

EFFICIENCY OF USE OF FEED ADDITIVES IN FATTENING KARAKUL LAMBS

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Abstract: *This article presents the results of stall fattening of 6-month-old Karakul lambs using feed additives in the complex: bentonite as a source of minerals; probiotic "Baktovit" as a natural bio stimulant and carbamide as a source of nitrogen and increasing the protein nutritional value of diets for ruminants, chlorella algae suspension as a source of biologically active substances. The results are presented by the data obtained by the live weight gain of experimental animals and feed consumption per unit of weight gain.*

Keywords: *karakul rams, fattening, bentonite, carbamide, probiotic, chlorella.*

ЭФФЕКТИВНОСТЬ ИСПОЛЬЗОВАНИЯ КОРМОВЫХ ДОБАВОК ПРИ ОТКОРМЕ КАРАКУЛЬСКИХ БАРАНЧИКОВ

Аннотация: *в данной статье приводятся результаты стойлового откорма баранчиков каракульской породы 6 месячного возраста с использованием кормовых добавок в комплексе: бентонита в качестве источника минеральных веществ; пробиотика «Бактовит» в качестве натурального биостимулятора; карбамида, как источник азота и повышения протеиновой питательности рационов для жвачных животных и суспензии водоросли хлорелла в качестве источника биологически активных веществ. Результаты представлены данными полученных привесов живой массы подопытных животных и расходами кормов на единицу привеса.*

Ключевые слова: *каракульские баранчики, откорм, бентонит, карбамид, пробиотик, хлорелла.*

QORAKO‘L QO‘CHQORCHALARINI BO‘RDOQIDA BOQISHDA QO‘SHIMCHA OZUQALARDAN FOYDADALNISH SAMARADORLIGI

Annotatsiya: *Ushbu maqolada 6 oylik qorako‘l zotli qo‘chqorchalarni bo‘rdoqiga boqishda ozuqaviy qo‘shimchalar sifatida: minerallar manbai sifatida gilmoya; tabiiy biostimulyator sifatida ozuqaviy probiotik “Baktovit”; azot manbai sifatida va kavsh qaytaruvchi hayvonlar ratsionining proteinli to‘yimliligini oshirishda foydalanish mumkin bo‘lgan karbamid hamda biologik faol moddalar manbai sifatida xlorella suv o‘tining suspenziyalaridan foydalanish samaradoligi keltirilgan. Tajriba natijalari sifatida tajriba ostidagi hayvonlar tirik vaznining ozgarishi va ularning o‘sishi uchun sarflangan ozuqa xarajatlari bilan bayon etilgan.*

Introduction. Karakul breeding is one of the main branches of agriculture in Uzbekistan. The fodder base of this industry is formed by of natural pasturelands. However, the global problem of climate warming and without controlled grazing, expands the degradation of pastures, which leads to decrease in their productivity. Therefore, an important task of conducting effective sheep breeding is innovative solutions for the organization of full-fledged feeding using feed additives, which make it possible to increase the energy and biological value of diets.

The following types can be considered as effective feed additives. For example, the study of the role of probiotics as a feed additive has received a new direction in the field of biotechnology. The Institute of Microbiology of the Academy of Sciences of the Republic of Uzbekistan has developed a biologically active additive "Baktovit". Analysis of studies showed a positive effect of the probiotic on the morphological and immunobiological composition of the blood, activation of defense systems and an increase in the immune properties of animals, growth rates and an increase in the digestibility of dietary nutrients, which led to a 20% feed savings [2, c.346-349].

Microalgae and some photoautotrophic unicellular algae are widely used in animal husbandry as biologically active feed additives in animal nutrition. It can be noted that among unicellular algae, chlorella has been sufficiently studied as a feed supplement, including in Karakul sheep breeding. In the 70-80s of the last century, chlorella received scientific confirmation of the effectiveness of its use as a feed additive, however, it did not find a technical solution for wide application.

One of the non-traditional feed additives is bentonite clay, which has the ability to adsorb poisons, bacteria and toxins, envelop the inflammatory mucous membranes of the digestive tract, and at the same time are a source of macro- and microelements. Under the conditions of Uzbekistan, bentonite of Azkamar field received a recommendation for use as a mineral supplement. Domestic scientists have developed and approved the specifications for this clay used as mineral additives in the diets of farm animals [4, p. 2-5].

In the practice of animal husbandry, synthetic nitrogen-containing substances in the form of carbamide and others are used to increase the protein nutritional value of diets. They can only be used in the feeding of ruminants capable of using non-protein nitrogen for the synthesis of their own body by ruminant microorganisms. When using carbamide in feeding, it is necessary to adhere to strict recommendations for their use, which makes it possible to provide protein nutrition in the diets of ruminants for 25-30% of its total requirement [3, p. 33-40].

Taking into account the above, we carried out scientific experiments on the stall fattening of lambs of the Karakul breed (6 months of age) using the above-mentioned feed additives, i.e. probiotic "Baktovit", bentonite of the Azkamar field, urea, and a suspension of algae chlorella sp² strain.

Materials and Methods. According to the method of groups of analogues, three groups of lambs were formed, 25 heads each, where the first group received the conditional name of the control, the second and third – experimental. The maintenance of experimental animals was carried out in the same zoohygienic conditions. Feed rations were made up of local feed, which included: mixed grass hay, wheat straw, wheat bran, barley and table salt.

Feeding norms, composition and nutritional value of the diet was determined on the basis of reference data [1, p. 228-231].

Feeding in the control group was carried out on the basis of the diet established in the farm. The experimental groups of lambs received additional feed additives, i.e. for the II-experimental group included: bentonite and carbamide, for the III-experimental group: bentonite, carbamide, probiotic and suspension of chlorella algae. Feed additives were included in the following amounts: bentonite – 1 g per 1 kg of live weight; carbamide 8-10 g; probiotic – 0.1% of the weight of the diet, chlorella suspension was used for drink animals and its amount was not limited. Sheep fattening continued for 60 days.

Accounting for average daily weight gain, feed consumption for weight gain and other indicators were studied according to generally accepted methods in zootechnics.

Results and discussion. When studying the dynamics of changes in the live weight of animals, the following results were obtained (table 1).

Table 1.

Change in live weight and average daily increments, (n=25), $\bar{X} \pm S_x$

Group	Weight at the beginning of fattening, kg	Weight at the end of fattening, kg	Absolute weight gain, kg	Average daily weight gain, g
I	25,6±0,20	35,7±0,37	10,1±0,39	168,5±6,45
II	25,8±0,21	37,7±0,41	11,9±0,43	198,4±7,16
III	26,1±0,22	38,6±0,44	12,5±0,46	208,3±7,74

Over the entire fattening period, the absolute gain in live weight of lambs in the experimental groups exceeded this indicator in the control group, i.e. in the II-experimental group more by 1.8 kg or 17.8% and in the III-experimental group by 2.4 kg or 23.8%.

The highest results in terms of average daily weight gain were also obtained in the experimental groups, however, in the III-experimental group of animals, where they were used, all of the listed types of supplements were the highest. In this group, the average daily weigh gain was 208 g, which is higher than the control indicator by 40 g or 23.0%. At the same time, the reliability of the difference in the results obtained also turned out to be highly reliable ($p > 0.01 - 0.001$).

Table 2 provides data on the consumption of feed per 1 kg of growth in fattened rams.

Table 2.**Feed consumption per 1 kg of weight gain**

Group	Absolute weight gain, kg	The total feed consumption		Feed consumption per 1 kg of weight gain		In relation to the control group, %	
		Energy Feed Unit , MDj	Digestive protein, kg	Energy Feed Unit , MDj	Digestive protein, kg	Energy Feed Unit , MDj	Digestive protein, kg
I	10,1	86,61	6,762	8,57	669,50	100	100
II	11,9	86,61	6,762	7,27	568,23	84,83	84,87
III	12,5	86,61	6,762	6,92	540,96	80,74	80,80

The data in the table show that the use of feed additives contributed not only to an increase in absolute and average daily weight gain, but also to saving feed. Thus, in the I-control group, 1 kg of weight gain consumed 8.57 Energy Feed Units and 669.5 g of digestible protein. If these data are taken as 100%, then in the II-experimental group, the consumption of Energy Feed Units and digestible protein in relation to the control is 84.83 and 84.87%, in the III-experimental group 80.74 and 80.80%, respectively. It can be concluded that in group II, the use of supplements contributed to the saving of Energy Feed Units by 15.14% and digestible protein by 15.13%; in group III by 19.26 and 19.20%, respectively.

Conclusion. In conclusion, we can conclude that in the stall fattening of karakul lambs, the complex use of feed additives in the form of probiotic, bentonite, carbamide and a suspension of chlorella algae for animal watering contributes to an increase in average daily weight gain, while this makes it possible to save feed for weight gain up to 19%. Their integrated use in feeding Karakul lambs is an innovative solution in strengthening the forage base and intensifying this industry.

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