

## EFFECT OF GENOTYPE AND PRODUCTIVITY LEVEL ON SELECTED TRAITS OF LITHUANIAN BLACK AND WHITE COWS

*Vida Juozaitienė<sup>1</sup>, Lina Anskienė<sup>1</sup>, Arūnas Juozaitis<sup>1</sup>*

*<sup>1</sup>Department of Animal Breeding and Nutrition, Veterinary Academy, Lithuanian University of Health Sciences  
Tilžės 18, LT- 47181, Kaunas, Lithuania*

**Abstract.** The effect of genotype and herd productivity level on selected traits of 52432 cows was evaluated by data of the Lithuanian Black-and-White cattle improvement association. The average percentage of Holstein genes in cow's genotype ( $66.25 \pm 0.081\%$ ) has been estimated according to the records of cow's with complete 3 ancestor's generations pedigree information. We estimated that an increase of Holstein genes in cows' genotype is associated with growth of milk yield, fat and protein production ( $R^2=0.7305-0.852$ ), but has a tendency to decrease a longevity of cows ( $R^2=0.6926$ ), ( $P < 0.001$ ). The growth of productivity level of herds was associated with an increase of the negative phenotypic correlation of cow's milk yield with fat, milk yield and protein, protein with longevity. The higher degree of Holstein genes was related with an increase of times of insemination, prolonged service period and calving interval of cows ( $P < 0.001$ ). The highest positive correlations of Holstein breed degree with investigated reproduction traits of cows was estimated in herds with a highest productivity level ( $r = 0.40 - 0.45$ ,  $P < 0.001$ ).

Cows with a higher amount of Holstein breed genes in herds with a higher productivity level were taller, more capacious, with deeper chest width, straighter leg form and leg set angle, with moderately attached udder, udder cleft and teat length.

**Keywords:** productivity; reproduction; longevity; conformation traits; Lithuanian Black and White cattle; Holstein breed; genotype.