The problem of long-term preservation of the gene pool of local livestock breeds with small population size is one of the main at the present stage of biotechnology development. In recent years preservation of gene pool of these breeds is considered in terms of performance of the main objective of the Convention on Biological Diversity, which in 1992 was signed by 167 countries and in 1994 it was ratified by the Verkhovna Rada of Ukraine.

The Ukrainian Grey breed was attributed to the domestic gene pool object which is on the verge of extinction according to "Conservation programme of gene pool of the main types of farm animal in Ukraine till 2015". The total breeding population of the Ukrainian Grey cattle was 908 animals (including 345 cows) as of 01.01.2015 and they are breeding in the State Enterprise "Polyvanivka" experimental farm of Institute of Agriculture of Steppe Zone of NAAS" and the "State Enterprise "Markeyevo" experimental farm of Institute of Animal-breeding of Steppe Regions named after M.F. Ivanov "Askania Nova".

The research has been conducted at the State Enterprise "Polyvanivka" experimental farm of Institute of Agriculture of Steppe Zone. Embryos donors were four cows and three first-calf heifers of Ukrainian Grey breed. Donor sperm of Ukrainian Grey bulls that was kept during 35–43 years at Bank of Genetic Resources of Institute of Animal Breeding and Genetics named after M. V. Zubets of NAAS was used for artificial insemination.

Embryo washout was carried by non-surgical method by 7–8 days after the first insemination. The embryos were frozen in straws at -196 °C by passive cooling in liquid nitrogen.

The results of the work were 78 received embryos (14 embryos from three first-calf heifers and 64 ones from four cows). According to the results of morphological assessment it was managed to lay 30 embryos for long-term storage in Bank of Genetic Resources of Institute of Animal Breeding and Genetics. The percentage of the full-value embryos was 38.5 on average.
Keywords: GREY UKRAINIAN BREEDS, COWS-DONORS, HEIFER-DONORS, CRYOPRESERVED EMBRYOS, CRYOPROTECTOR, MORPHOLOGICAL EVALUATION OF EMBRYOS