

L. M. Khmelnychi, V. V. Vechorka. Features of hereditary influence of Holstein blood share on indicators of longevity of Ukrainian Red-and-White Dairy cows

At the base of a breeding farm in Cherkassy region, with the modern highly mechanized technologies of milk production, five groups of cows – the crossbred genotypes of Ukrainian Red-and-White Dairy breed with a gradation of 12,5% blood share of Holstein (I – 37,5-50,0; II – 50,1-62,5; III – 62,6-75,0; IV – 75,1-87,5; V – 87,6-100,0) were studied. The aim of this study was to explore the impact of Holstein heredity on indicators of life expectancy, economic use and lifetime productivity of cows.

The results of retrospective analysis proved significant effect of Holstein conditional heredity on indicators of life expectancy, economic use and lifetime productivity of the Ukrainian Red-and-White Dairy cows of the experimental farm. The best among all five groups by indicators of life expectancy, economic use, number of lactations, lifetime milk yield and yield of milk fat, and milk yield for one day were the crossbred genotypes of the second group with conditional heredity of Holsteins 50,1-62,5 %.

The advantage of the second group of animals with Holstein heredity from 50,1 to 62,5 % differed significantly in life expectancy and economic use exceeding other groups of animals by these traits by 451-1449 and 465-1472 days respectively with a significant difference at $P < 0,001$, except their comparison with the first group. The animals of this group were used the longest in the herd, during five lactations and characterized by the highest coefficient of economic use and it is higher by 1,2-3,1 lactation and by 6,0-20,7 coefficient of economic use respectively, with degree of reliability at $P < 0,01-0,001$ compared with all the groups of crossbred genotypes.

For lifetime milk productivity advantage was also in favor of crossbred animals with Holstein heredity from 50,1 to 62,5%. If milk yields of crossbred genotypes of the first and third groups were less than the yield of animals of the second group only by 5571 and 5848 kg ($P < 0,05$ and $0,01$), then for high-blood genotypes of the fourth and fifth groups they were less by 11813 and 14021 kg at $P < 0,001$ or in 1,7 and 2,0 times. In general, cows with the highest share of Holstein blood (87,6-100,0%), and this is genotype which will have a dominant distribution in the array of Ukrainian Red-and-White Dairy breed at least for one or maximum for two generations, with 305-day milk yield of first-calf heifers of 5677 kg and for one day of economic use 14,0 kg of milk exceeded other groups of crossbred genotypes with degree of reliability by 455-806 ($P < 0,001$) and 0,8-2,5 ($P < 0,01-0,001$) kg of milk respectively; it unconditionally testifies to positive influence of Holstein heredity on these traits.

The best crossbred genotypes by indicators of life expectancy, economic use, number of lactations and lifetime productivity were with 50,1-62,5% share of Holstein blood in the herd of Ukrainian Red-and-White Dairy cattle. Productivity of crossbred cows per lactation increased with growing share of Holstein blood, but indicators of longevity and lifetime productivity decreased significantly, especially at high-blood animals with heredity of improving breed higher than 75,1%.

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