

## THE EFFECT OF BIOLOGICAL ACTIVE ADDITIVES ON THE GROWTH INDICATORS OF KARABAYIR KIND FOALS

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### ABSTRACT

*The article provides information on the use of biologically active substances in the intensive breeding of foals, and the results of studying the effect of nutritional supplements on their daily, absolute and relative growth indicators.*

**KEYWORDS:** *Horse-Breeding, Foals, Diet, Biologically Active Supplements, Live Weight, Absolute Growth, Relative Growth, Daily Growth.*

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### INTRODUCTION

Horse breeding is one of the most important branches of animal husbandry. Karabayir horses bred in our republic are well-adapted to local conditions, have a certain importance in the national economy of the republic, are sufficiently suitable for work, take part in sports and produce meat.

As of January 1, 2022, the number of horses in all categories of farms in our republic was 260,749. Including 58,530 in farms, 190,683 in peasant (personal assistant) farms, and 11,536 in agricultural organizations. Along with it, the number of horses bred in our country's horse-breeding farms (as of January 2022) is 9,894. Stallions are 4291, mares 3703 and foals 1900. (Information of the State Statistics Committee of the Republic of Uzbekistan <https://stat.uz>)

It is important to take into account the laws of their growth and development when feeding foals. The rate of growth and development varies from breed to breed. According to A.P. Kalashnikov and others (1985), foals of the saddle and riding horses can be considered full of nutrients when they gain 40-45% weights of the live adult horses at the age of 6 months, 56-60% at the age of 12 months, 70-75% at the age of 1.5 years, 75-85% of their weight at the age of 2 and 90-92% of their weight at the age of 2.5 years. Mineral substances, especially calcium and phosphorus, are sufficient for the formation of the bone-muscle apparatus of horses, and they should be in the ratio of 1:1 or 1:0.75.

Foals weigh an average of 42.9 kg weights at birth (in 3 days), and the growth of foals accelerates up to 1 month of age. During this period, the average daily growth is equal to 1184 grams, the weight increases 1.83 times, and from 3 months to 7 months it increases 1.47 times, and the average daily growth is 489 grams (Kikebaev N.A., 1984).

The average daily growth of horses in the conditions of different regions recorded the maximum values in the period up to 6 months. This indicator was 545 g in the central mountain zone and

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588 g in the southern desert zone ( $R < 0.001$ ). In the growth period from 12 to 24 months, it was 630 g and 662 g in the groups, respectively ( $R < 0.001$ ) (Mongush S.D., 2013).

It is important to study the need of Karabayir horses for mineral supplements and vitamins to cover them with natural biologically active supplements and to determine their norms, which has a positive effect on their growth and development.

### RESEARCH METHODS

It was carried out at the "Karabayir" military horse-breeding farm in Sharaf Rashidov district of the Jizzakh region.

Feeding horses was carried out on the basis of feeding rations (A.P. Kalashnikov et al., 1985) based on feeding standards.

The live weight indicators of the experimental foals were determined monthly from 6 to 12 months, from 18 months to 24 months by weighing on a scale.

Based on the obtained results, the absolute growth rate was studied using the formula of V.K. Federov:

$$X = \frac{W_2 - W_1}{t}$$

The relative increase in the live weight of cows was determined by the formula of S.T. Brody:

$$K = \frac{W_2 - W_1}{0,5 (W_1 \times W_2)} \cdot 100\%$$

Different methods and different nutritional supplements are used to accelerate the growth and development of foals. To accelerate the growth and development of foals, in addition to their diet, biologically active supplements prepared from the secondary products of the grape industry were introduced. The amount of these supplements at different growth periods was different, taking into account the difference in live weight. Table №1 below shows the ration made for foals.

**TABLE 1. FOAL FEEDING RATION, PER HEAD PER DAY**

<i>Indicators</i>	<i>Age, month</i>	
	<b>6-12</b>	<b>18-24</b>
	<b>Living weight, kg</b>	
	<b>200</b>	<b>350</b>
<b>Alfalfa hay, kg</b>	<b>6,5</b>	<b>8,0</b>
<b>Oats(groats), kg</b>	<b>2,0</b>	<b>3,0</b>
<b>Wheat bran, kg</b>	<b>0,5</b>	<b>0,5</b>
<b>Salt,g</b>	<b>18,0</b>	<b>24,0</b>
<b>Biological active supplement, g</b>	<b>200</b> <b>300*</b>	<b>300</b> <b>400*</b>
<b>The diet includes</b>		
<b>Dry matter, kg</b>	<b>6,75</b>	<b>9,16</b>
<b>Food unit, g</b>	<b>5,8</b>	<b>6,95</b>

<b>Exchangeable energy, MJ</b>	<b>60,95</b>	<b>83,4</b>
<b>Crude protein, g</b>	<b>976</b>	<b>1030</b>
<b>Digestible protein, g</b>	<b>629</b>	<b>727</b>
<b>Raw cellulose, kg</b>	<b>1,5</b>	<b>2,04</b>
<b>Calcium, g</b>	<b>48,0</b>	<b>52,0</b>
<b>Phosphorus, g</b>	<b>40,7</b>	<b>40,0</b>

It can be seen from the table that the 6-12-month-old foals in the control group were given food containing 6.5 kg of alfalfa hay, 2.0 kg of oats, and 0.5 kg of wheat bran. During this period, 200 g of biologically active supplements were added to the diet of foals in experimental group I. 300 g of biologically active additives were added to experimental group II. Dry matter in the ration of foals was 6.75 kg. The ration contained 5.8 units of nutrients, 60.95 MJ of metabolizable energy, 976 g of crude protein, 629 g of digestible protein, 1.5 kg of crude fibre, 48.0 g of calcium and 40.7 g of phosphorus.

At the age of 18-24 months, there were also changes in the composition of the ration. During this period, 8.0 kg of alfalfa hay, 3.0 kg of oats, and 0.5 kg of wheat bran were included in the foals' diet. To accelerate the growth and development of foals, 300 g of biologically active additives were added to the diet of foals in experimental group I, and 400 g to foals of experimental group II. By this time, the dry matter in the ration was 9.16 kg, and the feed unit was 6.95 kg. At the same time, the diet of 18-24-month-old foals contained 83.4 MJ of exchangeable energy, 1030 g of crude protein, 727 g of digestible protein, 52.0 g of calcium and 40.0 g of phosphorus, per 2.04 kg of crude fibre.

Absolute and relative growth rates of horses are an important indicator in studying their growth rate at different age periods. These indicators make it possible to determine whether foals are growing in a normal physiological state at certain age periods. If the live weight gain slows down at some young age, the causes of this situation are determined and the necessary zootechnical and veterinary measures are taken (treatment in case of illness, giving a strong feed, transfer to good pastures, etc.).

## RESULTS

As a result, it will be possible to ensure the growth and development of foals in a normal physiological state. Based on the considerations above, the growth indicators of foals at different age periods were determined during the research, and the absolute, daily and relative growth indicators of foals aged 6-12 months were analyzed, and the obtained results are presented in Table №2 below.

**TABLE 2. ABSOLUTE, DAILY AND RELATIVE GROWTH RATES OF FOALS AT 6-12 MONTHS**

<i>№</i>	<i>Indicators</i>	<b>Groups</b>		
		<b>Control</b>	<b>I experiment</b>	<b>II experiment</b>
<b>1</b>	<b>Absolute growth, kg</b>	<b>7,5</b>	<b>10,0</b>	<b>12,0</b>
<b>2</b>	<b>Daily growth, g</b>	<b>240</b>	<b>330</b>	<b>390</b>
<b>3</b>	<b>Relative growth, %</b>	<b>25,0</b>	<b>33,0</b>	<b>39,0</b>

As can be seen from the table above, there are inter-group differences in all indicators. At the same time, there were mutual differences in the experimental groups whose diets were supplemented with different amounts of biologically active supplements. According to the absolute growth index, experimental group II achieved higher results and was 4.5 and 2.0 kg higher than the control and experimental group I, respectively. Daily growth indicators were expressed in grams, and the superiority of experimental group II was highlighted. The determined advantage was 150 and 60 g, respectively. The difference between the experimental groups was 60 g.

The relative growth indicators show that the foals of experimental group II had 15.0 and 13.6 per cent higher performance than their peers, respectively. At the same time, the amount of biologically active additives also affected the relative growth indicators.

Thus, biologically active supplements had a positive effect on the absolute, daily and relative growth indicators of foals aged 6-12 months and showed the acceleration of metabolic processes in the foals' bodies.

It is important to take into account the absolute, daily and relative growth indicators of live weight when evaluating the speed of growth and development of foals. Because in the period of intensive growth, compared to the beginning of the period, the growth indicators at the end of the experiment are determined by these indicators. Based on this point of view, the data obtained on the absolute, daily and relative growth indicators of foals in the period of 18-24 months are summarized in the following table №3.

**TABLE 3. ABSOLUTE, DAILY AND RELATIVE GROWTH RATES OF FOALS AT 18-24 MONTHS**

<i>№</i>	<i>Indicators</i>	<b>Groups</b>		
		<b>Control group</b>	<b>Experimental group I</b>	<b>Experimental group II</b>
<b>1</b>	<b>Absolute growth, kg</b>	<b>60,3</b>	<b>75,9</b>	<b>81,0</b>
<b>2</b>	<b>Daily growth, g</b>	<b>335,0</b>	<b>416,6</b>	<b>450,0</b>
<b>3</b>	<b>Relative growth, %</b>	<b>26,1</b>	<b>30,7</b>	<b>31,3</b>

It can be seen from the table that during this period the absolute, daily and relative growth of live weight in the control group was 60.3; 335.0 and 26.1, respectively 75.9 in experimental group I; 416.6 and 30.7, and 81.0 in experimental group II; 450.0 and 31.3. Compared to the control group, the superiority of experimental group I was 15.6 kg, 81.6 g and 4.6 per cent, and the superiority of experimental group II was 20.7 kg, 115 gr and 5.2 per cent, respectively.

## CONCLUSION

The use of biologically active substances is considered effective in the rapid growth of foals, and their amount affects the growth indicators. Foals of experimental group II with 400 g of biologically active additives prevailed over foals of experimental group I, whose diet was supplemented with 300 g of biologically active additives.

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