MILK PRODUCTIVITY OF LITHUANIAN BLACK–AND–WHITE AND HYBRIDS OF F_1, F_2, F_3, F_4 GENERATION COWS - DEPENDING ON HOLSTEIN BLOOD PART

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Summary. To improve the Lithuanian Black-and-White cow milk productivity the Holsteins of USA and Canada have been used for 25 years. The milk yield of cows-hybrids of F_1 and other generations with more than 50% Holstein blood part was up to 7,7-28,9% higher than the milk yield of pure-bred Lithuanian Black-and-White cows The milk fatness of the above mentioned hybrids was about 0,05-0,22% and the milk protein content–about 0,06-0,25% lower. However, the total yield of milk fat and protein during the best lactation of cows-hybrids was considerably higher than the same production of pure-bred Lithuanian Black-and-White cows. Because of the high effect of hybridization, a part of Lithuanian Black-and-White cattle is holsteinizated. There is an especially high number of holsteinizated cows-mothers of bulls. In Lithuania indispensable conditions for mothers of bulls are: milk production - no less than 6000 kg during the best lactation, milk fatness - 3,8 %and higher, milk protein content - 3,3% and higher.

In 1997 the productivity of 266 Lithuanian Black-and-White cows-mothers of bulls was controlled. 81,2% of them belong to the Holstein genotype. Up to 51,1% of these cows belong to *Wis Ideal* 933122 line.

We researched milk productivity of cows - mothers of bulls belonging to separate hybrid generations (F_1, F_2, F_3, F_4) with different parts of Holstein blood (l/2;l/4 and 3/4; 1/8, 3/8, 1/2, 5/8 and 7/8; 15/16).

After comparison of the research results with the milk productivity of pure-bred Lithuanian Black-and-White cows we determined that:

- cows with some separate combinations of Holstein blood were more productive than pure-bred Lithuanian Black-and-White cows;
- under Lithuanian conditions cows-hybrids of F_1 (1/2), F_3 (3/8 and 7/8) and F_4 (15/16) generations were more productive (milk yield during the best lactation higher by 0,l–4,0%) than pure-bred Lithuanian Black-and-White;
- milk yield of cows-hybrids of generations F_2 (1/4 and 3/4) and F_3 (1/8, 5/8 and 1/2) was by 0,2-8,7% lower than that of pure-bred cows;
- milk fatness and milk protein content in all hybrid groups were in 0,03-0,20% lower, with the exception of generation F_3 (1/8 and 7/8), where milk fatness was higher by 0,02-0,17% than in the milk of pure-bred Lithuanian Black-and-White cows-mothers of bulls;
- the total yield of milk fat in hybrid generations F_1 (1/2), F_2 (1/8, 3/8 and 7/8) and the total yield of milk protein in hybrid generation F_3 (3/8) were accordingly 0,4; 3,5; 2,5; 1,. l and 1,5% higher, but in all other hybrid groups the total yield of milk fat and protein (in kg) was 0,2-12,9% less, than the same production of pure-bred Lithuanian Black-and-White cows.

Rather frequent worsening of milk productivity traits of holsteinizated Lithuanian Black-and-White cows-mothers of bulls in comparison with pure-bred Lithuanian Black-and-White mothers of bulls is the result of limited number of Holstein breed lines and even predominance of one bull line (*Wis Ideat* 933122) in population. Besides, it is the result of insufficient amount of concentrates and proteins in the forage. The latter factor is especially important because of the Holstein breed ability to assimilate concentrated forage better than that of the other cattle breeds.

Keywords: cattle, breed, bull line, Holstein, cross-breed, milk production, mothers of bulls.