

INVESTIGATION OF EXTERIOR TRAITS DEPENDENCE ON THE GENOTYPE OF LITHUANIAN BLACK AND WHITE COWS ACCORDING TO THE DEGREE OF HOLSTEIN GENES

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Abstract. The conformation traits of cows are heritable and linked with functionality and longevity. The dominant dairy breed in Europe is the Holstein. The objectives of this study were to evaluate exterior traits dependence on genotype of Lithuanian Black and White cows according to the degree of Holstein genes. For analysis, the conformation traits data of 53160 cows (in average of 2.7±0.01 lactation) were evaluated, for the degree of Holstein genes estimation records of cows with complete pedigree information of 3 ancestor generations from the national database were used. The data were grouped by exterior evaluation scores. Although Lithuanian Black and White breed nowadays is intensively improved by Holstein breed, the average degree of Holstein genes has been determined to be 63.1±0.09%. The results of this study showed dependence of cows' exterior traits on genotype according to the degree of Holstein genes. The biggest positive influence of Holstein breed is produced on the height and udder depth of Lithuanian Black and White cows ($P < 0.001$). The average content of Holstein genes of cows evaluated by optimal score based on body traits varied from 60.8 ± 0.36% (rump width) to 71.6±0.19% (height), on extremities traits from 61.1 ± 0.12% (rear leg set angle) to 67.4 ± 0.30% (rear leg form), and on udder traits from 61.6± 0.73% (teat length) to 72.8±1.22% (udder depth) ($P < 0.001$). The data of Lithuanian Black and white cows included in the present study suggest that cows with high proportion of Holstein genes are taller, with deeper and higher attached udders.

Keywords: exterior traits, degree of Holstein genes, Lithuanian Black and White cattle