M. V. Gladyi, Yu. P. Polupan, I. V. Bazyshyna, A. E. Pochukalin, T. P. Koval, I. M. Bezrutchenko, N. L. Polupan, N. G. Mikhaylenko. Genesis and prospects of red dairy cattle in Ukraine

Ukrainian population of red dairy cattle is genetically active, its gene pool is significantly improved in each of the next generations, mainly due to artificial selection. Currently breeding structure of Ukrainian Red Dairy breed has the prospect of future expansion due to creating Podolian zonal type. Features of its formation are to use as the original breed, which being improved, Red Polish cattle. This breed, as Red Steppe cattle, was listed as a breed to preserve the gene pool under pure breeding. However, gene pool preservation of these breeds is impossible through lack of sufficient number of purebred bulls or their semen at breeding enterprises in Ukraine.

The aim of our research was to study genesis and development prospects of red dairy cattle in Ukraine.

Materials and methods of research. The materials of the research were the data of identifying breed composition of cattle in Ukraine by January 1, 2015, State Breeding List for 2005, 2010 and 2015, the electronic information database of leading breeding farms for 2007 and 2011 and database of bulls admitted to using during 2005, 2010 and 2015 of Institute of Animal Breeding and Genetics named after M.V. Zubets of NAAS.

Results. Currently the group of cows of red breeds is about 365 thousand head, including 97.9 thousand head concentrated in agricultural enterprises. The largest share of this group takes the Red Steppe cattle (84.5%), the smallest one – Ayrshire and Angler breeds (0.7-0.8%). In Ukraine, the total number of Ukrainian Red Dairy cattle is about 40 thousand head, including 21.4 thousand head of cattle concentrated in agricultural enterprises.

The results of these annual reports have shown that the average milk yield of the group of cows of red breeds was 3328 kg of milk in 2001. Then milk yield increased with each subsequent studied period and reached the highest figure of 4681 kg in 2014. So, increasing milk yield of cows was by 1353 kg of milk or 29% during fourteen years (2001-2014).

The number of breeding animals of Red Steppe, Red Polish, Ayrshire, and Ukrainian Red Dairy breeds significantly decreased in the controlled part of population during the past fourteen years. However, level of milk production and quality increased slightly, except for Red Polish breed. Thus, 4688 cows of Ukrainian Red Dairy breed had milk yield in 5981 kg and milk fat content in 3.88% according to the appraisal of 2014, whereas, in 2013, 4902 cows had milk yield in 5837 kg with milk fat content in 3.86%.

Up to 90% of the realized genetic progress in large-scale breeding is provided by using proven bulls, resulting most current need is to restore the national system of selection and testing of sires. The results show that during the

past ten years, the number of proven bulls, admitted to using within the red breeds decreased almost seven times with a simultaneous increase 2.2 times in breeding value.

Among 410 proven bulls, admitted to using in 2005 (bulls which being tested by progeny), unreasonably disproportionate share was for Holstein sires – 245 (59.8%), whereas, the share of bulls of the red breeds – 13.7%. In 2010, 123 bulls (65.4%) were of Holstein breed and only 9 ones (4.8%) – of Ukrainian Red Dairy among 188 bulls, admitted to using. In 2014, a similar situation was observed; there were 93 bulls, admitted to using, including 48 ones (51.6%) of Holstein and only 3 ones (3.2%) of Ukrainian Red Dairy breed.

Given the current state of livestock breeding base on all the red breeds (Red Steppe, Ukrainian Red Dairy, Angler, Red Polish) we developed possible options of parameters of large-scale breeding.

During the planning period the number of the controlled cows of the red breeds (mainly Ukrainian Red Dairy cattle) should be significantly increased. Calculations show that in the first stage of the program available number of cows in breeding farms, even if 30% of cows allocated to mating with laid-off bulls, is less than a third of the minimum at pressure of selection among laid-off bulls 1: 4 by productivity of 50 daughters. At the end of the program it is planned to increase the pressure of selection among laid-off bulls to 1:5 under increase of the controlled livestock number to 43700 cows (nearly 4.4 times against currently available one)

Conclusion. Our results showed that, the number of breeding farms, in which were bred red cattle, significantly declined and the livestock number also decreased whereas milk production increased during 2001-2015. The high level of genetic potential of Ukrainian Red Dairy cows indicates the presence of highest-yielding cows with yield more than 10 000 kg of milk. At the same time, such animals at breeding farms for breeding Red Polish, Steppe, Ayrshire and Angler cattle weren’t found.

During the past ten years, the number of proven bulls of red breeds, admitted to using, decreased almost seven times with a simultaneous increase of breeding value in 2.2 times. Predominance of Holstein bulls remains indisputable on reliability of assessment of breeding value. It causes the biggest request and the widest offer on the market of semen from bulls of the breed. The actual destruction of domestic system of sires breeding caused significantly lower rate of repeatability of breeding values in bulls of the red breeds. This is a concern and threatens possible loss or significant restriction of the gene pool of red breeds.

Keywords: **cow, bull, breed, repeatability of pedigree values, milk yield**