



## USE OF HYDROPONIC GREEN FODDER IN CATTLE FEEDING.

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Article history:	Abstract:
<b>Received:</b> 24 <sup>th</sup> October 2022 <b>Accepted:</b> 20 <sup>th</sup> November 2022 <b>Published:</b> 30 <sup>th</sup> December 2022	The article analyzes the pros and cons of using hydroponic green fodder in livestock feeding, its efficiency, and the processes of hydroponic green fodder preparation based on literature data. Based on the results of the research conducted by the authors, they came to the conclusion that the use of hydroponic green feed in raising young cattle has a positive effect on their growth and development indicators.

**Keywords:** hydroponic green fodder, livestock feeding

**ENTRANCE.** Hydroponic green feed is an environmentally friendly product with high biological value, easily absorbed by the animal organism, grown without using land (soil) resources. Hydroponic green feeds (GYaO) contain significantly higher protein, fat, easily digestible carbohydrates, especially vitamins compared to grain concentrate feeds [1,2]. For example, if 1 kg of dry matter of barley contains 3.25 mg of carotene, its HYaO is 55.12 mg; Vitamin E is 13.71 and 325.7 mg, respectively.

Currently, the use of HYaO is widely used in countries with developed animal husbandry, because the methods of its cultivation are very simple and do not require expensive technical and technological equipment. Increasing the production of dairy cattle largely depends on the correct organization of feeding, effective use of milk-producing juices. In this regard, green fodder is especially important, but there are problems in supplying the ration of cattle with vitamin-rich green fodder during the winter season. Taking this into account, it is of great practical importance to organize feeding of cows with HYaO in dairy farms.

The results of the analysis of data from a large number of scientific literature show that 1 kg of hydroponic feed contains 100-400 grams of dry matter, 76-367 grams of crude protein, 19-76 grams of crude fat, 168-228 grams of crude fiber, 17-107 grams of mineral substances. available [2,4].

During the initial cultivation of hydroponic feeds, the amount of dry matter in the grain is reduced, then from the 4th to the 5th day, with the formation of chloroplasts in plants, the process of photosynthesis begins, and the place of spent dry matter begins to be filled at the expense of photosynthesis products. In the composition of 1 kg of dry matter of hydroponically grown feed, compared to its grain, exchangeable energy decreases by 8-10% on average, but the amount of crude protein by 35-38%, crude fat by 50-55%, crude fiber by 2-3 times, carotene by 8 - 10 times, the amount of vitamin E increases by several 10 times [5].

The use of HYaO makes it possible to feed farm animals on the basis of balanced rations throughout the year, using low-cost, inexpensive materials. Such feed is 6-8 times cheaper than alfalfa flour, 2-3 times cheaper than hay, rich in nutrients and vitamins, well consumed by animals and well absorbed by the body. GYaO is especially rich in folic acid, this vitamin has a positive effect on the fertility of animals and the normal development of the fetus [1,3].

**RESEARCH MATERIALS AND METHODS.** In a number of farms in our republic, hydroponic feed is used for feeding farm animals and positive results are obtained. In particular, some experience has been collected on the use of hydroponic feed for feeding Holstein cattle bred in the "Mustafaqul Polvan field" livestock and breeding farm in Bulung'ur district, Samarkand region. However, there is not enough scientific research work on the application of innovative technologies for the cultivation of these feeds, their effective use in enriching the feed rations of cattle. Taking this into account, 2 groups of 6-month-old female calves of the Holstein breed were formed in order to conduct scientific and economic experiments on the effectiveness of using hydroponic feed. The method of pair-analogs was used in the organization of groups, in which their origin and development indicators were taken into account. Calves in the first group (12 heads) were fed on a balanced ration made from available feed on the farm. Calves in the experimental group (12 head) were fed with 10% GHaO in relation to their nutritional value.

Growth indicators of bodies according to the general methodology adopted in zootechnics, relative growth S. It was calculated according to Brody's method.

Research results. The rapid growth and development of bodies allows to significantly reduce the non-productive period of cattle due to their earlier use for breeding purposes, i.e. for replenishing the herd of cows. This is economically feasible. The faster an animal's growth rate is, the faster it matures, where live weight and body size are

more important than their age. The results of the analysis of live weight of animals in the experiment by growing periods (table 1) show that the introduction of GHaOs into the diet of animals allows to increase their absolute and average daily growth rates.

**Table 1**  
**The dynamics of growth of the live weight of bodies in the experiment,**

**kg,  $(\bar{X} \pm \bar{S}_x)$  n=12**

Age, month	Groups	
	Control	Experiment
Live weight, kg		
6	164,7 ± 0,72	163,9 ± 0,69
9	225,4 ± 0,51	228,0 ± 1,70
12	287,7 ± 0,80	293,2 ± 2,00 *
15	341,3 ± 0,71	349,9 ± 2,31 **
18	393,2 ± 1,34	405,6 ± 2,80 **
Average daily growth of live weight, g		
6 – 9	674 ± 4,12	712 ± 3,52 **
9 – 12	692 ± 4,68	725 ± 3,98 *
12 – 15	596 ± 5,24	632 ± 4,76 **
15 – 18	577 ± 6,82	619 ± 4,32 **
6 – 18	626 ± 4,26	662 ± 3,86 **

Comment: \*P > 0,95 \*\* P > 0,99

The live weight of bodies in the experimental group was higher than that of the control group in all growing periods. Compared to the control group, the live weight of the bodies fed with HYaO increased by 2.6 kg (1.1%) at 9 months, by 5.5 kg (1.1%) at 12 months, and by 8.6 kg (2.5%) at 15 months. , was 12.4 kg (3.2%) higher at 18 months. The average daily gain of live weight was correspondingly higher in the animals of the experimental group compared to the control group in all rearing periods. In general, during the growing period from 6 months to 18 months, the average daily gain of bodies in the experimental group was 36 grams or 5.7% greater than in the control group, and the difference between the groups was found to be reliable (P > 0.99).

It should be noted that with increasing age of bodies in both groups, the average daily growth trend decreased. This situation corresponds to the general laws of growth and development and the technology of growing bodies that fill the herd [6,7,8].

In order to objectively analyze the influence of the nutritional factor on body growth and development, the relative growth indicators of the live weight of experimental animals were calculated (table 2).

**Table 2**  
**Relative increase in live weight of bodies in the experiment, %**

Growing month	periods,	Groups		± versus the control group
		Control	Experiment	
6 – 9		31,1	32,7	+1,6
9 – 12		24,3	25,0	+0,7
12 – 15		17,0	17,6	+0,6
15 – 18		14,1	14,6	+0,5
6 – 18		81,9	84,9	+3,0

The relative growth rate of bodies with HYaO included in the diet was higher than that of the control group in all periods of cultivation. The relative growth rate of bodies in the experimental group was 3.0% higher in the period from post-weaning to 18 months of age (fertilization age).

In both groups, the relative growth rate decreased with increasing age of the animals.

**SUMMARY.** The use of hydroponic green fodder in the cultivation of females intended for herd replenishment allows to increase their growth rate, saves money and increases the efficiency of the field due to the reduction of the non-productive period due to the earlier maturity of the females.

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