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ВЛИЯНИЕ МИНЕРАЛЬНЫХ ПОДКОРМОК НА РОСТ И РАЗВИТИЕ БЫЧКОВ КРУПНОГО РОГАТОГО СКОТА

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Аннотация

Целью исследований было определить влияние минеральных подкормок на рост и развтие бычков крупного рогатого скота.

Опыты проводились на 30 головах бычков подобранных по принципу аналогов. Рационы бычков опытной группы в отличии от контрольной группы сбалансировались согласно детализированным нормам по содержанию кальция, фосфора, кобальта, меди и йода путем введения обесфторенного фосфата и солей соответствующих микроэлементов. В соответствии с поставленной целью были следующие задачи: изучить значение минеральных веществ и витаминов в обмене веществ, содержания их в наиболее распространенных кормах, влияния на рост и развитие, мясная продуктивность, физиологические состояния, а также способы покрытия дефицита минеральных веществ и витаминов в рационе бычков крупного рогатого скота.

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Ключевые слова и выражения: бычок, рацион, подкормок, минерал, витамин, питательные вещества, переваримость, продуктивность, рост, эффективность.

Key words and expressions: bull, diet, feeding, mineral, vitamin, nutrients, digestibility, productivity, growth, efficiency.

INTRODUCTION

Lack or excess of vitamins, macro- and microelements in the body of animals causes a metabolic disorder, a decrease in productivity, immunobiological properties, and the occurrence of endemic animal diseases. Therefore, the issues of vitamin and mineral nutrition of imported cattle calves are of particular importance in connection with the transfer of animal husbandry to intensive technology, which in some cases provides for year-round stall keeping of calves.

The supply of bulls in sufficient quantities with various chemical compounds and biostimulants will make it possible to more fully use the reserves to increase the meat productivity of bulls, improve the quality and reduce the cost of meat.

The aim of the research was to determine the effect of mineral supplements on the growth and development of cattle bulls during cultivation.

In accordance with the goal, the following tasks were: to study the value of minerals and vitamins in metabolism, their content in the most common feeds, the impact on growth and development, meat productivity, physiological conditions, as well as ways to cover the deficiency of minerals and vitamins in the diet of bulls imported livestock.

LITERATURE REVIEW

Recently, many studies have been carried out to study the relationship between the use of nutrients in the body of bulls during cultivation and the delivery of macro- and microelements, vitamins in the diet, which can serve as an effective tool in increasing meat productivity and improving feed utilization [2;4;5; 7].

According to [1;3;4], the addition of minerals and vitamins in the diet of bulls proved to be effective and was expressed in increasing the digestibility of organic nutrients and energy and improving their use in the body.

In experiments [2;3;4], the influence of the concentration of mineral substances in the diet of bulls on the digestibility of organic substances was especially clearly manifested, and it was shown that both an excess and a lack of the amount of mineral substances negatively affect the digestibility of all nutrients. It turned out that the most favorable conditions for the activity of the rumen microflora are created when the concentration of minerals is at the level of 61-62 g per 1 kg of dry matter.

A feature of the digestion of cattle calves is the ability of rumen microorganisms to ferment, digest and synthesize certain nutrients [1]. In the rumen, carbohydrates are converted into volatile fatty acids, an important source of energy, as well as the synthesis of many vitamins of the B complex, microbial protein, and the breakdown of feed protein to ammonia [5]. To ensure the work of the microflora of the rumen, nutrients and biologically active substances must be delivered with the feed of the bulls, in which it easily multiplies [6]. Therefore, bulls of imported cattle must be fed according to diets balanced in protein, carbohydrates, minerals, carotene and vitamin D [2, 4].

OBJECTS AND METHODS OF INVESTIGATION

To determine the effect of mineral supplements on the growth and development of cattle bulls, studies are given in the Shukurdavlat farm in the Kushtepa district of the Fergana region.

The experiment involved two groups of 15 monthly calves, 15 heads each, the rations of the calves of the control group consisted of alfalfa hay, corn silage, fodder beet, brewer's grains and mixed fodder. The diets of the bulls of the experimental group were balanced according to the detailed norms for the content of calcium, phosphorus, cobalt, zinc, copper and iodine by introducing fluorine-free phosphate and salts of the corresponding microelements. The experiment lasted for 150 days.

RESULTS OF THE RESEARCH

The addition of minerals and vitamins to the diets of bulls in the conditions of the Shukurdavlat farm in the Kushtepa district proved to be effective and was expressed in increasing the digestibility of organic nutrients and energy, as well as improving their use in the body.

In our research experience, the effect of mineral supplements on the digestibility of organic substances was clearly manifested. It was noted that both excess and lack of

mineral elements in the diets of bulls negatively affects the digestibility of all nutrients.It turned out that the most favorable conditions for the activity of the rumen microflora are created when the concentration of minerals is at the level of 59, 60, 63 g per kg in dry matter.In the same intake of protein, nitrogen balances in bulls were positive (+ 2.0 g) with a content of 59 g of minerals per kg of dry matter, slightly negative (-3.7 g) with a concentration of minerals in the diet of 60 g per kg, and highly negative (- 22.9 g) when introduced into the diet over 63 g per kg of dry matter. The optimal level of mineral nutrition of bulls led to a significant increase in the use of energy for the formation and gain in live weight. The increase in energy used for the formation of live weight gain was due to a decrease in its loss with feces and a decrease in heat transfer.

In the experiment conducted at the Shukurdavlat farm to study the effectiveness of introducing macro-microelements into the diets of calves imported cattle salts of macro-microelements, the effect of adding defluorinated phosphate and a mixture of microelement salts on the digestibility of nutrients and the use of protein and energy by calves.

The results of the studies showed that in the same intake of minerals in the diets of all bulls (about 59 g per 1 kg of dry matter), the digestibility and use of nutrients and energy in the bulls of the experimental group were at a higher level than in the bulls of the control group.Thus, the digestibility of dry and organic matter, energy and protein increased by 1.8-3.2%, and the digestibility of fiber - by 9.7%. The daily balances of nitrogen were high in bulls that did not receive mineral supplements (+23.1 g) and moderate (+10.1 g) in bulls who received supplements. The data obtained indicate that with the optimal content of individual macro-microelements in the diets, the use of protein for the formation of live weight gain is improved. The results of our experiments were confirmed by studying the distribution of nitrogen in metabolism. The most favorable conditions for the use of the nitrogenous part of the diet by bulls are created with the optimal content of individual minerals. As for the use of both gross and metabolizable energy, it increased in bulls receiving the mineral mixture. The use of energy for the formation of live weight gain in bulls who did not receive mineral supplementation was 35.1%, and in bulls who received such an additive - 37.5%, in addition, their heat loss decreased by 1.97%.

CONCLUSIONS

On the basis of the conducted studies, it can be concluded that the digestibility of nutrients and their use for the formation of meat productivity and live weight gain significantly increases when the mineral and vitamin nutrition of bulls is regulated, and especially when they are integrated into the body, and also increases the efficiency of growing technology.

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