

**THE CONTENT OF T- AND B-LYMPHOCYTES IN THE BLOOD OF LAMBS WHEN CROSSING LOCAL SHEEP WITH BEEF SHEEP FROM CANADA (OLIBS, TEXEL)**

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**Summary.** We studied the level of T-and B-lymphocytes in the blood of lambs of different genotypes in the process of their growth. A successful result was obtained by crossing local Askanian sheep with Canadian meat sheep. The immunological status of lambs of all genotypes was rather high. The content of T-and B-lymphocytes in the blood can serve as a predictor of the immunological status during the period of growth of lambs and the formation of meat qualities in the future.

**Keywords:** beef sheep, crossbreeding, blood, T- and B-lymphocytes.

Meat sheep breeding is gaining popularity recently. Imported animals are used to improve the productivity of local breeds in the country often. Animal breeding can be complicated due to an unfavorable climate in a new place. Our preliminary studies indicate the difficulties of adaptation in highly productive animals in the steppe of Ukraine [1]. This is due to climate variability, especially in periods of summer heat, we find confirmation of this in recent years [2]. Immunological blood parameters are reliable markers when animals adapt to new environmental conditions. Their study is extremely important in assessing the viability of young animals. This is due to the fact that blood counts are closely related to signs of animal productivity in the future [3].

**The aim of the work** was to study the level of T-and B-lymphocytes in the blood of lambs of different genotypes during their growth. The genotype of lambs was represented by local Askanian meat-wool sheep (AM), as well as those obtained by crossing with Canadian OLIBS (OL) and Texel (TS) sheep. The age period included 1, 4, 8 and 12 months from birth. Quantitative composition of subpopulations of peripheral blood lymphocytes was determined on a cytofluorometer "FC-500" ("Beckman Coulter", USA). By standard methods, the conditions in which the lambs were raised were evaluated [4]. The conditions of detention of all animals were similar.

It has been established that the immunological status of lambs of all genotypes was rather high. The content of lymphocytes varied in the blood of animals in the range of 34-57% for T-lymphocytes, and 19-28% for B-lymphocytes subpopulations. The

content of lymphocytes was the largest at 4 months after birth, and then decreased gradually in the lambs of all genotypes. Note that young sheep obtained from interbreeding with OLIBS (AM×OL) exceeded purebred analogues of the Askanian breed in T-lymphocyte content by 4.4% and in B-lymphocyte content by 2.2 %. The superiority of lambs obtained from crossing local sheep with Texel (AM×TS) before AM counterparts in T-lymphocyte content was 3.3 % and in B-lymphocyte content was 2.4 % ( $P<0.05$ ). We are inclined to believe that the high immunological status of the new genotypes obtained as a result of the crossing of Askanian sheep with beef sheep from Canada was the result of a heterosis effect. The slaughter of young sheep testified to more pronounced meat qualities in the received crossbred sheep.

Thus, a successful result was obtained from the crossing of local Askanian meat-wool sheep with Canadian meat sheep. The content of T- and B-lymphocytes in the blood can act as predictors of immunological status during the period of growth of lambs and the formation of meat qualities in the future.

### References

1. Milostiviy, R. V., Vysokos, M. P., Kalinichenko, O. O., Vasilenko, T. O., & Milostiva, D. F. (2017). Productive longevity of European Holstein cows in conditions of industrial technology. *Ukrainian Journal of Ecology*, 7(3), 169–179. doi:10.15421/2017\_66
2. Vasilenko, T. O., Milostiviy, R. V., Kalinichenko, O. O., Gutsulyak, G. S., & Sazykina, E. M. (2018). Influence of high temperature on dairy productivity of Ukrainian Schwyz. *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies*, 20(83), 97–101. doi:10.15421/nvlvet8319
3. Milostiviy, R., Antonenko, P., Kostyuk, V., Vasilenko, T., & Czerniawska-Piątkowska, E. (2018). The milk yield of Ukrainian Holstein is related to the immunobiological parameters of blood of calves. *Folia Pomeranae Universitatis Technologiae Stetinensis Agricultura, Alimentaria, Piscaria et Zootechnica*, 345(48), 105–112. doi:10.21005/aapz2018.48.4.10
4. Antonenko, P. P., Dorovskych, A. V., Vysokos, M. P., Mylostyvyi, R. V., Kalinichenko, O. O., & Vasilenko, T.O. (2018). Methodological bases and methods of scientific research in veterinary hygiene, sanitary and expertise (Educational and methodical manual), Dnipro, “Svidler A.L.”, p. 276