

USE OF HOLSTEINS IN THE PROCESS OF LITHUANIA'S BLACK-AND-WHITE CATTLE'S SELECTION

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Summary. For improving efficiency and technological properties of Lithuania's black-and-white cattle's, USA and Canada's Holsteins were started to use nearly 30 years ago. Crossing Lithuania's black-and-white cattle with Holsteins, it was indicated that F1, F2, F3 and F4 hybrids, depending on generation and Holstein part in their blood, acquired special dairy cattle type. Hybrid cows, obtained by the method of suppressed crossing or having 50% or more Holstein blood, during 305 days of lactation gave 7,7 – 28,9 % more milk, altogether 3,3 – 22,4 % more milk fat and 5,5 – 22,7 more milk protein, compared to pure-blooded Lithuania's black-and-white cows. However, fat content in hybrid cows' milk was 0,05 – 0,26 % lower, and protein content 0,06 – 0,25 % lower than in the milk of pure-blooded Lithuania's black-and-white cows (except the case of reverse crossing).

At high level of feeding conditions, Holsteins also considerably improved milking capacity of Lithuania's black-and-white cows, especially in case when they had 50% or more Holstein blood (4,5 – 17,4%). Fat and protein content in the milk of different generation hybrid cows varied depending on Holstein part in their blood; body mass of hybrids was bigger by 0,5 – 1,6 %. When feeding conditions were worse, milk capacity of cows with Holstein part in their blood was 2,1 – 5,5 % lower; fat content in the milk varied depending on hybrids' generation and part of blood from improving breed.

At intensive selection conditions (minimal efficiency requirement for the first-calf heifers during 305 lactation days was 200 kg of milk fat and 160 kg of milk protein), Lithuania's black-and-white cows and hybrids of all generations gave nearly the same amount of milk with the similar fat and protein content. Only pure-blooded Holstein cows at the same conditions during the lactation period gave 10,7% more milk, compared to Lithuania's black-and-white cows, and 8,8 – 21,0 % more milk, compared to hybrids of all generations ($P < 0,001$). Milk of Holstein cows had 0,30 – 0,80 % less fat, but protein content was nearly the same (or 0,01 – 0,15 % higher or lower), compared to Lithuania's black-and-white cows and hybrids (variation depended on the generation and part of the Holstein blood).

Weight before slaughter of hybrid young bulls of different generations and with different part of the Holstein blood varied, but it exceeded the weight of the pure-blooded counterparts by 0,4 – 11,3%. Carcass output of hybrids was lower by 0,9 – 2,7%. Deboning results showed that flesh of hybrid young bulls changed, but was not worse. Amount of flesh parts in carcass of F1, F2 and F3 young bulls, having 50% or more Holstein blood, was lower by 1,2 – 2,5%, and of hybrids having less than 50% Holstein blood was higher by 0,1 – 1,4%, compared to the pure-blooded Lithuania's black-and-white counterparts. Carcass output of all hybrid cows (except F1 hybrids) was 2,2 – 4,4% higher, compared to the pure-blooded Lithuania's black-and-white counterparts.

Keywords: Lithuania's black-and-white cattle's, Holsteins, milk fat, milk protein, feeding conditions, weight.