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Original Research Article

Influence of Additional Feeding of Succous Goats on Indices of Natural Resistance of the Organism of Goats, Milk Productivity and on the Development of Goatlings

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ABSTRACT:
The article discusses the regularities of the influence of additional feeding to the pasture ration during the period of pregnancy, the first flow of the Saanen breed on the basis of indicators of natural resistance and biochemical blood tests of the obtained goatlings. It was found that the change in the humoral factors of natural resistance in mother goats occurs mainly under the influence of factors of feeding, and the cellular factors of natural resistance of the first flow have relatively constant values and are within the physiological norm. The content of total protein and its fractions changes slightly. In accordance with the nutrients consumed by the mothers, the indices of natural resistance in the goatlings are subject to change.

Keywords: Goats, Succous Goats, Feeding, Protein Level, Nutrients, Humoral, Cellular Factors.

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INTRODUCTION

Goat breeding for agriculture in Uzbekistan is a traditional branch of animal husbandry providing livestock food: milk, meat, etc. Goats, being purely grazing animals, make better use of the most inaccessible mountain pastures, while consuming most of the roughage, while being relatively prolific and moderately early maturing.

In view of the biological peculiarities, goats are unpretentious in terms of feeding and keeping, they can use pastures unsuitable for other types of farm animals and digest up to 67% of the fiber of consumed feed (Rajamuradov, 2018).

Currently, in order to create industrial complexes for the production of goat milk, the use of dairy goats, new tasks arise, among which an important place is given to the breeding of animals that are resistant to

diseases and adapted to the conditions of industrial technology (Kozlovsky, 2009).

In this regard, obtaining healthy young animals, ensuring their viability, safety and high productivity is one of the main tasks in the implementation of which, along with the creation of favorable conditions for feeding and housing, a special place is occupied by the purposeful formation of the body's resistance to unfavorable environmental factors, starting from an early age. The formation of animals with high natural resistance ensures the creation of herds in a significant part resistant to most harmful environmental factors (Vinnikov, 2008).

Natural resistance, reflecting innate immunity, is, first of all, a consequence of the species immunity of animals, which is formed in the process of evolution. An increase in the level of natural resistance of farm animals can be the result of targeted selection and selection, which contributes to the spread and consolidation of the desired genotypes in the herd (Bezhinar, 2005. Vazhenin, 2004).

To the main extent, in breeding work, attention is still paid to the hereditary transmission of high milk productivity, and the hereditary transmission of the natural resistance of the organism is not taken into account. This explains the pattern that highly productive animals are more susceptible to many diseases, both non-infectious and infectious etiology (Amerkhanov, 2010, Asrutdinova, 2010).

The current problem of increasing the resistance of farm animals has not lost its relevance due to the current difficult economic and environmental situation in Uzbekistan. Insufficient provision of animal husbandry with fodder in the public sector, energy shortage and other objective factors caused the deterioration of the living conditions of animals, a decrease in productivity and resistance (Drummers, 1982).

In this regard, a promising direction is the implementation of selection to increase the natural resistance and sustainability to diseases in young animals.

Based on this, we organized a research and production experience to study the effect of different levels of nutrients in the diet of Saanen goats during the period of pregnancy on the indicators of the natural resistance of the body of the queens and the goatlings obtained from them.

The purpose of this work was a comparative assessment of the productive qualities of the first lambings - mothers of the Saanen breed in connection with the levels of feeding during the period of pregnancy and its influence on the growth, development and the level of natural resistance of the organism of the resulting goatlings.

To achieve this goal, the following tasks were solved:

- to analyze the conditions of feeding and maintenance of the first lambings- mothers and their offspring during the study period;
- to characterize the first flow of mothers in terms of milk productivity, physicochemical properties of milk;
- to determine the phenotypic level of indicators characterizing the natural resistance of the organism in the first lambings - mothers and their offspring.

MATERIAL AND METHODS

Two groups of animals were formed, 15 heads each, and were analogous in terms of age, live weight, breed, sex, physiological state:

Goats of both groups grazed in the pasture during the day, and in the evening animals of the first group received concentrates (250 g per head) and until midnight had free access to the stock prepared for the winter.

And the goats of the second experimental group in the evening received additional feeding as a replenishing part of the pasture ration corresponding to the feeding norms for woolly breeds of goats.

Blood samples were taken from the jugular vein in the morning before feeding at the same time from goat mothers and their goatlings at 3-4 days age of the colostrum period.

The hemoglobin content, the number of erythrocytes and leukocytes were determined on a Medonic CA 530 hematological analyzer. The total protein in blood serum, protein fractions were determined on an automatic biochemical analyzer Stat Faks 1904.

The natural resistance and immune status of the body of animals was assessed by the bactericidal activity of blood serum [Smirnova OV method. and Kuzmina T.A., modified by Bukharin O.V., Sozykina A.V. (1979), lysozyme activity of blood (according to Grant), phagocytic activity and phagocytic index (according to Kost and Stenko)].

The obtained digital material was subjected to statistical processing using the data analysis package of the Microsoft Excel program.

RESULTS AND DISCUSSION

Natural resistance is influenced by the genotype and methods of keeping and feeding animals, the indicator of which can be judged by their interior indicators. The characteristic of hematological parameters makes it possible to judge the resistance of the organism of animals when studying the influence of the level of feeding of mothers on the activity of the natural resistance of the organism of the obtained offspring.

Table 1: Indicators of natural resistance of the first lambings depending on the level of feeding during pregnancy (M±m, n=5)

Indicators	**Groups**	
	Control	**Experienced**
Morphological and biochemical composition of blood		
Albumins, %	33.05±1.33	37.93±1.08
a-globulins,%	12.06±1.23	10.11±0.96
β-globulins,%	19.99±2.67	19.66±1.07
γ-globulins,%	40.28±2.03	41.37±1.71*
Hemoglobin, g/l	98.8±6.15	106.67±5.33
Erythrocytes, mln /µl	5.19±0.13*	5.97±0.16
Humoral factors		
Lysosime activity,%	52.00±1.65	56.17±1.07
Bactericidal activity,%	30.78±0.38	32.70±0.99
Total protein; -dry matter,% - proteins,%	8.73±0.13 6.37±0.11	10.9±0.24 7.27±0.27
Cellular factors of nonspecific protection		
Leukocytes, thousand/µl	6.81±0.27	8.26±0.33
Phagocytic activity,%	70.87±1.30	71.92±0.47
Lymphocytes, %	49.67±1.44	50.30±0.21

Based on the studies carried out, it was found that the morphological parameters of blood in the compared groups were within the physiological norm.

The obtained materials show that the minimum value of the bactericidal activity of blood serum was observed in goats of the control group, the maximum - in the experimental group of goats. It can be assumed that the change in the bactericidal activity in the experimental goats is due to the effect of the level of feeding.

We studied the humoral and cellular indices of natural resistance, the biochemical composition of the blood in the first lambs of the Saanen breed of goats after feeding on the second day.

When analyzing the data in Table 1, it was found that during the study period, the accumulation of α- and β-globulins in the blood serum prevailed in the control group, the indicators of which were higher by 17.8% and 1.4%, respectively. The change in the amount of γ-globulins was in direct proportion to the immune defense factors.

Thus, in the first lambing of the experimental group, the content of γ-globulins was 41.37%, which is 1.09% higher than in the first lambing of the control group.

The highest hemoglobin content was observed in the group of experienced first-lambing and amounted to 106.67 g / l, which is 7.87% higher in comparison with goats of the control group. Similar results were obtained for the content of erythrocytes in the blood.

The concentration of albumin in the blood serum reflects the dynamics of the process of synthesis and renewal of proteins in the body, and the higher their level, the more actively it goes. It was found that the content of albumin varied from 33.05 ± 1.33% (in goats of the control group) to 37.93 ± 1.08% (in the experimental group).

The combined action of lysozyme reflects the degree of manifestation of the protective properties of the animal organism, which conveys well the bactericidal activity of blood serum. The most important factor in the body's defense against infections is lysozyme. According to the table, the highest value of blood serum lysozyme activity was observed in those who received full rations - 56.17 ± 1.07%, which is 4.1% higher than in goats of the control group.

In addition, the blood of the experimental animals was also distinguished by the highest bactericidal activity, the index of which, in comparison with the animals of the control group, was lower by 1.98%.

Blood proteins take an active part in the protein metabolism of the whole organism and are functionally considered as a plastic material for the formation of specific proteins of various tissues. The results of the conducted studies revealed a pattern that with the level of feeding increased the amount of dry matter of total protein - by 20.42% and the percentage of protein - by 12.37%.

From the analysis of the data obtained, it can be seen that the number of leukocytes in the blood of the first flow, who received different levels of nutrients, had significant fluctuations. At the same time, in the animals of the experimental group, this indicator was 21.29% higher than in the goats of the control group. However, these changes were within the physiological limits, in the control group in the lower part, and in the experimental group - in the upper part of the normal range.

As well known, the growth and development of the resulting offspring depends on the milk production of the queens and its biological usefulness [4]. In this regard, we have studied milk productivity and individual physicochemical indicators of milk, reflecting the quality indicators of the resulting product.

As indicate V.N. Vazhenin and V.N. Lazarenko, "... Milk is a complete and healthy food product. It contains all the nutrients necessary for life to build the body. As a result, milk production has become one of the most important branches of agricultural production."

According to V. Kozlovskiy, "... fresh natural milk obtained from healthy nutrition of healthy animals is characterized by certain physical and chemical properties, which can change under the influence of various factors such as the level of feeding and consumption of certain types of feed".

Table 2: Separate physicochemical properties of goat milk - first flow at different levels of feeding, (M ± m, n = 5)

Indicators	**Groups**	
	I	**II**
Mass fraction of dry substances, %	12.56±0.08	12.82±0.11
Mass fraction of fat, %	3.87±0.04	3.95±0.04
Mass fraction DSMR, %	8.69±0.18	8.87±0.14
Mass fraction of protein, %	3.36±0.04	3.43±0.03
Fat : protein ratio	1:0.85	1:0.85
Mass fraction of ash, %	0.67±0.02	0.69±0.01
Mass fraction Ca, mg %	134.08±1.18	138.21±2.03

Mass fraction P, mg %	90.26±2.13	93.74±3.01
Mass fraction of casein, %	2.31±0.01***	2.47±0.02
Mass fraction of whey proteins, %	0.54±0.02	0.59±0.02
Milk productivity of goats, kg	401.53±29.07	476.47±31.27
Live weight of goatlings, kg	23.69±2.96	28.17±3.41

An important quality and technological indicator is the content of dry skim milk residue. In terms of DSMR content, the goats of the II group also exceeded the goats of the I group by 0.18 - 0.20%. The highest fat content is characteristic of the milk of goats of group II - 3.95%, however, goats of the control group had a lower fat content. The difference in all cases was insignificant and statistically insignificant. As known, the feed rations of highly productive animals should contain the optimal amount of nutrients necessary to ensure the maintenance of reproduction and lactation activity and have high palatability in the most rational and economically optimal way, also be sufficiently diverse and include the required roughage content. As part of the formed ration, the ratio of the concentration of metabolic energy, the level of protein, other nutrient and biologically active substances, as well as the ratio between them, must be accurately calculated. The rations of both groups practically consisted of local roughage and concentrated feed, only in terms of nutrient content there was a difference. The feeding of the experimental goats of the studied groups during the research corresponded to the experimental scheme using the same feed based on the average daily milk yield of 4.5-5.0 kg, the mass fraction of fat - 3.5-4.0% and live weight - 36.0 -38.5 kg. The structure of these rations is typical for almost all farms in the Nurata and Koshrabad districts of the Republic of Uzbekistan. When discarded from mothers, the kids of the II-group had an advantage by 4.48 kg in live weight compared to their peers from the I-group or by 18.92%.

CONCLUSIONS

From the results obtained, it can be concluded that, during the period of pregnancy, the goats, being on pasture feeding and without feeding, differed in the lowest milk productivity and indicators of natural resistance, and the goatlings obtained from the mother goats of the control group were characterized by insufficiently high average daily weight gain in comparison with the goats obtained from the mother goats of the II-experimental group.

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REFERENCES

1. Amerkhanov H. (2010). Pedigree base of dairy and meat cattle breeding in the Russian Federation and the prospects for its development. Dairy and meat cattle breeding. 8, 2 - 5.
2. Asrutdinova R.A. (2010). Formaco-toxicological properties and the use of galaveta for increasing the nonspecific resistance of farm animals: author. Diss. to apply for Doctor's degree vet. sciences. Kazan. 40 p.
3. Drummers N.V. (1982). Zootechnical factors affecting the quality of milk and dairy products. Dairy and beef cattle breeding. 6, 17 – 21
4. Bezhinar T.I. (2005). Natural resistance of heifers. Troitsk. 210.
5. Vazhenin V.N., Lazarenko V.N. (2004). Dairy cattle of the Urals and methods of its improvement. Scientific. edition. Ufa. 694 p.
6. Vinnikov N.T. et al. (2008). Influence of high-grade and inadequate feeding of mothers cows on nonspecific factors of protection in newborn calves. Agrarian scientific journal. 6, 12 - 13.
7. Kozlovsky V. (2009). Productivity of black-and-white cows and indicators of protein metabolism in blood serum. Dairy and meat cattle breeding. 2, 30.