



MORPHOLOGICAL COMPOSITION OF BLOOD OF YOUNG SHEEP OF KARAKALPAKSTAN IN AGE DYNAMICS

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Annotation

In this work, based on the study of the morphological composition of blood, the content of total protein and its fractions, the adaptive properties of local coarse-haired fat-tailed sheep of the zhaidar, hissars and their crosses are characterized.

Keywords. Coarse-haired fat-tailed sheep, morphological composition of blood, age dynamics, total protein and its fractions.

Аннотация

В работе, на основании изучения морфологического состава крови, содержания общего белка и его фракций, охарактеризованы адаптационные свойства местных грубошерстных курдючных овец джайдара, гиссаров и их помесей.

Ключевые слова. Грубошерстные курдючные овцы, морфологический состав крови, возрастная динамика, общий белок и его фракции.

Relevance of Research

Currently, in the farms of Karakalpakstan, in order to increase the precocity and meat-and-fat productivity of local fat-tailed sheep, they practice crossing with Hissar sheep.

In this regard, the study of physiological and biochemical mechanisms that determine the development of young sheep, the formation of their productivity, adaptation to environmental conditions, can make it possible to control the process of postnatal ontogenesis and obtain new information about physiological homeostasis and the mechanism of adaptive changes in the animal body. This is of particular importance when crossing breeds [4. from 50-53], [2. from 66-68], [3. from 43-44].





The urgency of the problem served as the basis for a comparative study of the morphological composition of blood in the process of growth and development of lambs of local fat-tailed sheep of the Jaidar, Hissar breed and their crossbreeds.

Place, Material and Methods of Research

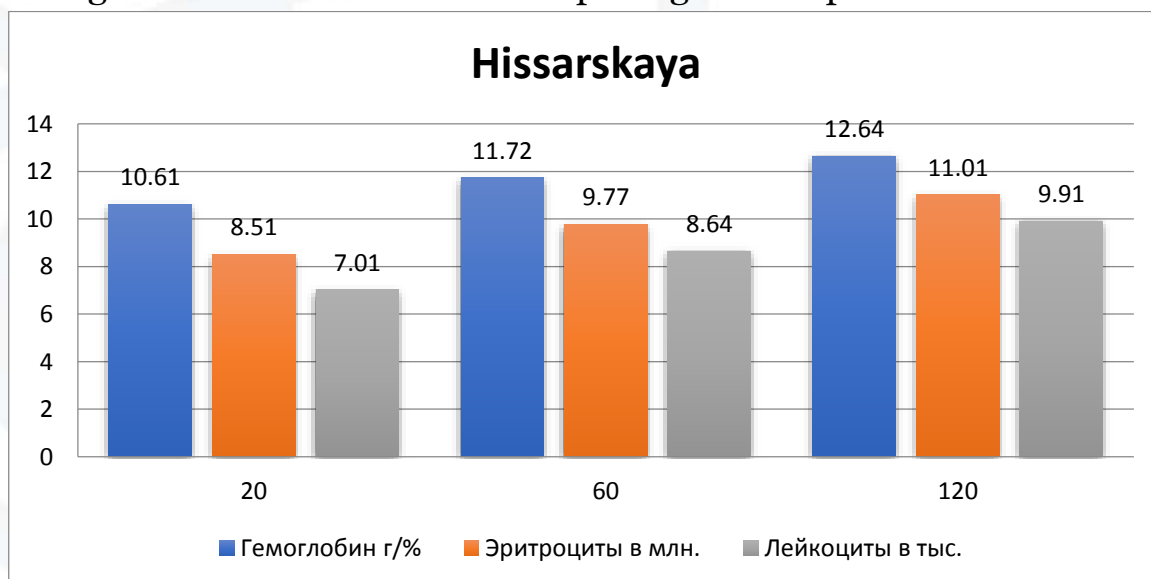
The research was carried out on sheep of the farm "Sultanov Tokhtabai" in 2020-2021 kept on pastures. To do this, three groups were formed from among the newborn lambs; the first is the lambs of Jaidar; the second is the lambs of the Hissar breed; the third is cross-breed lambs. Hematological parameters – the number of erythrocytes, leukocytes, hemoglobin, and immunoglobulin content were determined at 20, 60, and 120 days of age from blood samples taken from the jugular vein using conventional methods of analysis.

Research Results

In the initial period of growth and development, there is a significant variability in the morphological composition of the blood of lambs of all three groups. An increase in the hemoglobin content with their age is characteristic. The main biological purpose of hemoglobin is the transfer of oxygen to the tissues and carbon dioxide to the lungs. The hemoglobin content in the blood of animals ranges from 10 g% to 25 g%, in erythrocytes - from 30 g% to 40% g [4. from 50-53], [1. from 2693].

In our experience, the amount of hemoglobin in the blood of Hissar lambs was the lowest at the age of twenty days (10,61 g /%) and its content increased with age (see diagram-1,2,3).

Diagram-1 Age-related features of the morphological composition of lambs' blood

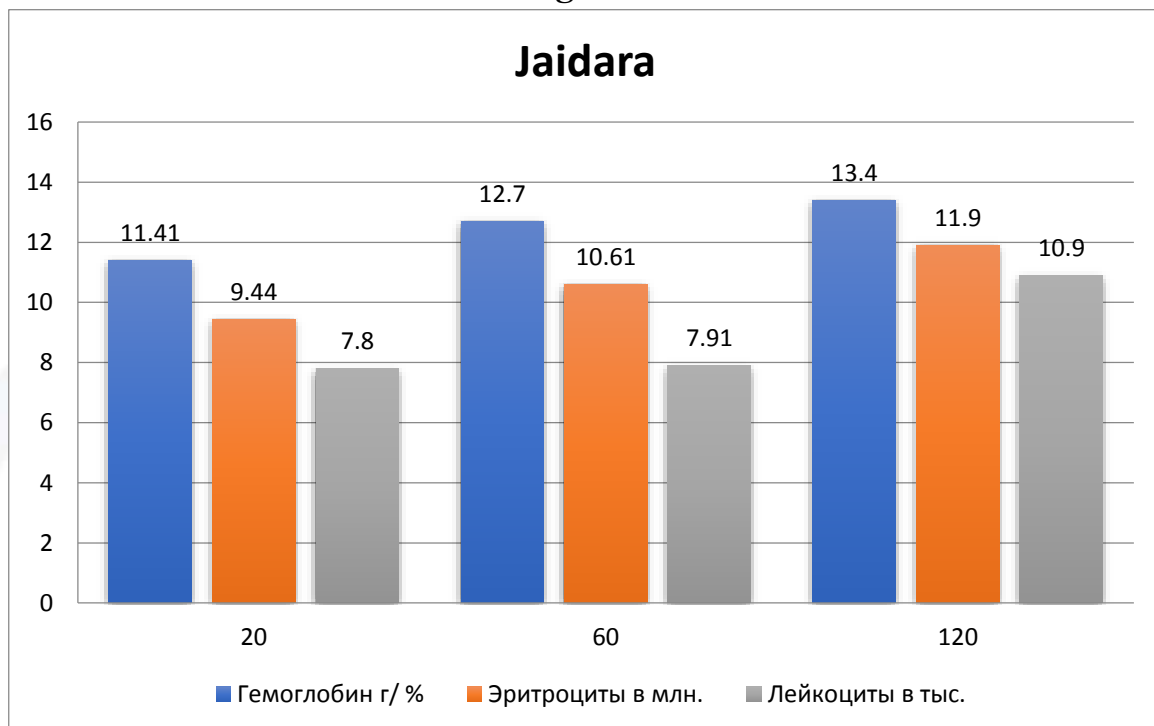




The blood of lambs of the jaidara breed at the age of twenty days contained 11,41 g/% of hemoglobin and its content increased by 2,0 g/% by 120 days of age. In terms of hemoglobin content in the blood, cross-bred lambs occupied an average position and increased by 0,41 g/% over 100 days of development.

According to the literature, the content of erythrocytes in the blood of newborn lambs is 9,3 million or more, but their content decreases after a day to 8.8 million [2. from 66-68].

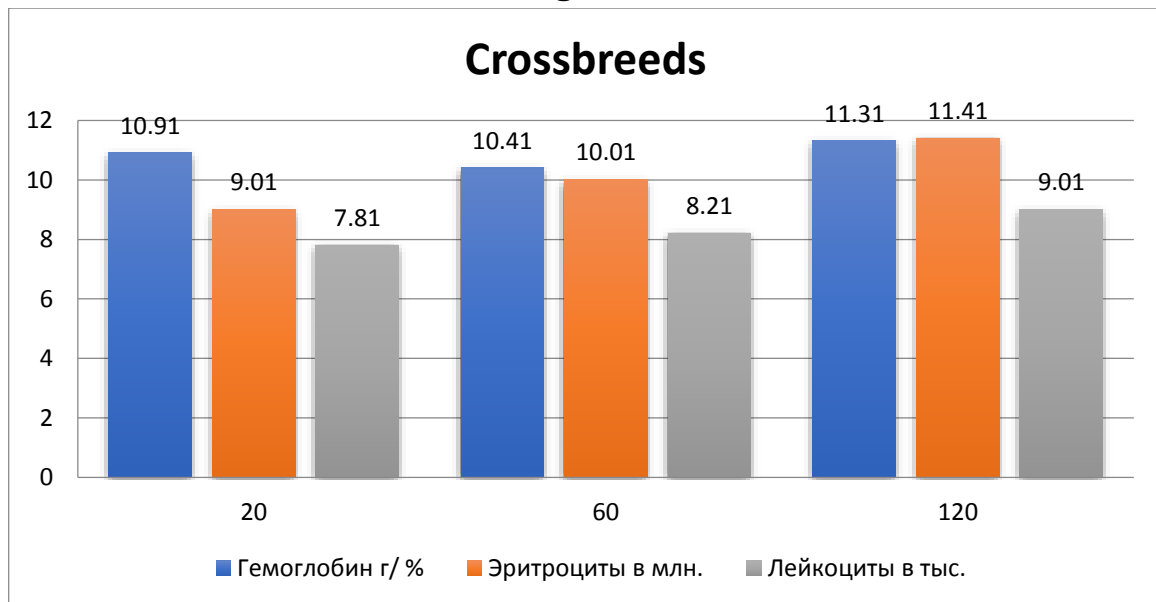
Diagram-2



At the age of twenty days, the number of red blood cells in the blood of lambs of all three groups was in the range of 8,51 -9,44 million. During the subsequent growth period, that is, by the age of 120 days, the number of red blood cells in the first group increased by 2,5 million, while in the second and third groups, this difference was 2,44 million and 2,4 million, respectively. An increase in the content of red blood cells in the blood with age, apparently, is associated with an increase in hemoglobin content. An increase in the number of leukocytes with age in lambs of all three groups is associated with the development of systems and organs that provide protective potential. Analysis of the level of lymphocytes that influence the formation of the immune system indicates the variability of this indicator depending on the breed and age.

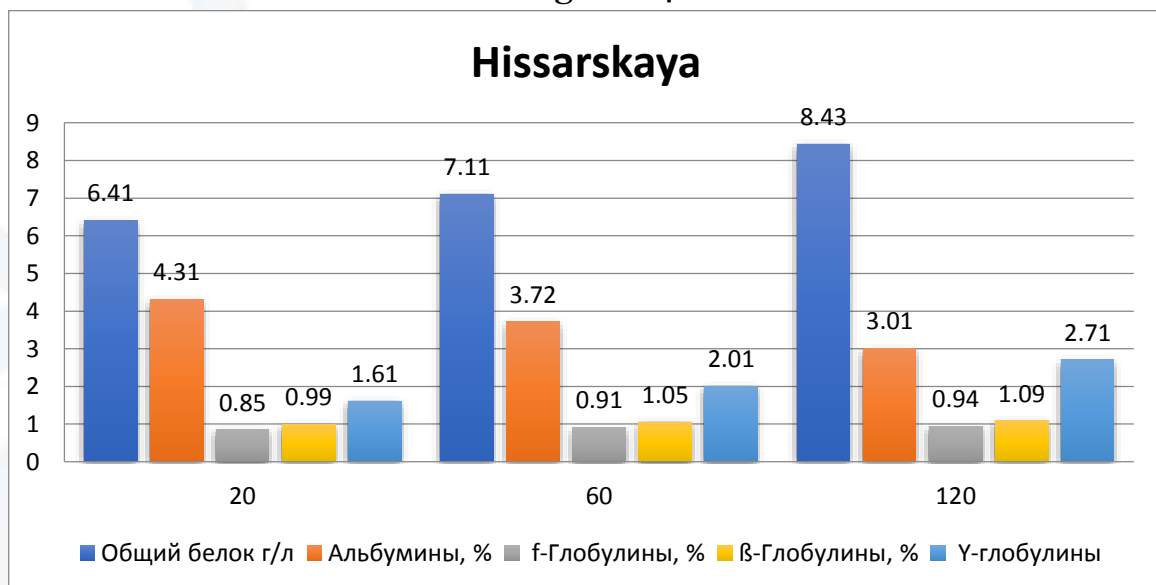


Diagram-3



Thus, the content of leukocytes in the blood of lambs of the Jaidar breed at all age periods was slightly higher than that of lambs of the Hissar breed and crossbreeds. With age, the content of white blood cells in the lambs of the Hissar breed increased by 2,9 thousand; this difference in the group of Jaidar lambs was 3,1 thousand and in the group of mixed lambs -1,2 thousand.

Diagram-4



The total protein content in the blood serum of lambs of all three groups increased with different intensity with age. In lambs of the Hissar breed, the total protein content in the blood in the period from 20 days to 120 days of age increased by 2,02 g/l, whereas in the second and third groups, this difference was 1,5 and 1,8 g/l, respectively.



With age, the lambs of all three groups showed a decrease in the serum content of the albumin fraction (diagram 4,5,6).

Diagram-5

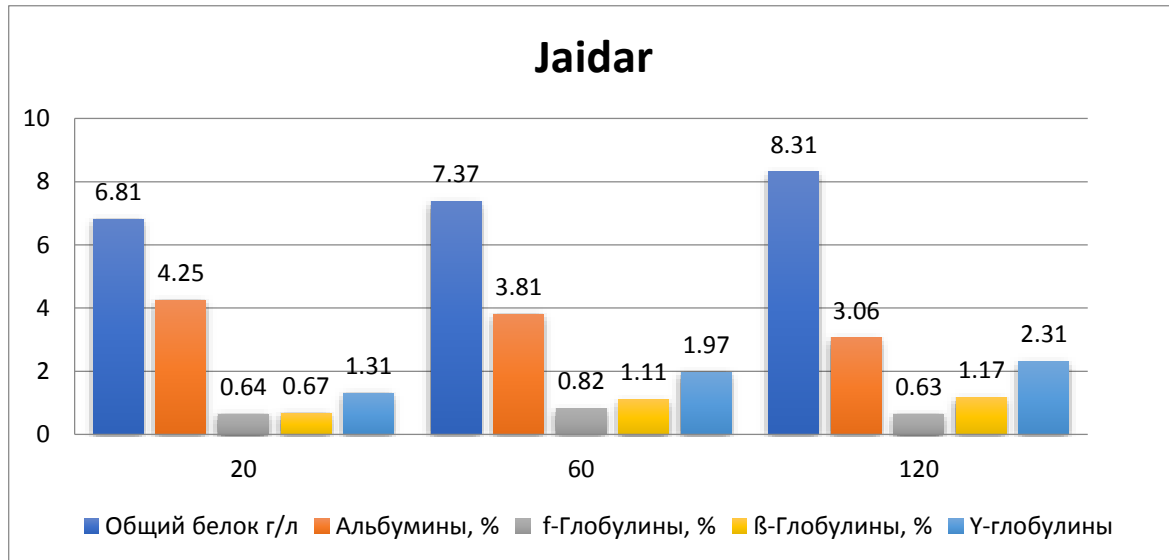
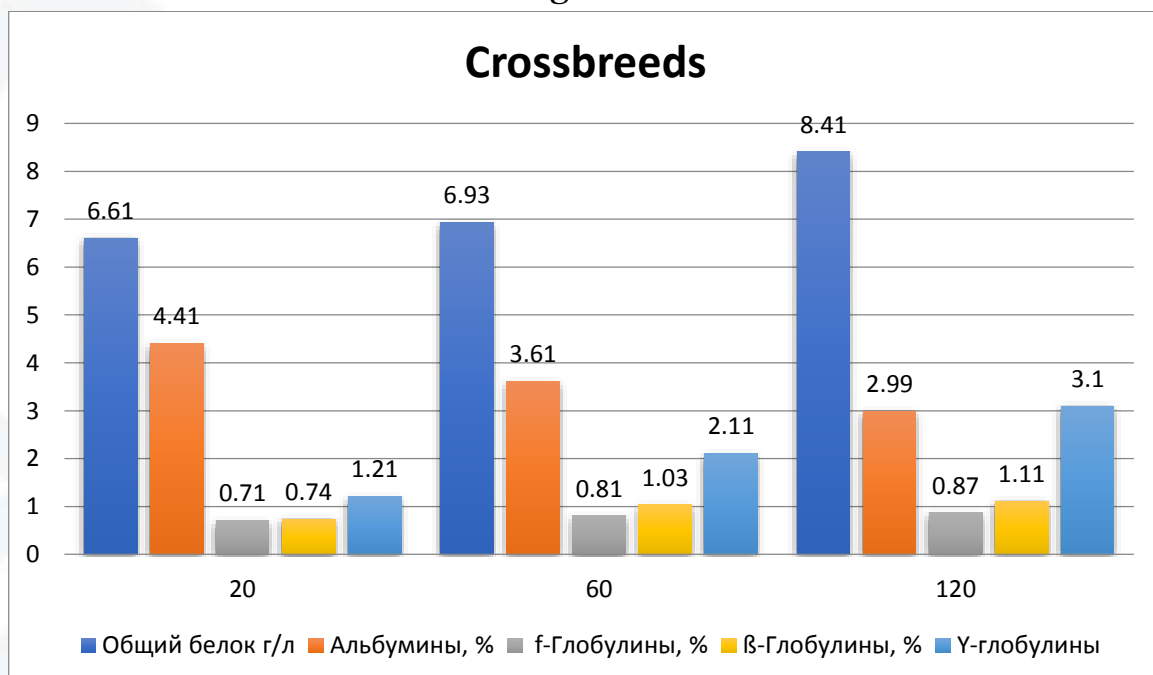


Diagram -6



The content of the alphaglobulin fraction in the blood serum of all lambs increased and its relative content was highest in the lambs of the Hissar breed. β and γ globulins also increased with age and were approximately equal in all three groups.

This means that in a growing organism, the reactive properties change gradually and are finally formed only in adult animals after they reach a certain level of general biological and physiological development.



Conclusions

Our studies of biochemical and morphological parameters of the blood of lambs of different genotypes indicate a sufficiently high plasticity and adaptive properties of young sheep of Jaidar and their hybrids with Hissar. This indicates the effectiveness of breeding work on the use of Hissar sheep as improvers of the meat and fat productivity of local fat-tailed sheep.

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