring of reproduction parameters, individual mating strategy, inbreeding, effective population size (especially in small populations)
- Can be organized with low budget plan

# PRESERVATION PROGRAMS

## *Ex situ*

- Preservation of breed outside their native environment
  - Includes in vivo programs (live animals) and cryopreservation (semen, embryo, etc.)
  - Follows high-tech and science development
- 
- Both programs can be combined
    - Ex situ programs are often used as additional part to In situ programs (allow reconstruction of the breed in case of diseases, populations with high inbreeding, increasing effective population size, scientific research)

# CONCLUSION

- With reorganization of horse breeding in Croatia and with implementing breeding programs through horse breeders associations has opened the possibility for preservation programs of autochthonous breeds
- Even though coldblood horses make 62% of all horse breeds, it is important to develop preservation strategies (from genetic population structure to scientific research)



# CONCLUSION

- Due to adaptation to extensive breeding, poor food and care makes autochthonous breeds highly profitable and useful
- Recognizable brand and implementation to traditional landscapes, tourism, recreational and promotion activities
- Most suitable preservation strategy are In situ programs – large natural resources and financial government support already exists
- Ex situ programs – also favorable in case the budget plan allows it



Thank you for your attention!