Name of the scientific and technical project:
BR22885692 "Development of modern selection-technological and molecular-genetic methods for improving, preserving and rationally using the genetic resources of sheep of different productivity directions"

Scientific research is carried out in accordance with Agreement No. 10 dated April 11, 2025, on joint activities to carry out applied scientific research in the field of the agro-industrial complex for 2024-2026 under budget program 267 “Increasing the availability of knowledge and scientific research” under subprogram 101 “Program-targeted financing of scientific research and events”.

Scientific and technological progress coordinator: "West Kazakhstan Agrotechnical University named after Zhangir Khan".

Customer: Ministry of Agriculture of the Republic of Kazakhstan.

Amount of financing for 3 years: 60.0 million tenge.

Expected results for 2024-2026:

Event 1: Formation of new highly productive sheep genotypes of different productivity directions using the potential of the domestic and foreign gene pool to test new breeding achievements.

The productivity and quality of Ordabasy breeding herds (at least 200 animals) will be determined. Effective methods for selecting Karakul sheep by color and astrakhan type will be developed, and animals with optimal parameters for the desired types will be selected for breeding herds.

The selection parameters of linear animals for productivity and early maturity (at least 200 heads) of the Ordabasin and Karakul breeds of sheep will be determined, and highly valuable genotypes will be used.

A new breed of meat-and-fat sheep will be developed, characterized by high growth rates and early maturity (at least 1,200 head). Specific lines of gray-colored Karakul sheep and astrakhan-colored varieties have been developed. One application for a breeding achievement will be submitted.

Event 2: Development of effective methods for industrial crossbreeding of sheep to obtain the maximum heterosis effect.

Interbreeding of Ordabasin and Karakul breed ewes with rams of the Zhaidar breed (200 heads) will be used.

The productive characteristics, growth and development of purebred offspring (50 heads of ewes and 50 heads of rams) and crossbreeds (50 heads of ewes and 50 heads of rams) will be determined according to growth periods.

A method for industrial crossbreeding of sheep will be developed to obtain the maximum heterosis effect.

Research results for 2024-2025:

Event 1: Formation of new highly productive sheep genotypes of different productivity directions using the potential of the domestic and foreign gene pool to test new breeding achievements.

The growth, development, and productive performance of young Ordabasy and Karakul sheep were studied. It was found that Ordabasy lambs outperform Karakul lambs in live weight at birth and at weaning. The highest live weight and

slaughter quality indicators were obtained with purebred Ordabasy lambs. Crossbreeding with Zhaidar rams reduces meat productivity and profitability.

Differences in the yield of astrakhan-type lambs and lamb color were identified in the Karakul breed. A higher yield of elite + 1 class lambs (85.6–88.5%) was achieved using gray rams from the Uzbek population on black jacket-type ewes. Lamb sales profitability was 28.2% for the Ordabasy breed and 20.7% for the Karakul breed. These data served as the basis for adjusting breeding and technological measures at the base farms.

Based on the obtained results, the directions of selection and technological measures in basic farms were clarified and adjusted, aimed at increasing the efficiency of mutton production and improving the quality indicators of products of the Ordabasy and Karakul breeds of sheep.

Event 2: Development of effective methods for industrial crossbreeding of sheep to obtain the maximum heterosis effect.

Effective methods for industrial crossbreeding of sheep and an intensive technology for raising, fattening, and finishing lambs have been developed, increasing meat productivity and profitability of lamb production. It has been established that lambs bred from purebred Ordabasa lambs exhibit faster growth rates, better feed efficiency, higher slaughter yield, and higher profitability compared to crossbred and Karakul lambs. The period of intensive lamb growth is accompanied by significant physiological stress, while the lowest feed costs per unit of growth are observed in purebred Ordabasa lambs. Raising substandard lambs with additional feeding improves economic efficiency; however, growth rates and profitability remain lower than those of standard lambs.