

V. P. Oleshko. Efficiency of lifetime use of imported cows

The study was conducted in high productive herd of Holstein breed in JV "Agrosvit" Myronivka district, Kyiv region by retrospective analysis of the primary materials of zootechnical and pedigree records.

The research involved analysis of data about 78 cows imported from Hungary to the farm in 2000 and 2003 and the first calving was during 2002-2004 and 117 cows imported from Denmark in 2005, the first calving was during 2005-2006. In comparison to the imported cows, contemporaries of local reproduction were selected based on respective years of the first calving ($n = 409$). The selection of animals and computing performance were conducted by the method of Polupan Yu. (2010).

The aim of the research was a comparative study of economic use duration and lifetime performance of the imported Holstein cows.

Analysis of milk production during lactation showed high milk yield during the first lactation (7315-7688 kg) in the imported animals at this farm. A slight decrease in yields by 3.4-5.1% (to 6939-7426 kg) was observed to the third lactation. This downward trend in milk yield of cows with age does not match the physiological capabilities of animals. No significant difference ($P > 0.05$) in fat content of milk also was found with its tendency to increase by 0.08-0.22% with age. For the third lactation fat content in milk was 0.13% ($P > 0.05$) higher for the cows imported from Denmark. Predominance in protein content of milk ($P > 0.05$) was in the imported cows from Hungary on average values within 3.34-3.42%. This figure declined with age from 3.3% to 3.1% in the cows from Denmark.

Significant differences were not revealed in comparing milk productivity of cows imported from Denmark with performance of their contemporaries of native origin. Difference in milk yield did not exceed 6.6%, fat yield – 5.8% and protein yield – 6.8% ($P > 0.05$). The fat and protein content in the milk of cows in the compared groups was at the same level within 3.1-3.3%.

Similar comparison of Holstein cows imported from Hungary and their contemporaries of native origin had slightly different results. The predominance in milk yield during the first lactation was noted for the local cows by 4%, fat content in milk – by 0.04% and protein content – by 0.1%, fat yield – by 5.4% and protein yield – by 7.1%. Milk yield during the third lactation was significantly higher for imported livestock by 13.5% (1000 kg), fat content – by 0.04% and protein content – by 0.08%, fat yield – by 15%, protein yield – by 10% at $P > 0.05$.

The research of duration and efficiency of economic use found slightly higher levels of lifetime measures of the imported cows from Denmark ($R > 0.05$). In the calculation of milk yield per a day of life, economic use and lactation slight advantage ($P > 0.05$) also was noted for the imported cows (by 0.6, 2.2 and 1.9 kg). The numbers of lactations and calves obtained from the cows were within 2.4-2.7 and 3.4-3.5 respectively. A similar slight predominance ($P > 0.05$) of the animals imported from Denmark was for coefficients of economic use (by 6.5%), lactation (by 1.8%) and productive use (3.5%).

A slightly different situation was observed in comparing the lifetime measures of the cows imported from Hungary with their contemporaries. In these groups of animals, small and insignificant predominance was in all the studied traits ($P > 0.05$) recorded for local contemporaries. Lifetime milk yield was 2.641 kg lower, so fat yield was 73 kg less and protein yield – 64 kg less. Lifetime fat and protein content in milk was within 3.69-3.70% and 3.35-3.36% on average, respectively.

Milk yield per a day of life, economic use and lactation in the both groups was almost at the same level (9.1-9.7, 16.2-16.7 and 20.2-20.6 kg respectively). On average in the both groups during lifetime of cows 3.5-3.8 calves were received and number of lactations was within 2.9-3.2.

Coefficients of economic use, lactation and productive use were 0.5, 2.4 and 6.0% lower respectively in the cattle imported from Hungary as compared to the local contemporaries.

Coefficient of variability of lifetime measures averages for the imported cows was to 66.6%. Coefficient of variability of average fat and protein content in milk during lifetime (1.9-2.9%) indicated high consolidation of the traits. High variability of lifetime measures confirms significant opportunities for selection of cows on these traits.

Consequently, Holstein cattle imported from Hungary and Denmark showed satisfactory adaptive ability under condition of "Agrosvit" breeding farm that provided high milk yield (7315-7688 kg) during the first lactation with small (by 3.4-5.1%) reduction in yields during the third (to 6939-7426 kg). Fat content in milk was 3.64-3.86% and increased by 0.08-0.22% with age. The protein content in milk fluctuated within 3.30-3.42%.

There was no difference in comparing milk productivity of imported Holstein cows and their local contemporaries. The difference in all cases is insignificant. The revealed tendency of higher productive performance is in favour of livestock imported from Denmark. The same traits in cattle from Hungary were slightly lower.

Average lifetime measures at the imported animals from Denmark were slightly higher and insignificant ($P > 0.05$) compared to local contemporaries. And the same averages at the cattle imported from Hungary were slightly lower and insignificant.

High coefficients of variability of the studied traits were found that would allow intensive selection of cows and to create herds with high productivity and long-term economic use.

Keywords: imported cows, Holstein breed, milk yield, economic use duration, lifetime performance