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Integrated use of feed additives for fattening rams of Karakul breed

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Abstract: The organization of full-fledged feeding is the main factor in realizing the genetic potential of farm animals. In this regard, the use of effective feed additives in animal feeding can increase the energy and biological usefulness of diets. The main advantage of using complex ingredients is the "effect of complementing each other with nutrients", based on the biological patterns of growth, development and overall metabolism of the animal body. The effect is explained by the fact that the increase in digestibility, digestibility or improvement of metabolic processes is influenced by the presence in diets by nature of different substances, i.e. synergy, which represent energy, mineral or biologically active substances, products of synthetic or microbial synthesis.

This article presents the results of stall fattening of karakul baranchiks of 6 months of age using feed additives in the complex: 1) bentonite as a source of minerals; 2) probiotic "Bactovit" for feed purpose as a natural biostimulant; 3) urea, as a source of nitrogen and increasing the protein nutrition of diets for ruminants, 4) suspensions of chlorella algae as a source of biologically active substances. The results are presented by the data of the obtained weight gains of the live weight of experimental animals, feed costs per unit of weight gain, control slaughter and deboning of carcasses.

Keywords: Karakul sheep, fattening, bentonite, urea, probiotic, chlorella, control slaughter.

Abbreviations: synthetic nitrogen-containing substances - SAV; Energy feed unit – ECE; digestible protein – PP; meat coefficient – KM.

Introduction.

Sheep breeding is one of the main branches of agriculture that is characterized by high profitability of production due to the efficient use of natural pasture resources with low production costs. In the conditions of Uzbekistan, this industry is based on 20.6 million hectares of natural desert and semi-desert pastures, of which 17.5 million hectares are directly allocated to Karakul sheep breeding with a population of more than 6 million heads. Natural and pasture conditions of this territory are the main source of formation of the fodder base of the industry.

It should be noted that the yield of natural rangelands in these regions have low yields and largely depend on precipitation. As a result of such anthropogenic factors associated with the global problem of climate warming, leads to a sharp decrease in atmospheric precipitation, as a result of unsustainable use and without control grazing of pasture animals, pasture degradation expands. In turn, these factors adversely affect the intensive development of desert and pastoral animal husbandry. In this regard, there is a need for a radical revision of this problem, which can be done. solve science-based technologies for the production of agriculture, such as the development and use of feed additives enriched with mineral and biological active substances; improvement of technologies for stall keeping animals with effective use of land and pasture resources.

In the organization of animal feeding, the integrated use of feed additives can be of scientific practical importance, allowing to increase the nutritional content of not only one element of nutrition or the overall nutritional value, but to comprehensively increase the biological usefulness of diets. As such means, the following types of them can be considered .

Scientific and technological progress in fundamental sciences, research in the field of biotechnology has received a new direction in the study of the role of probiotics as a feed purpose. For example, the probiotic "Bactovit" developed by the Institute of Microbiology of the Academy of Sciences of the Republic of

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Uzbekistan contains bacteria of genera: *Lactobacillus, Bifidobacterium, Propionibacterium spore-forming bacteria - Bacillis subtilis* are probiotics. The conducted experiments on feeding and the analysis of studies showed a positive effect of the probiotic on the morphological and immunobiological composition of the blood, the activation of protective systems and the increase in the immune properties of animals, growth indicators, an increase in the digestibility of nutrients, which will lead to a saving of feed by 20% [4, p. 346-349].

Currently, in many countries of the world, microalgae and some photoautotrophic unicellular algae are widely used in various branches of human activity. They are very rich in protein, trace elements, vitamins and other biologically active substances. Thanks to their biochemical properties in animal husbandry, they are used as biologically active feed additives in animal feeding.

[2, c.43] in their article they note that microalgae are used for the prevention and treatment of various diseases, increasing the edibility of feed, regulating metabolism and increasing the productivity of animals and poultry. Single-celled photosynthetic microalgae have a role in solving the protein problem, and to a greater extent, as non-traditional sources of biologically active substances. For mass cultivation, green and blue-green algae of the genus *are more suitable Chlorella, Spirulina, Scenedesmus* and others. The cultivation process is carried out for 8-10 days until the optical density of the suspension is reached, which can be soldered to animals without losses in the environment of all nutrients, vitamins and other bioactive substances - antibiotics, enzymes, sterols, phytohormones.

In the conditions of karakul farms, algae suspensions can be soldered to animals without loss of all nutrients to sheep that are on stall fattening. These are old-aged queens of dental and age marriage, constituting 16-17% of the total number of ewes every year, lambs of the current year of birth and 1.5-year-old boulders, as well as sick and emaciated animals that are on veterinary and stationary maintenance. Stall fattening of this contingent falls mainly on the warm autumn months of September and October, when it is possible to obtain good harvests of algae in the conditions of Central Asia.

One of the non-traditional feed additives are bentonite clays, which have the ability to adsorb poisons, bacteria and toxins, envelop the inflammatory mucous membranes of the digestive tract, at the same time they are a source of macro- and microelements. In the conditions of Uzbekistan, bentonite of Azkamar origin received a recommendation for use as a mineral fertilizer. Domestic scientists have developed and approved technical specifications for this clay used as mineral additives in the diets of farm animals [4, pp. 2-5, 7, 7-15]. Given the large reserves of this raw material, low cost, practicality in application, scientifically based recommendations for use in animal nutrition, the use of bentonite as a mineral fertilizer does not lose its relevance.

The main sources of feed in karakul breeding are pasture feeds, which have a low energy value, the cause of which is the protein deficiency of natural forage lands. In the practice of animal husbandry, SAV is used to increase the protein nutrition of diets, in the form of urea (urea), ammonium bicarbonate, ammonium sulfate, diaphonium phosphate and others. It should be noted that CAB can only be used in the feeding of ruminants, which are able to use non-protein nitrogen to synthesize their own body by ruminant rumen microorganisms. This biological mechanism of the gastrointestinal tract of ruminants and the vital activity of the symbiotic microflora make it possible to satisfy the need of the ruminant body for amino acids, especially critical ones (lysine, methionine, tryptophan), B vitamins, vitamin K, etc. [6, pp. 33-40]. In the practice of sheep breeding, urea is widely used to increase the protein nutrition of diets. When using it, it is necessary to adhere to strict recommendations for their use, which makes it possible to ensure protein nutrition in the diets of ruminants by 25-30% of its total need.

Taking into account the scientific basis of the above references, it can be concluded that the complex use of feed additives in the stall fattening of Karakul sheep of the current year of birth will allow the enrichment of the nutritional content of diets with the effect of influencing their meat productivity.

Materials and Methods.

The experimental part of the research was carried out in the fattening farm "Istiqlol Karakul Naslchilik" of the Navoi region of the Nurata district. For the experiments, lambs of 6 months of age of the Karakul breed were selected. By the method of tax groups, 3 three groups of 25 heads each were formed, where the first I-group received the conditional name control, II- and III- experienced. Fattening of lambs

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was carried out on the basis of a ratio established in the farm using local feed, in the form of coarse fodder (hay of variegated grass, wheat straw), concentrated feed (wheat bran, wheat sod) and table salt. Feeding norms, composition and nutrition of diets are based on reference data [3, 228-231]. Experimental animals were kept in the same zoohygienic conditions. The difference in control between the control and experimental groups was that the experimental group additionally used feed additives in the form of bentonite of the Azkamar deposit, the probiotic "Bactovit" developed by the Institute of Microbiology of the Academy of Sciences of Uzbekistan, urea grade B with a nitrogen mass fraction of at least 46.2% and a suspension of chlorella algae of the sp2 strain for animal drinking. for the II-experimental group included: bentonite and urea, for the III-experimental group: bentonite, urea, probiotic and suspension of chlorella algae. Feed additives included in the following quantities (per 1 head per day):bentonite - 1 g per 1 kg of live weight; urea 8-10 g; probiotic - 0.1% of the weight of the diet, chlorella suspension was used for drinking animals and its amount was not limited. Fattening of lambs lasted for 60 days. Upon completion of the experiment, a control slaughter was carried out to assess the meat productivity of sheep after a 24-hour starvation according to the methodology [5, 45-48]. For control slaughter, 5 heads of the most typical groups were selected from each group.

The digital material was processed by the biometric method according to [1, -253 p.].

Results and discussion. Результаты и обсуждения.

When studying the dynamics of changes in the live weight of animals, the following results were obtained (Table 1).

Table 1 – **Dynamics of wet mass and average daily приростов, (n=25), XSx±**

Groups of animals	Weight at the beginning of feeding, kg		Weight at the end of fattening, kg		Absolute weight gain, kg		Average daily growth, kg	
	XSx±	Cv %	XSx±	Cv%	XSx±	Cv%	XSx±	Cv%
I	25,6±0,20	3,84	35,7±0,37	5,05	10,1±0,39	18,74	168,5±6,45	18,74
II	25,8±0,21	4,01	37,7±0,41	5,28	11,9±0,43	17,69	198,4±7,16	17,69
III	26,1±0,22	4,12	38,6±0,44	5,53	12,5±0,46	18,19	208,3±7,74	18,19

It was found that in the experimental groups the absolute weight gain and average daily weight gain were higher than in the control groups. Thus, in the II-experimental group, the absolute weight gain exceeded this indicator of the control group by 1.8 kg or 17.8% and in the III group by 2.4 kg or 23.8%, respectively. The average daily increase in II - the experimental group was 198.4 g, which is more than in the control by 29.9 or 17.7%, in the III-experimental group this figure was equal to 208.3 g, which exceeded the control by 40 g or 23.0%. It should be noted that the highest results for growth were obtained in the III-experimental group, while the reliability of the difference between the indicators of the control group has a high level - p>0.01-0.001.

In the production of livestock production, the determination of feed payment by weight gain is an important indicator determining the level of profitability. Table 2 shows the data on feed costs for the growth of experimental animals.

Table 2 - **Feed costs per 1 kg of growth**

Groups of animals	Growth, kg	Coma consumption		Costs per 1 kg of growth		In % to the control group	
		EKE, MJ	PP, Kg	EKE, MJ	PP, G	EKE, %	PM %
I	10,1	86,61	6,762	8,57	669	100	100
II	11,9	86,61	6,762	7,27	568	84,83	84,87
III	12,5	86,61	6,762	6,92	540	80,74	80,80

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Throughout fattening, 86.61 ECE and 6.762 kg of PP were consumed per head of experimental animals in all groups . Taking into account the gains obtained in the control group, 8.57 ECE and 669 g of PP were consumed per 1 kg of growth. If the data in the control group on feed consumption per unit of growth are taken as 100%, then in the II-experimental group these indicators were 84.83 and 84.87% and in the III-experimental group 80.74 and 80.80%, respectively. Analyzing these data, it can be concluded that the lowest rates were obtained in the III-experimental group where all types of feed additives were used in the complex, this allowed savings in lump funds by an average of 19.2%.

Table 3 - **Control slaughter results, (n=5)**

Groups of animals	Pre-slaughter live weight, kg		Carcass weight, kg		Fat all (tail + internal)		Slaughter weight		Killer yield, %
	XSx±	Cv %	XSx±	Cv %	XSx±	Cv %	XSx±	Cv %	
I	33,850,21±	1,22	14,280,16±	2,23	3,010,06±	4,10	17,290,21±	2,44	51,11
II	35,460,26±	1,46	15,450,19±	2,51	3,520,07±	3,99	18,970,20±	2,10	53,51
III	36,130,28±	1,58	15,900,23±	2,84	3,670,05±	2,73	19,580,20±	1,99	54,19

Control slaughter of experimental animals after the 24th starvation exposure showed that in the experimental groups the main indicators exceeded the control indicators, while the highest rates were obtained in the III-experimental group. In this group, the pre-slaughter live weight was higher than in the control group by 2.28; the carcass mass by 1.62; the total fat obtained by 0.66 and the slaughter mass by 2.29 kg with high confidence of the difference (p>0.01).

Table 4 - **Results of deboning of carcasses, kg (n=5)**

Groups of animals	Weight of chilled carcass, kg		Pulp		Dice		Tendons and technical losses		KM
	XSx±	Cv %	XSx±	%	XSx±	%	XSx±	%	
I	14,13±0,13	2,26	10,58±0,18	74,83	3,22±0,05	22,76	0,34±0,04	2,41	2,98
II	15,310,20±	2,57	11,610,19±	75,85	3,35±0,10	21,90	0,34±0,03	2,25	3,15
III	15,750,23±	2,87	12,000,22±	76,16	3,38±0,09	21,48	0,37±0,05	2,35	3,20

Table 4 shows the results of the boning of carcasses. The main indicator in these studies is the yield of the pulp part of the carcass, this indicator in the experimental groups also exceeded the control, i.e. in the II-experimental group by 1.03 kg (p>0.02) and in the III-experimental group by 1.42 kg (p>0.01). When assessing the meat productivity of animals, the KM indicator is also an important indicator, this indicator in the II-experimental group was 3.15 in the III-experimental group of 3.20 units, this exceeds the control by 0.17 and 0.22 units, respectively, while the best results in deboning carcasses were obtained in the III-experimental group.

Making a conclusion on the results of fattening Karakul lambs of 6 months of age, we can conclude that the best results in weight gain, slaughter yields and the main indicators of meat productivity were obtained in the III-experimental group where all types of feed additives were used in the complex. This pattern can be explained by the fact that the use of feed additives in the form of probiotics, microalgae, bentonite clays and urea in the feeding of experimental animals contributed to an increase in the biological usefulness of diets due to the components contained in these additives, including nutrients, minerals and biologically active substances.

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