

GENETIC DIVERSITY OF FOUR LITHUANIAN CATTLE BREEDS BASED ON BLOOD PLASMA PROTEIN AND ERYTHROCYTE ANTIGEN SYSTEM POLYMORPHISM

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Summary. Four blood plasma proteins and erythrocyte antigen system F were studied and used as genetic markers in four Lithuanian cattle breeds in order to characterise the populations, to investigate genetic diversity in Lithuanian local and commercial cattle breeds and to determinate genetic relations of Lithuanian cattle populations.

An average number of alleles, expected and observed heterozygosities, pairwise DA genetic distances and F statistics were calculated, exact test for population differentiation was done. About 4.7% of the total genetic variability was due to differences between breeds, indicating a moderate subdivision. A neighbour-joining tree was constructed by using the DA genetic distances. The branching pattern of the tree confirms the grouping of studied cattle breeds into two main groups and outlying the Lithuanian Red population from Lithuanian Black and White breed that belongs to the Holstein type.

Further obtaining of alleles and genotypes in Lithuanian cattle breeds suggests that all four studied Lithuanian cattle breeds represent separate gene pools, and although there may have been crossing between breeds, it has not been sufficient to make a decision that breeds are not different. Estimated breeds exposing their own features, might be selected for different purposes in husbandry and kept as genetic resource for the future.

Keywords: blood plasma proteins, transferrin, ceruloplasmin, amylase-1, amylase-2, erythrocyte antigen system, polymorphism, cattle.

Abbreviations: TF-transferrin, CP-ceruloplasmin, AMY-1-amylase-1, AMY-2-amylase-2, EAF-erythrocyte antigen system F, LWB-Lithuanian White Backed cattle breed, LBW-Lithuanian Black and White cattle breed, LR-Lithuanian Red cattle breed, LLG-Lithuanian Light Grey cattle breed.