

## ***V. V. Machulnyi. Productivity of cows of Ukrainian Black-and-White and Red-and-White Dairy breeds***

Milk yield of cows in breeding herds, Cherkassy region, for last completed lactation averaged 6442 kg of milk with 3.62 % fat content. Currently the question of interconnection of cows' milk production and reproductive capacity is especially important, because the significant increase in milk yields makes minimize calves. The successful conduct of breeding had set the goal to detect the best options for combining milk production and reproductive ability of animals.

To characterize the level of milk production including reproductive ability of cows we used indicator of daily average milk yield per one day of periods between calving (PBC). The best service period can be considered period of 51-90 days, that allows you to get one calf per cow per year (average PBC is 351 days) and maintain high milk production ( $6431 \pm 39.6$  kg during 305 days of lactation). With this service period all indicators of milk production and reproductive ability are at high level. Reduced service period below recommended levels will reduce the duration of lactation and milk production, and increasing service period will increase the duration of lactation with a simultaneous reduction in milk production for 305 days. Herewith deterioration of reproductive ability is marked and manifested in the increase of the insemination index, decline in the reproductive capacity, increase of periods between calving and as a result, reduce of calves and culling barren cows.

Analysis of genealogical structure of the studied herds points to low diversity (Ukrainian Black-and-White dairy cows belong to 6 lines and Ukrainian Red-and-White dairy cows – to 8 ones) with high affinity (by Chief 1427381.62 to R. Sovereign 198998 bloodline, by Starbuck 352790.79 to Elevation 1491007 and Ideal1013415 bloodlines). Genealogical structure of the herds is saturated a lot of bulls genealogical groups of Holstein cattle: Chief 1427381 – 11 bulls in the array of Ukrainian Black-and-White dairy breed and 5 ones in Ukrainian Red-and-White dairy breed, Starbuck 352790.79 – 10 sires in the array of Ukrainian Black-and-White dairy cattle and 3 ones in Ukrainian Red-and-White dairy breed, Elevation 1491007.65 – 4 sires in the array of Ukrainian Black-and-White dairy cattle and 3 ones in Ukrainian Red-and-White dairy breed.

Currently the sires of Chief 1427381.62 (7712-3,76-289,9-3,14-242,1), Starbuck 352790 (7857-3,87-295,4-3,07-241,2), Jocko Besne 694028588.94(6687-3,88-259,5-3,03-202,6), and Bell 1667366 bloodlines (61341-3,95-242,3-3,02-185,2) among sires of Ukrainian Black-and-White dairy cattle and the sires of Cavalier 1620273.72 (7285-3,98-289,9-3,08-224,4), Chief 1427381.62 (7522-3,76-282,8-3,00-225,7), Starbuck 392405 (7667-3,87-296,7-3,00-230,0), and Elevation 1491007.65 bloodlines (7544-3,80-286,7-3,5-230,0) among sires of Ukrainian Red-and-White dairy breed are classified to a highly productive and promising for breeding and wider use by productive qualities.

After the first insemination the lowest proportion of fertilized cows is among offspring belonging to Chief 1427381 bloodline which is only 38 % among both breeds. However, the milk yield of breeding stock belonging to this bloodline

is 7712 kg with 3.76 % fat content for Ukrainian Black-and-White dairy cows and 7522 kg of milk with 3.76 % fat content for Ukrainian Red-and-White dairy cows. Daughters belonging to Elevation1491007, Valiant 1650414, and Hanover 1629391 bloodlines with yields of 4566-5478 kg of milk per lactation had a part of fertilized cows, after the first insemination, at the level of 41-49 %. Fertilization after the first insemination above 50% was in daughters belonging to Cavalier 1620273.72 (52%), Starbuck 392405(50-55 %), Bell 1667366(56%) and Jocko Besne 694028588.94 bloodlines (64 %). The level of performance of these animals for milk yield ranged from 6134 kg to 7857 kg.

Heritability coefficients of milk yield and duration of service period were low (0.118-0.289). A positive correlation can be explained by the fact that extension of service period (to a certain level) leads to growing number of milking days (duration of lactation) and defers a decrease in productivity of cows by physiological reasons, namely as a result of pregnancy. Low rates of heritability indicate little genetic diversity of traits and the significant influence of physiological and environmental factors in their formation.

As Ukrainian Black-and-White and Ukrainian Red-and-White dairy breeds have a high proportion of heredity of Holstein breed which has genetically large fetus, there is need to study the characteristics of nature passing calving in cows of these breeds. It is found the number of first-calf heifers which needed help was 52.4%. Animals calve alone in 47.6 % of all cases.

Calving was without complications if the live weight of calves not exceeding 6-7% of mother's weight. The cows calved without help of staff exceeded by 11.7% of the width of the pelvis in the buttocks, 7.5 % of the width of the ilium, and 7.1 % of its oblique length compared with animals of same age.

***Keywords:* service period, coefficient of reproductive ability, bloodline, milk productivity, phenotypic consolidation**