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Productivity And Hematological Indices Of Sheep Based On Dorper Crossbred.

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ABSTRACT

The pedigree breeds ($\frac{1}{2}$ Kalmyk fat-tailed \times $\frac{1}{2}$ dorper) young growths surpassed the purebred sucking peers of the Kalmyk breeds when the live weight of the mass in all periods of cultivation. Young females significantly exceeded purebred animals in terms of serum total protein, albumin content, activity of aspartate aminotransferase (ACT), alanine aminotransferase (AST) and alkaline Phosphatase.

Keywords: sheep, Doper breed, live weight, blood, total protein, albumins, AST, ALT.

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INTRODUCTION

To increase lamb production, it is necessary to improve the genetic resources of sheep, which have the early maturity and high meat productivity [3]. In connection with this, the meat of the Doper breed has become popular [4].

In 2016 in the Republic of Kalmykia, sheep were brought in. In the Russian Federation, this breed is new and there are few data on its use when crossing with other breeds. Therefore, the study of the effectiveness of crossing this breed with domestic breeds of sheep is an actual problem.

In recent years, the study of the interiors of farm animals has been widely developed in animal husbandry. The most common object of interior research is the blood of animals [5-11].

Blood is a protective internal environment of every possible organism. Despite the vessels on the continuous flow of blood into the blood and the derivation from it of various product substances, the morphological gas exchange and the biochemical composition of the carrying out of the blood in norm is quite important quite constant. But, importantly, despite this, the blood vessels of a number of its biochemical determinants undergo various changes in the dependence of the protein on various internal blood and external factors. Therefore, the activator analyzing the composition of one blood, one can see all suffer changes that occur in the blood of the body [1].

The aim of the research was to study the productive qualities and biochemical parameters of the blood serum of young sheep obtained from the crossing of the ewes of the Kalmyk breed with the ram of the Doper breed.

MATERIALS AND METHODS

The scientific and production experience was conducted in Ltd Agrofirma Aduchi in 2016-2017 according to the scheme presented in Table 1.

Table 1: Scheme of experience

| Group | Breed | |
|-------|-----------------|-----------------|
| | Ewes | Rams |
| I | Kalmyk fat-tail | Kalmyk fat-tail |
| II | Kalmyk fat-tail | Doper |

For the experiment, two groups of ewes of Kalmyk breeds were formed according to the principle of pairs of analogs, with 40 heads in each. The uterus of group I was covered with rams of Kalmyk breeds, and sheep of group II with rams of Doper breed (experimental group). Lambing of ewes took place in April 2017.

To account for the growth of animals, monthly weighing (in the morning before feeding) was carried out on the basis of which the absolute, average daily and relative increments of live weight were calculated.

From the study of the goal of studying the gas exchange changes in hematological magnesium indices of kidney lambs, a blood sample was sampled. Biochemical analyzes were conducted in the Federal State Budgetary Institution "Stavropol Interregional Veterinary Laboratory".

RESULTS AND DISCUSSIONS

The results of our two thoroughbred studies showed that the live weight of lambs during the cultivation was purebred different in experimental sheep and control groups. In determining the average cross-breeds ($\frac{1}{2}$ Kalmyk-aged smoky \times $\frac{1}{2}$ doper), the youngest surpassed the pure-bred sapphires of the Kalmyk breeds when the live weight of the mass at a fertility of birth by 0.39 kg results ($P > 0.99$), higher at a monthly age all ($P > 0.999$) as a result of a two-month birth by 2.29 kg ($P > 0.999$), similar in the three-month reproductive period - by 3.10 kg ($P > 0.999$), in a four-month sheep - by 3.90 kg ($P > 0.999$), in the five-month

period - by 4.50 kg ($P > 0.999$), in the six-month period - by 4.85 kg ($P > 0, 999$), in the seven-month period - by 5.15 kg ($P > 0.999$) and in the eight-month period - by 5.45 kg ($P > 0.999$).

For the suckling period (4 months), the young pesky stock exceeded the purebred peers by an absolute increase in the live weight by 3.51 kg, and for the effectiveness of the whole sheep, the growing period was 5.06 kg ($P > 0.999$).

The dynamics of the average daily increase in the live weight of experimental sheep is shown in the figure. The local youngsters of the second group had increased energy of growth during all periods of cultivation and exceeded the peers of the first control group by the average daily weight gain for the suckling period by 29.25 g ($P > 0.999$), and for the entire period of growing by 21.08 g ($P > 0.999$).

The relative increase, showing the energy growth of the animal was also the highest in the hybrids of the second group. They outnumbered their purebred peers for a sucking period (4 months) by 31.83 abs. % ($P > 0.999$), and for 8 months compliance by 43.03% ($P > 0.999$) (figure 1).

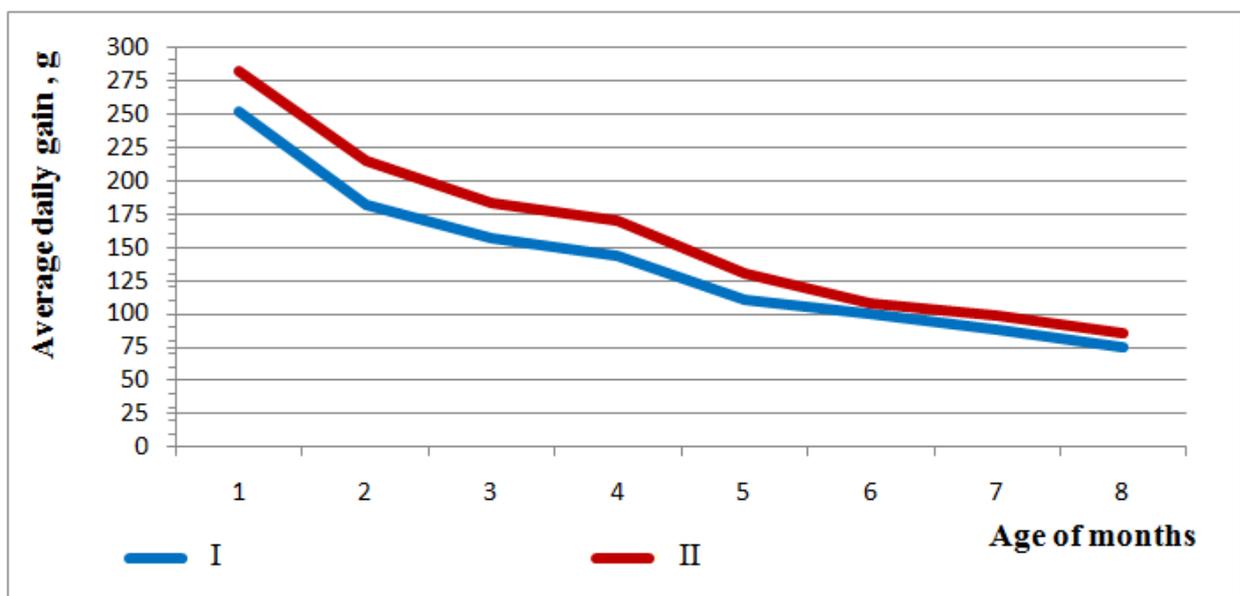


Figure 1: Average daily gain dynamic the live weight of young sheep

The results of the biochemical parameters of the blood of the experimental lambs are presented in Table 2.

Table 2: Biochemical parameters of blood serum

| Indicators | Group | | | |
|----------------------|-----------------|-------------|-----------------|-------------|
| | I | | II | |
| | 4 months of age | | 8 months of age | |
| Total protein, g/l | 65,72±1,22 | 70,58±1,43 | 66,65±1,31 | 71,81±1,22 |
| Albumin, g/l | 27,32±0,82 | 29,99±0,70 | 26,36±0,53 | 30,63±1,02 |
| Globulin, g/l | 38,40±1,87 | 40,59±1,47 | 40,29±1,16 | 41,18±1,19 |
| Activity of alkaline | 112,83±2,57 | 122,59±3,49 | 113,63±2,50 | 119,83±1,82 |
| Phosphatase, E/L | 16,09±0,71 | 17,96±0,49 | 22,06±0,84 | 30,37±1,23 |
| ALT, E/L | 57,30±1,53 | 61,16±0,83 | 58,12±1,44 | 62,04±1,13 |
| AST, E/L | 3,09±0,16 | 3,61±0,26 | 4,30±0,22 | 4,02±0,28 |
| Bilirubin | 2,39±0,12 | 2,25±0,18 | 2,36±0,12 | 2,49±0,34 |
| total, μ mol/l | 1,63±0,10 | 1,70±0,14 | 1,89±0,04 | 1,98±0,10 |
| Glucose, mmol/l | 3,30±0,16 | 3,50±0,19 | 5,17±0,56 | 5,51±0,11 |

| | | | | |
|------------------------------------|-------------|-------------|-------------|-------------|
| Cholesterol, mmol/l | 0,70±0,04 | 0,74±0,04 | 0,76±0,02 | 0,78±0,03 |
| Urea, mmol/l | 51,40±0,77 | 54,82±1,10 | 49,08±1,09 | 52,63±0,95 |
| Triglycerides, mmol/l | 57,04±4,72 | 59,61±3,06 | 71,58±1,01 | 73,91±2,39 |
| Alkaline reserve,% CO ₂ | 18,01±0,48 | 18,80±0,42 | 18,81±0,56 | 19,04±0,34 |
| Creatinine, μmol/L | 4,45±0,19 | 4,59±0,16 | 4,40±0,22 | 4,13±0,22 |
| Iron, μ mol/l | 3,26±0,11 | 3,57±0,28 | 2,78±0,03 | 2,70±0,04 |
| Potassium, mmol/l | 0,87±0,07 | 0,96±0,08 | 1,24±0,06 | 1,12±0,04 |
| Calcium, mmol/l | 141,44±1,48 | 146,92±3,02 | 139,10±1,86 | 139,40±0,93 |
| Magnesium, mmol/l | 1,57±0,12 | 1,55±0,11 | 1,57±0,06 | 1,51±0,04 |
| | 101,4±2,16 | 102,67±2,27 | 111,26±1,4 | 112,32±0,86 |

A general study of protein in the serum can be blood-reflecting the study of metabolic processes despite substances in the body to identify and determine the productivity of the activator of animals. [2]. The finding of this indicator within the limits of the norm indicates the absence of infectious and inflammatory processes in the body.

It is known that blood serum albumins, like the total protein, are in correlation with the growth rate of animals and are directly related to the intensity of oxidation-reduction processes in the body.

This indicator was the highest in the youngest group II. Their superiority over the peers of group I was 9.77% at 4-month age ($P > 0.95$), and in the 8-month period - 16.20% ($P > 0.99$).

The content of globulins in the blood serum of pedigree young animals was more than in the control group at the age of four months by 5.70%, and at the age of eight months by 2.21%, however, the difference noted was statistically unreliable.

Our studies established that the activity of alkaline Phosphatase in the sheep of the experimental groups was within the limits of the physiological norm in all the periods studied. In hybrid lambs, this indicator was higher than in purebred at the age of 4 months by 8.65% ($P > 0.95$), and at the age of 8 months - by 5.45% ($P > 0.95$).

The activity of Aspartate aminotransferase (ACT) and alanine aminotransferase (ALT) was within the normal physiological state, which indicates the absence of pathological conditions in the functioning of the liver and heart of animals. However, the hybrid young growth was characterized by a higher activity of transamination enzymes and exceeded the purebred peers at the age of 4 months for ALT and AST by 11.62% ($P > 0.95$) and 6.74% ($P > 0.95$), and at eight months of age respectively - by 37.66% ($P > 0.999$) and 6.74% ($P > 0.95$).

The content of bilirubin, glucose, cholesterol in the serum of the sheep of all the experimental groups was within the physiological norm.

A small amount of urea indicates the intensity of protein metabolism. At the age of 4 months in purebred lambs, the urea content was 3.3 mmol / l, while in the crosses of 3.5 mmol / l, by the age of 8 months it increased to 5.17 and 5.51 mmol / l, respectively.

The stocky young had a high alkaline reserve. He was superior to these indicator purebred peers of the control group at 4 and 8 months of age, respectively, at 3.42 and 3.55% CO₂.

Creatinine is the final product of a creative-phosphate reaction. Creatinine is involved in the energy metabolism of muscle and other tissues. In our experience, the amount of creative in the blood serum was larger in the group II animals than in the sheep of the I control group at 4 and 8 months of age, respectively, by 4.51 and 3.25%.

Our studies found that the content of iron, calcium, potassium, phosphorus, sodium, magnesium, were within normal limits, which indicates a full balanced feeding of young animals.

CONCLUSION

On the basis of the conducted studies, it can be concluded that when crossing the Kalmyk breeds with the Doran sheep, the heterosis effect is manifested, as evidenced by a significant increase in the total protein, albumin, activity of Aspartate aminotransferase (ACT), alanine aminotransferase (AST) and alkaline Phosphatase in the blood serum. The activation of metabolic processes in the organism of native sheep promoted a high growth energy in comparison with the purebred peers of the Kalmyk Kurdyuk work.

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