

I. V. Goncharenko, Yu. S. Pelykh. Comparative assessment of sexed and traditional semen of Holstein bulls

Holstein dairy cattle are characterized by many outstanding qualities such as exterior constitutive type, level of milk yield per lactation and during the period of economic use, well developed udder in size and shape, adapted to machine milking and others. However, there are some negative aspects at the breeding of animals of this breed. This is a short period of practical use (2-2,5 lactation) and decreased fertility of breeding stock (67-72% – in the farms with intensive-industrial technologies). At high intensity of herd selection – 30-33%, it is practically impossible to obtain the expanded reproduction of a herd from its own resources. Therefore, it always has to depend on the import of heifers and feeder heifers. These circumstances may necessitate the development of special breeding activities which eliminate these problems.

The science developed technology and laboratory equipment for sexed bull sperm and use of frozen-thawed sexed sperm relatively recently. Production test confirmed high efficiency of separation of spermiums by sex (bulls: heifers) – up to 92%. However, the high cost of sexed sperm and reasonable doubts of scientists and geneticists on the biological "harmlessness" of the proposed technology require further research in the future.

The aim of our work was to conduct a comparative assessment of sexed and traditional sperm quality of the same Holstein bulls, which comes in straws and proposed for using in farms of Ukraine.

Sexed and traditional (not sexed) sperm of Holstein sires of Canadian selection from "Simex Alliance Ukraine" LTD was used for research. The sperm of 4 sires: Benjamin CANM 7866444, Ardent HOUSAM 137922325, Mathys CANM 103439288, Vioris Sleeman HOCANM7817774 was taken for the analysis; each of the bulls had 3 sexed sperm doses and 3 traditional sperm doses. Total 24 sperm doses were studied.

Thaw-frozen bull sperm was studied in the cryopreservation laboratory SPC "Zahidplemresursy" Ltd., Lviv region using the technological equipment of the German company «Minitube» according to the software package CASA (Computer Assisted Semen Analysis) – Sperm Vision. Assessment of semen quality was conducted on indicators: concentration of sperms in 1ml, motility after thawing, number of sperms with rectilinear reciprocating movement (RRM), circular motion and stationary, and after incubation at 37 ° C after 60, 120, 180 minutes; acrosome intactness, level of microbial contamination.

It has been established that motility and survivability of the sexed sperms were 15-20% lower compared with these indicators of traditional sperm. Irrespective of the division of sperm by sex, we had the highest activity of the sperms of bull Vioris Sleeman HOCANM7817774. This indicates the possibility of bull selection by this indicator of quality sperm.

The experimental results should not be assessed pessimistically. The similar problems occurred at the early stages of development and adopting of freezing and

thawing technology of native bull sperm. We know that these issues have been successfully resolved.

Therefore, the experimental results indicate necessity of improving the technology of freezing and thawing sexed bull sperm and preparing specialists of required qualification for the breeding centres laboratories and breeding enterprises in Ukraine.

The genotype of a number of generations of progeny, obtained using sexed sperm should be systematically studied in the future.

***Keywords:* Holstein bulls (sires), sexed and traditional semen, spermatozoa motility and survival, dynamic characteristics of sperm movement**