



# POPULATION AND GENETIC ANALYSIS OF THE HORSE GENE POOL OF UKRAINE

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## Introduction

The Ukrainian horse breeding base currently consists of 22 stud and 49 breeding farms. The structure of the breeding stock is dominated by Ukrainian Warmblood, Thoroughbred, Orlov's Trotters and Ukrainian Trotters, Novoalexandrovsky Draft breeds. The only local Hucul breed is on the verge of extinction. The aim of the research was to identify the originality of the domestic gene pool of horses by breeding and genetic methods. The development is based on breeding and genetic studies of the structure of horses, which makes up the array of the domestic gene pool of horses and their improvement using domestic and imported horse material of various uses.

## Results

- As a result of the conducted research, the genetic structure of horse breeds of domestic selection, features of their exterior and productive parameters were determined, genealogical branches (genealogical lines, breeding families and factory nests) were evaluated, and directions for preserving the desired types were developed. A comparative assessment of breed markers of the alleles pool of structural units of domestic horse breeds by the number and frequency of red blood cell antigens was carried out, genetic diversity was determined, and the proportion of homo - and heterozygous genotypes was established.
- It is established that in horse breeds with a limited gene pool, individual and small-group breeding value, prepotency of individual individuals, linear combination and compatibility of parent pairs have a significant influence on the evolution of genealogical lines. The priority role of outstanding sires in the formation of the breeding effect in all the studied breeds is proved both during purebred breeding and during crossing (especially when crossing using an imported gene pool). This fact, however, is characterized by significant economic risk and can cause the disappearance of valuable local lines.

## Material & Methods

The material for the research was a database of documents of primary breeding registration, reports on horse testing, and the results of an expert assessment of the breeding composition of horse breeds of Ukrainian selection. The study of the genealogical structure of breeds by lines, breeding families and nests was carried out by the method of family analysis based on the construction of pedigrees. The assessment of horses was carried out by an expedition survey of breeding subjects and individuals who own horses.



## Conclusions

There is no program for the conservation of the biodiversity of farm animals in Ukraine, there are no gene pool reproducers and there are no subsidies for the conservation of national and local breeds. In this regard, the number of horses, without receiving financial support in a difficult economic period, continues to decline critically with the threat of complete extinction.