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GENERALIZATION OF ESTIMATION RESULTS OF THE SHEEP ORGANISM ADAPTIVE SYSTEM

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As to the results of morphological and biochemical research of blood the clinical and biological coefficient with lymphocytic-neutrophilic index in its basis was developed. In neonate sheep of the precos breed, there was a higher coefficient in comparison with lambs from Luhansk region as a consequence of higher level in adaptation mechanisms in organism of the newborn lambs of the breed. It was stated that sheep of Askania merinos breed which are bred under the conditions of the Kherson region have been more adapted to the physiological and technological stresses.

Key words*: sheep, adaptation, organism, blood, stress.*

Setting the problem. During the recent time the intensification in the sheep-breeding branch sets a whole number of vital tasks in relation to the rising of characteristics of animal productivity, which directly depend on the functional state, the level of metabolic process behavior and defensive- adaptive features of animal organism. It should be borne in mind that sheep during their life are affected by lots of environmental factors such as technological and physiological irritants. At present the animal adaptation mechanisms to anthropogenic- stressful factors are studied enough profoundly in cattle and swine breeding [2-4, 8, 11-13].

The analysis of main researches and published works started the solving of the problem. The survey of works dealing with this problem indicates the lack of complex scientific research, studying morphological-physiological mechanisms of adaptive ability in sheep of different breeds in case of acclimatization, especially under the condition of the Donbass region [1, 6, 9, 10]. That is why so actual the questions of further study the mechanisms of adaptation and generalization of action adaptive system of sheep organism are. The research done is a present day scientific area, helping to solve the problem of selection and breeding sheep, best adapted to different natural climatic zones of Ukraine.

Object and tasks of the research. The object of our work was the elaboration of the criteria capable to generalize indices of adaptive system of sheep organism.

The task of the research was:

1. To identify the value of the clinical-biochemical coefficient (CBC) in ewes and neonates of the Ascania fine-fleeced breed and precos breed.

2. To estimate the relative adaptability of different breeds sheep and natural-climatic conditions of their keeping before the technological stress (shearing).

Materials and methods of research. The experimental part of work was fulfilled within cooperation agreement with M.F. Ivanov scientific research institute of animal husbandry in steppe regions " Ascania Nova", the institute of Animal husbandry of the National Academy of Agrarian Sciences in Kharkiv and "Aidar" limited partnership in Markovka district of Lugansk Region. The object of research were lambs and adult sheep of Ascania fine-fleeced breed (AC) and precos breed (PB) in different periods of physiological and technological load (neonates, the period of the first shearing, pregnant and after lambing, n =72).

The blood samples for clinical and biochemical tests were got from the jugular vein fasting in the periods between feedings.

The clinical and biological indices of blood samples were detected accordingly the generally accepted methodology.

The results of the research. Taking into consideration the variety of indices got from the animals of different age groups kept under various natural-climatic conditions and had to undergo different stress kinds we offered CBC integrating the morphological and biochemical indices of sheep blood. It is based on lymphocytic-neitrophilic index offered by Kutikov E. S. (2005). We complemented it with rates of the alkaline blood reserve and protein fractions [7]. The developed coefficient represents the correlation of rates of the alkaline blood reserve, the number of lymphocytes and the percentage part of the γ- globulin fractions of the crude protein to the granulocyte number and the percentage part of the α- and β- globulin fractions of the crude protein.

$$\mathbf{CBC = ((AR \times lph \times \gamma\text{-}g) : (\alpha\text{-}g \times \beta\text{-}g \times gr)) : 100,}$$

Where: AR is the alkaline blood reserve; **lph is** lymphocytes; **α-g is** α- globulin; **β-g is** β- globulin; **γ-g is** γ- globulin; **gr is** granulocyte – a sum of neitrophilous, eosinophilous, basophilious.

The index of alkaline reserve expresses the pH blood state, the supporting of it is vitally important. Even the slight aberration of blood reactions are attended by such serious consequences as enzyme system activity alteration and membrane permeability, physical and chemical characteristics of cellular colloids and intercellular structures. So we used this biochemical index, which first of all should be supported by buffer systems of the blood. The blood lymphocyte level is connected in a manner with γ-globulin contents, the blood neitrophilous level is connected with α-globulin level as sharply phased tests, β-globulins level is connected with the level of hemoglobin, since they participate in iron ions transportation [5].

In ewes before lambing the less CBC was registered among the animals of precos breed (0,34), the next one by quantity was registered in ewes of Ascania fine-fleeced breed from "Aidar" limited partnership Luhansk Region (0,47), the largest one was registered in animals of "Ascania Nova" State pedigree experimental farm – 0,50 (figure 1)

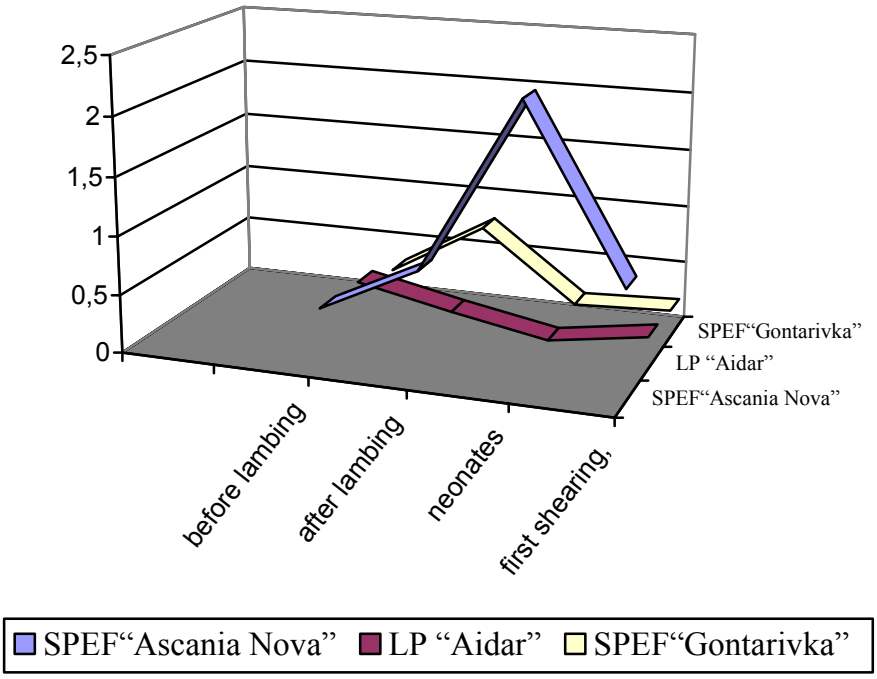

Figure 1. Clinical- biochemical coefficient in sheep

In ewes after lambing the minimal CBC value was registered in the group of animals of Ascania fine-fleeced breed from “Aidar” limited partnership Luhansk Region (0,33), the next one by quantity was registered in ewes from “Gontarivka” SPEF- 0,80 and the largest one (0,90) was registered in ewes of Ascania fine-fleeced breed from “Ascania Nova” State pedigree experimental farm.

In neonates the less CBC was among the sheep of Ascania fine-fleeced breed (0,15) from “Aidar” limited partnership Luhansk Region, the next one by quantity was registered in sheep of precos breed (0,20) from “Gontarivka”SPEF and the largest one in animals from “Ascania Nova”SP experimental farm – 2,34.

However during the period of first shearing, the minimal CBC value was in the group of sheep precos breed (0,24), whereas among the sheep of Ascania fine-fleeced breed from “Aidar” limited partnership– 0,28; the maximal value of this index was in sheep from “Ascania Nova” experimental farm – 0,95.

It is important to note, that before lambing during the second half of the pregnancy period CBC was larger in both groups of ewes of Ascania fine-fleeced breed, grown under different natural-climatic conditions, than in precos breed group.

The ewes of Ascania fine-fleeced breed, grown under condition of Kherson region had the largest CBC after lambing, which is indicative of high level of defensive- adaptive mechanisms in the organism of these animals at this period.

The new-born sheep of Ascania fine-fleeced breed from ewes of Kherson region had the largest CBC, it remains during next periods of lamb growing and particularly at the first weaning.

Summary:

1. The highest CBC is stated in ewes of Ascania fine-fleeced breed from Kherson region which remains at a high level and in new-born lambs.

2. In sheep got from ewes of Ascania fine-fleeced breed from Kherson region, CBC remains at a high level both in comparison with the sheep of the same breed grown under conditions of Luhansk region and in comparison with sheep of precos breed from Kharkiv region.

3. The minimal CBC in new-born lambs corresponded to relatively low CBC in ewes of Ascania fine-fleeced breed from Luhansk region comparatively with lambs grown under condition of Kherson region.

4. The higher CBC was observed in neonates of precos breed in comparison with sheep from Luhansk region owing to higher level of adaptation mechanisms in neonates' organisms of this breed.

5. Technological stress (shearing) revealed that the sheep of Ascania fine-fleeced breed from Kherson region were the most adapted to it.

6. The devised and appointed CBC gave an opportunity to prove that the sheep of Ascania fine-fleeced breed from Kherson region were better adapted to physiological and technological stresses.

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