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The Application of the Vitamins Complex as an Antistress Agent in Sheep Breeding

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Annotation
As a result of comparative studies of various doses of a complex of vitamins as an antistress agent on the body of Karakul sheep, it was established that the use of a complex of vitamins contributed to a more intensive course of oxidative-renewal processes in the body of ewes, as a result of which physiological and bio-rhythmic indicators were less affected by changes in the experimental groups.

Key words: stress, antistress agent, stressor, vitamins, morphological and biochemical blood tests.

The impetuous development of science and technology requires a continuous and real replenishment of the arsenal of scientific ideas and developments. Therein an important place is alloted to animal husbandry and veterinary medicine. Getting more products with the same livestock with rational costs of feed, labor and funds is the primary task of livestock breeders in intensifying this branch.

With the intensification of industrial technology for the production of livestock products, the negative effects of environmental factors on the animal organism intensify, and the number of these factors increases. Animals are forced to adapt to the changed conditions of existence. The duration and the degree of adaptation depend both on the strength and activity of the influence of one factor or another, and on the state of the animal organism itself and also on the conditions which the human provide for it.

The constant adaptation to changing environmental factors causes additional stress on physiological processes and an increase in energy consumption in the animals' bodies. Strong and prolonged exposure to unfavorable environmental factors creates a stressful situation that negatively affects the growth, development and productivity of animals and brings to the development of various diseases (G. Selye, 1977; R. Absamatov, 1980; F.Z. Meerson, 1984; Yu. P. Fomichev, 1981; V. V. Salautin, 2003; A. Kovtarashvili, T. Kolokalnikova, 2013; L. K. Buslovskaya, O. L. Kovaleva, 2007; M. B. Safarov, M. M. Safarov , 2017.).

Arrangements to prevent or reduce the effects of stress are based on the two main principles. The first one is - engineering technological which provides for the creation of favorable conditions for theanimals operation with maximum optimization of the external environment.

When stressful situations cannot be avoided, then the second principle is of great importance namely the use of chemical and hormonal drugs, vitamins, antibiotics to reduce the effect of stress reactions. These pharmacological agents by themselves do not eliminate the stress state, but only contribute to a better mobilization of the body defenses to counter stress factors.

The study of the influence of stress factors on the body of animals, the prevention of stress with the use of medicinal substances was mainly carried out in cattle, pigs and birds. Similar work has not been carried out among "Karakul" sheep.

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Based on the above, we set ourselves the task:

1. To study the factors causing stress in "Karakul" sheep.

2. To study the effect of the vitamin complex (A, D, E, F, B, B2, PP, C) as an antistress agent on the body of Karakul sheep and determine their most effective dose.

Material and research methods

The experiments were carried out in the Karakul farm "Galaba" of the Shafirkan region and at the department of internal non-contagious diseases.

In the experiment, the effect of vitamins has been studied as an antistress agent on the body of "Karakul" sheep and their most effective doses were determined.

For this purpose, 5 groups of ewes with lambs, 5 heads in each, were selected on the basis of analogues (by breed, species, age and live weight of animals).

Group 1. - Control - was kept on anhousehold ration.

Group 2. - Experimental I - ewes additionally received a complex of vitamins in minimal doses.

Group 3. - Experimental II - ewes received a complex of vitamins in medium doses.

Group 4. - Experimental III - ewes received a complex of vitamins in medium doses.

Group 5. - Experimental IV- ewes received a complex of vitamins in maximum doses.

TheexperimentalschemeisshowninTable1.

Table1.

The scheme of the vitamins complex study in ewes stress prophylaxis.

Animals group	Components included in complex composition mg\kg							
	B1	B2	PP	C	A	D	E	F
Control	-	-	-	-	-	-	-	-
Experimental I	0.5	0.5	2	4	4	2	0.3	0.02
Experimental II	0.75	0.75	3	10	8	4	0.4	0.09
Experimental III	1.0	1.0	4	15	12	6	0.5	0.125
ExperimentalIV	1.5	1.5	5	20	16	8	0.6	0.162

The clinical researches,of animals, morphological and biochemical blood tests have been carried out and they determined the live weight of animals.

Clinical, morphological and biochemical studies were carried out before exposure to the stress factor and on the 1st, 3rd, 7th and 12th days after the stressor exposure. The live weight of the experimental animals was determined before the stressorexposure and on the 20th and 60th days after the stressor exposure.

Animal behavior, body temperature, pulse rate and respiration were determined by clinical studies.

In the blood was determined:

The number of erythrocytes, leukocytes, hemoglobin content, total protein, total calcium, inorganic phosphorus, carotene, reserve alkalinity, glucose, urea, creatinine and uric acid by conventional methods.

Results of our own research

An hour and a half before slaughtering lambs, all ewes of the experimental groups were given a complex of vitamins according to the scheme. Vitamin A, E, D, F were injected intramuscularly. Vitamins B1, B2, PP, C were drunk toewes in theform of a suspension in 250 ml of warm water.

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After an hour and a half, the lambs were separated from the ewes and sent to be slaughtered.

The vitamin complex was used within 6 days after slaughtering the lambs.

All the ewes from whom the lambs were taken away for slaughtering had anxiety in the form of endless movements of searching for the lamb, repeated "calling", and frequent urination. At this time, the appetite of ewes sharply decreased. These changes in the behavior of animals were observed within 3-4 days after the deprivation of the lamb. Then the animals calmed down outwardly.

The results of clinical experiments showed that before exposure to the stress factor, thesetempereture indicators in all experimental subjects ranged within the normal range from 38.3 to 38.9 ° C. Immediately after exposure to the stress factor, all animals in the control and experimental groups showed an increase in body temperature, increased more frequent heart rate and respiration, regardless of giving the complex of vitamins.

In our opinion, under the influence of stress, the hormones of adrenaline and norepinephrine are produced more.This in turn leads to an increase in heart rate and respiration. Thus, an increase in heart rate and respiratory movements are an urgent response of the body to the effect of a stress factor.

The results of morphological studies of blood showed that in animals of the control group, after exposure to stress, the number of erythrocytes increased by 29.2%, leukocytes by 16.7%, and this lasted for 7 days. The hemoglobin content remains within the initial range. On the 12th day after exposure to the stressor, these indicators approach those of the baseline.

In animals of the experimental group I, the number of erythrocytes after exposure to the stressor increased by 16.7% compared to the initial one; this indicator remained high on the 7th and 12th days after exposure to the stressor. The number of leukocytes and the hemoglobin content after exposure to stress slightly decreased, in the following days they returned to the initial value.

In animals of the experimental groupII, after exposure to the stressor, the number of leukocytes increased by 19.2%, the number of erythrocytes by 10.9%, the hemoglobin content - by 7.6%, and these changes persisted on the 7th day, the 12th day after exposure to stress.

In animals of the experimental groupIII, after exposure to the stressor, the number of erythrocytes decreased by 20%, while the number of leukocytes and the hemoglobin content remained almost unchanged.

In animals of the experimental groupIV, the number of erythrocytes, leukocytes and hemoglobin content remained almost unchanged.

Thus, the results of the study showed that in animals of the control group, after exposure to the stressor, erythrocytosis and leukocytosis are noted, which is the result of the body's response to the stressor.

When a stressor acts on the body, more red blood cells are released into the accelerated blood flow to help the respiratory system absorb oxygen intensively (OP Fomichev, DL Levantin, 1981), at this time the number of leukocytes in the blood increases.

In the animals of theexperimental group I, which received a complex of vitamins in minimal doses, only erythrocytosis was noted after exposure to the stressor. This shows that the doses of the complex of vitamins are insufficient to remove the body from a stressful state.

In animals of experimental groups II, III, IV after exposure to the stressor, the indicators of erythrocytes, leukocytes and hemoglobin did not change significantly.

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The results of the study of protein metabolism show that after exposure to the stressor in animals of the control group, there was a decrease in the content of total protein and urea in the blood by 20.2 and 26.3%. The creatinine content increased by 12.5-8.4%.The uric acid content increased by 25.6%.

In animals of the experimental group I after exposure to the stressor: the total protein content in the blood decreased by 10.8%. The urea content increased by 51.9%.The carotenin content decreased by 6.3%.The uric acid content on the 1st day decreased by 19%.

In animals of the experimental group II-after exposure to the stressor: the total protein content in the blood serum decreased by 3.7%. The content of urea and uric acid increased by 38.0% compared with the initial data, the content of creatinine in the blood serum decreased by 6.4-10.0%.

In animals of the experimental group III-after exposure to the stressor: the content of total protein and urea decreased in comparison with the initial data by 15-17%. The content of creatinine increased by 24%, uric acid by 8.7 and 27.6%.

In animals of the experimental group IV-after exposure to the stressor: the total protein content in the blood serum decreased by 3.6%. The urea content remained almost unchanged. The creatinine level decreased by 12.5%. The uric acid content increased by 32.3% compared to the baseline data.

The results of the study show that on the 1st day after exposure to the stressor in all experimental animals, regardless of the intake of a complex of vitamins, a decrease was noted in the content of total protein in the blood serum. On the 3rd day, the decrease in total protein content continued. The most decrease in the content of total protein was in ewes of the control group (20.2%), the minimum decrease in ewes of the experimental group II-(9.1%) compared with the initial data. From the 7th day after exposure to the stressor, an increase in the total protein content was noted in the blood serum of ewes in the control group. But even on day 12, the total protein level did not reach the initial values. After the 3rd day of exposure to the stressor in ewes of the experimental groupsII-III-IV, the total protein content increased and on the 7-12th days and it was higher than the initial data. The greatest increase in total protein was noted in ewes of the experimental group III-(by 25.8%). The content of urea in the blood serum of ewes of the control group decreased after exposure to the stressor. The maximum decrease was observed on the 3rd day. In ewes of experimental groupsI-II-IV on the 1st day after exposure to the stressor, the urea content increased.

The serum creatinine content in ewes of the control group increased after exposure to the stressor, while in ewes of the experimental groups it almost did not change.

The content of uric acid in blood serum increased on the 1st day after exposure to the stressor only in ewes of the control group. The rest of the ewes are within the original.

Thus, the results of our studies show that, when exposed to a stressor, the total protein content in the blood of ewes decreases, and the products of protein metabolism increase. These changes show that stress factors in the body of ewes of the control group cause characteristic changes in nitrogen metabolism, protein breakdown and an increase in protein metabolism products occur in the body. In ewes of the experimental groups, the complex of vitamins maintains protein metabolism at a high level with a slight decrease in the total protein content on the 1st day after exposure to the stressor.

The results of the study of total calcium, reserve alkalinity and glucose show that after exposure to a stressor in all ewes, regardless of the group, the content of total calcium and

reserve alkalinity in the blood serum increases. The blood glucose content of ewes in the control and experimental group I decreased sharply on the first day after exposure to the stressor to 41%, in the experimental group II-by 53.4%, in the experimental groups III and IV by 2.5 times. From the 3rd day until the end of the experiment, the glucose content gradually increased to the initial values.

Thus, a more stable exchange of calcium and the level of reserve alkalinity was noted in ewes of the experimental groupIII. When exposed to stress, the glucose level at first decreases and then rises.

The effect of the vitamin complex as an anti-stress agent on the productivity of ewes: along with other changes, the stress factor causes a decrease in the body weight of the animal. Based on the foregoing, the live weight of the experimental animals was determined before exposure to the stressor and on the 20th and 60th days after exposure to the stressor.

The results of the study showed that in sheep of the control group after exposure to a stressor for 60 days, the live weight remained within the original limits, the animals lagged behind in growth and development (35.2-35.3 kg).

The use of a complex of vitamins contributed to an increase in live weight in ewes of the II-III experimental groups: in ewes of the experimental groupII, the live weight before stress was 37.2 kg, after 60 days 41.8 kg, which is 118.4 percent compared to the control; in ewes of the experimental IIIgroup - 38.2-40.7 kg, an increase of 115.3 percent compared to the control. Thus, the use of a complex of vitamins contributed to the increase in live weight in ewes of the experimental groups II-III by 15.3-18.4 percent compared to the control group.

Conclusions.

1. On the 3rd-5th day of life, slaughtering lambs for crushing is the strongest and lasting stressor for ewes, and this was manifested by the anxiety of ewes in the form of endless movements of searching for a lamb, repeated "calling" and frequent urination. At this time, the appetite of ewes sharply decreased. These changes in animal behavior were observed within 5 days after exposure to the stressor.

2. Under the influence of a stressor on the organism of “Karakul” sheep, complex physiological and biochemical changes occur: body temperature rises, pulse and respiration rates increase, the number of erythrocytes and leukocytes increases, protein metabolism decreases, calcium metabolism increases, and the level of reserve alkalinity increases.

3. The use of a complex of vitamins contributed to a more intensive course of redox processes in the body of ewes, as a result of which the above indicators were less subject to changes in the animals of the experimental groups.

4. Ewes of the control group lagged behind in growth and development for 60 days after exposure to the stressor.

Literatures:

1. Селье Г. – Концепция стресса – как мы её представляем в 1976 году-В кн. Новое о гормонах. Киев. Наукова думка, 1977, с.27-51
2. Абсаматов Р. – Адаптивные реакции щитовидной железы у рептилий к солнечно-тепловому перегреванию. -В кн. Адаптация организма к высокой температуре среды. Тез.докл. симпоз. Ташкент, 2-3 июня 1980 г.Ташкент, фан,1980 г. С. 5-6
3. Меерсон Ф.З., Сухих Г.Т., Каткова Л.С. – Адаптация организма к стрессовым ситуациям и предупреждение стрессорных повреждений. Наука и жизнь, 1984, 3.47

4. Фомичев Ю.П., Левантин Д.Л. – Предубойные стрессы и качество говядины. М., Россельхозиздат, 1981, с.164
5. СалаутинВ.В. Адаптивная реакция у циплят при стрессах. Журнал Ветеринария., 2003, 1, 23-24 стр.
6. КовтарашвилиА., КолокальниковаТ. Проблема стресса и пути её решения. 2013, отчёт ВНИИПП.
7. БусловскаяЛ.К., КовалёваО.Л. Стресс у кур, его диагностика и компенсация препаратами янтарной кислоты. ГОУ ВПО Белгородский Гос. Университет, № 10, 2007, том.2
8. САФАРОВМ.Б., САФАРОВМ.М. Узбекистон шароитида сигирларда озука ва совук харорат стресслари. Узбекистон Республикаси, Ветеринария журнали, 2017, 12,15-17 бет.