

Advantages of Bushuev cattle breed in livestock farming

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Abstract. The milk yield of Bushuev cattle bred in the extremely hot climate of Syrdarya region was 2742 kg in the first lactation, 3412 kg in the second lactation, and 3597 kg in the third lactation. According to the herd with high milk productivity in 4-6 months, in the III-lactation, 700 kg more milk was milked from dairy cattle than in the I and II-lactation. It was observed that the coefficient of milk production of cattle increases with the increase of lactation periods. The difference between them was 100-200 kg. The results of the analysis showed that the highest live weight was observed in the III-lactation group of cattle and was 468 kg. According to the results of the inspection carried out on the farm, the fat content of the milk of the cattle in the herd was 3.9-4.1%. The average fat content of milk was 113.4 -164.7 kg. Feed consumption of 1 liter of milk obtained from Bushuev dairy cattle was equal to 1.15 feed units. The average amount of milk milked from one head of cattle in the farm was 3572 kg. The unit of feed consumed during lactation was 4107 kg.

Keywords. Bushuev cattle breed, constitution, exterior, milk productivity, cow, ration, live weight, lactation, breeding.

1 Introduction

One of the most important issues in the development of dairy cattle breeding is the creation of productive breeds systems adapted to local conditions. Therefore, increasing the productivity of local cattle breeds is the first priority [1].

The Bushuev breed, a rare dairy cattle breed, created on the basis of complex crossbreeding of Holland Simmental Schwitz with zebu-like local cattle in the hot climate of Uzbekistan, is distinguished by its resistance to hot climate and local feed and blood parasite diseases [2]. It is of great importance to preserve the gene pool of the Bushuev breed of cattle, which is currently disappearing.

In recent years, breeding of cattle belonging to the Bushuev breed in Uzbekistan and the study of their development parameters have been widely studied. The results of our research show that the results given in the evaluation of Bushuev breed cattle are similar to the research works of Atbashyan [1], Mustafoev [2], Avezov [3-9], Akmalkhanov [10-12], and Nosirov [13] observed in previous years. It was found that they are inextricably linked, they develop in parallel.

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It has also been proven in the results of research by Ashirov [4] and Akmalkhanov [12]. According to the data of many studies, it depends on the methods of breeding, feeding and care of cattle belonging to the Bushuev breed. It is considered urgent to increase the milk productivity of cattle of the only Bushuev breed created in Uzbekistan, to study their beneficial characteristics, as well as the factors affecting them.

The development of dairy livestock in the countries of the world is achieved by feeding the cattle with high-quality feed and using scientifically based methods to improve the productivity characteristics of the cattle in the field [5]. By improving selection-breeding works, highly productive dairy herds are being created using breeding bulls with improved breed category evaluated for the quality of their offspring, cattle of famous breeds typical of the world gene pool in breeding, and great attention is being paid to breed improvement.

Dairy livestock is the leading sector in Uzbekistan, and the main part of the produced meat and milk corresponds to its share [9]. It is important to further improve productivity, fertility and other characteristics of cattle planned for breeding in dairy livestock and to use the gene pool of breeds unique to the world gene pool. Based on this, productivity characteristics of heifers of the leading breeds brought from abroad in recent years, further improvement of their breeding methods and adaptation to the local climate are one of the urgent tasks.

2 Materials and methods

During the years 2020-2022, the productivity characteristics of Bushuev cattle bred at the Turon farm in the Saykhunabad district of the Syrdarya region of Uzbekistan were studied.

In order to study the milk productivity of Bushuev cattle, we used the MOL-2 cards kept in the farm, as well as accounting reports. For the analysis, based on signs of similarity, we analyzed I-II-III lactation according to the origin, age, live weight, productivity indicators of cattle. Feeding of cattle in the farm is organized based on the ration based on their live weight, milk yield and physiological condition. Cattles were kept under the same conditions.

Milk productivity (milk quantity) of cattle was studied by conducting control milking every 30 days, milk fat monthly by Gerber method, milk fat output based on formulas of Barabanshikov. The coefficient of milk yield was determined by the accepted method [5].

Cattle's exterior was studied by studying 7 body dimensions: udder height, chest depth, width and girth, body oblique length, hind femur width and leg girth, in the 3rd month of the milking period, and by calculating body indices based on them.

Cattle's properties of covering food with milk were studied by generally accepted methods. The data obtained as a result of research were reproduced in the manner of Merkureva [4].

3 Results and discussion

The purpose of this research is to analyze the characteristics, characteristics, characteristics and characteristics of the Bushuev breed of cattle bred in the "Turon" farm. It is the main factor in determining the characteristics of productivity, health and fertility of cattle in the farm.

The level of care and fattening of Bushuev cattle bred at the "Turon" farm was satisfactory. All activities are conducted based on accepted zootechnical rules. The quality of milk and meat productivity of cattle also depends on feeding. It is possible to create a highly productive herd and preserve the valuable qualities of cattle in good feeding

conditions [4]. Depending on the productivity of cattle, the following ration was adopted (Table 1).

Table 1. Feed ration for dairy cattle with a live weight of 450-500 kg, a milk yield of 14-15 kg, and a fat content of 4.1%.

Food ration and norm	Unit	Nutritiousness
Food unit	kg	12.6
Energy exchange	MJ	148
Dry matter	kg	15.8
Digestive protein	g	1260
Crude oil	g	462
Ca	g	89
P	g	63
Mg	g	96
K	g	25
Na	g	89
Carotene	mg	565
Vitamin D	mg	12.6
Vitamin C	mg	1342

In the "Turon" farm, a sufficient fodder base has been created to spend the winter, attention has been paid to their quality. Feed consumption of 1 liter of milk obtained from Bushuev dairy cattle is equal to 1.15 feed units. The average amount of milk milked from one head of cattle in the farm was 3572 kg. The unit of feed consumed during lactation was 4107 kg.

One of the important signs in the assessment of cattle is their appearance and body structure, which helps to correctly imagine the characteristics of the breed. In addition, animals meet the economic and biological requirements for a strong body structure (Table 2).

Table 2. Ration for the winter period for dairy cattle with a milk yield of 14-15 kg and a live weight of 450-500 kg.

Food composition and nutritional value	Hay	Straw	Silage corn	Ground wheat grain	Wheat bran	Cottonseed meal	Premix, g	Chalk, g	Salt, g	Total
Nutrients, kg	0.6	1.0	24	2.6	3.0	1.02	225	281	80	
Nutrient unit, kg	0.26	0.20	4.8	3.33	2.25	1.07	-	-	-	11.91
Exchangeable energy, MJ	4.03	4.76	55.2	28.08	26.55	12.25	-	-	-	130.87
Dry matter, kg	0.498	0.846	6.0	2.210	2.55	1.08	-	-	-	13.18
Crude protein, g	86.4	37	600	345.8	453	493.2	-	-	-	2015.4
Digestible protein, g	60.6	5	336	275.6	291	394.8	-	-	-	1363
Fiber, g	151.8	364	1800	44.2	264	148.8	-	-	-	2772.8

Starch, g	5.4	-	192	1339	-	18	-	-	-	1554.4
Carbohydrates, g	12.0	3	144	52	141	78	-	-	-	430
Crude oil, g	13.2	13	240	52	123	15.6	-	-	-	456.8
Ca, g	10.2	2.8	33.6	2.08	6	4.92	-	-	-	59.6
P, g	1.32	0.8	9.6	9.36	28.8	12.12	-	-	-	62.0
K, g	9.4	7.6	69.6	8.84	32.7	11.88	-	-	-	140.02
Mg, g	1.8	0.8	12.0	2.6	12.9	5.64	-	-	-	35.74
S, g	1.08	0.8	9.6	3.12	5.7	4.08	-	-	-	24.38
Fe, mg	100.8	360	1464	104	510	304.8	-	-	-	2843.6
Cu, mg	4.92	1.8	24	17.16	33.9	19.08	-	-	-	100.86
Zn, mg	11.46	29	139.2	59.8	243	51	-	-	-	533.46
Co, mg	0.12	0.31	0.48	0.18	0.30	0.17	-	-	-	1.56
Mn, mg	15.84	44	96	120.6 4	351	21.24	-	-	-	648.72
I, mg	0.18	0.50	1.44	0.16	5.25	0.31	-	-	-	7.84
Carotene, mg	29.4	4	480	2.6	7.8	1.2	-	-	-	525
Vitamin D	216.0	5	1200	-	-	4.2	-	-	-	1425.2
Vitamin E	80.4	-	1104	30.94	62.7	24	-	-	-	1302.04

The appearance and constitution of the Bushuev cattle bred at the "Turon" farm were influenced by the conditions of storage and proper feeding, selection and sorting [6, 7]. Body dimensions of the studied Bushuev cattle are presented in Table 3.

Table 3. Body dimensions of Bushuev cattle in cm, % (n=26)

Indicators	X±Sx	Cv,%
Height	125.0±0.39	1.68
Chest depth	65.2±0.82	4.13
Chest width	41.2 ±0.53	3.62
Back width	48.6±0.39	2.7
Body slant length	145.1±1.02	3.14
Chest weight	178.3+0.81	1.36
Head circumference	17.2+0.12	2.38

Bushuev cattle bred in "Turon" farm have strong body constitution, medium height, dry and not big head, longer body, deep chest, height of 125 cm, broad waist, strong hooves.

It is known that the ratio of some measurements that are related to each other is expressed as a percentage, it is called an index. With the help of mutual comparison of body structure indices, it is possible to determine the specific characteristics and signs of the external structure of animals of different sexes, ages and product lines. Body structure indices describe the development process of the animal very clearly. It allows you to find out which part of the animal's body is developing better or the development is slowing

down. To fully assess the body composition, we analyzed the index of the studied cattle (Table 4).

According to the results of the research, we saw that the cattle belonging to the Bushuev breed in this farm have proportional body parts, have a strong constitution, and have flat legs. The obtained data correspond to the data obtained in the most advanced good breeding farms of the external and index indicators of cattle, conducted by Atbashyan, Nosirov, and Mustafaev.

Table 4. Cattle body composition indices, %.

Indices	%
Long leg	45.69
Elongation	112.3
Pelvis-chest	79.4
Chestiness	62.0
Thickness	123.1
Bony	12.9

Cattle breeds have a number of biological and economic qualities during their formation and maturation, including high milk yield. Therefore, all things being equal, the level of milk productivity depends on the breed of cattle. The most productive cattle are selected from the herd in order to correctly assess the milk productivity of cattle, to increase the efficiency of use. Raising the milk of cattle to 4000-5000 kg is strengthening the work of breeding.

The milk productivity of the Bushuev cattle bred in the "Turon" farm has the highest index among farms in Uzbekistan. According to the inspection results, the results of milk yield of cows of different ages were as follows (Table 5).

Table 5. Milk yield of cattle by herd.

Milk productivity of cattle, $X \pm S_x$								
I-lactation n = 6			II-lactation n = 6			III-lactation and higher n = 6		
Amount of milk	Fat in milk	Milk fat yield, kg	Amount of milk	Fat in milk	Milk fat yield, kg	Amount of milk	Fat in milk	Milk fat yield, kg
2671± 58.2	4.02± 0.01	107.3± 1.2	3138± 62.3	4.03± 0.2	126.4± 3.8	3418± 63.2	4.03± 0.01	137.7± 1.8

According to the results of the research, on average, 700 kg more milk was milked from dairy cattle in III-lactation than in I- and II-lactation. It is planned to increase the milk yield of the Bushuev breed cattle to 4,000 kg and the fat content to 4.3%. In Uzbekistan, cattle are evaluated according to the milk they give during the 305-day lactation period. In the USA, Austria, Canada, Norway and other countries, the product during the 365-day lactation period is taken into account.

Three times a month (on the 10th, 20th, and 30th days of the month), the amount of milk is determined on the basis of control milking days, and then their sum during lactation is calculated. Changes in the months of lactation of cattle belonging to the breed (III-

lactation) are presented in Table 6.

Table 6. Changes in the months of lactation of Bushuev cattle (III-lactation).

Lactation months	Milk, kg	Cv,%	Fat content, %	Milk fat, kg
	X±Sx		X±Sx	
I	298.5±28.1	9.2	4.03±0.01	11.3
II	317.4±39.3	10.5	4.03±0.02	11.8
III	321.1±42.1	10.2	4.03±0.01	12.1
IV	381.3±37.3	12.4	4.02±0.03	14.9
V	421.3 ±42.5	12.1	4.02±0.01	15.7
VI	439.3±35.4	12.7	4.01±0.03	16.6
VII	398.1±38.5	10.6	4.02±0.01	14.8
VIII	362.3±23.7	9.7	4.03±0.02	14.2
IX	301.1±328.2	10.1	4.03±0.03	12.5
X	252.2±32.1	9.4	4.03±0.02	10.5
Total	3597.5±37.7	10.5	4.02±0.01	144.5

In Table 6, the milk yield of Bushuev cattle by months of lactation was high in the 4-6 months of the III-lactation, and the milk yield was 381-439 kg, and the fat content was 4.03%. In the last months of lactation, the amount of milk increased, the fat content of milk increased by 0.1%. In the herd, these cattle are considered to have high breeding characteristics, therefore, the offspring obtained from them are left to replenish the herd. Livestock farms need to calculate milk yield and determine its amount. It is also important to carry out such calculations in farms, to select animals, to increase their productivity, and to improve the herd. Calculations specific to the age, sex and direction of production of each animal are carried out continuously.

Measures to increase the milk yield of cattle include the care of young cattle, the use of high-yielding bulls, the raising and feeding of heifers, and increasing the level of maintenance. These activities allow to create a herd of high-yielding cattle during the breeding process.

Boybulov found the highest milk productivity (3418.8 kg) in the lines of Husar 42, Record 2358, and Robin 2707 bulls. According to the results of the monitoring of milk fatness carried out on the farm, the level of fatness of the milk of the cattle in the herd was 3.9-4.1%. The average fat content of milk was 113.4-164.7 kg.

In the practice of animal husbandry, it is important to study the correlation of the main selection traits of cattle and to use them in breeding work to improve existing cattle breeds. In dairy livestock, the milk yield and live weight of cattle are calculated from the main selection traits, and the study of the correlation (correlation) of two traits can be positive (positive) and negative (negative) by traits, where a positive correlation means that an increase in one trait leads to an increase in another trait, and a negative one is the opposite. causes a decrease. In the conditions of Uzbekistan, cattle with a live weight of 600-650 kg are the most acceptable. Based on this, heifers filling the herd should be cared for according to the development period. We analyzed the dependence of the live weight of Bushuev cattle on the "Turon" farm on the milk production coefficient. This information is presented in Table 7 below.

It was observed that the coefficient of milk yield of Bushuev cattle bred in "Turon" farm increases with the increase of lactation periods. The difference between them was 100-200. The results of the analysis showed that the highest live weight was observed in the group of cattle in the III-lactation.

Table 7. Dependence of milk yield of cattle on live weight.

Indicators	Lactation		
	I-lactation n = 6	II-lactation n = 6	III-lactation n = 6
Milk, kg	2671±58.2	3138±62.3	3418±63.2
Dairy coefficient, %	584.4	670,5	698.9
Live weight, kg	457±10.2	468±9.5	489±10.5

It is known that feeding is one of the most important factors in increasing the productivity of cattle, maintaining their health and improving their fertility.

When evaluating the productivity of Bushuev cattle bred on the "Turon" farm, their ability to cover feed with milk is important. Because the less feed they consume to produce 1 kg of milk, this indicates that they are more productive.

We determined the milk yield and the amount of feed consumed by the cattle at the "Turon" farm. This information is reflected in Table 8 below.

Table 8. Feed consumption for milk milked from cattle on the farm, in feed unit.

Indicators	
Feed consumed during lactation (feeding unit)	4107
Amount of milk produced from each cow (kg)	3572
Feed unit for 1 kg of milk (kg)	1.15

The analysis of table data shows that in the "Turon" farm, where the unit of feed for the production of 1 kg of milk is normal, enough fodder base has been created for wintering, attention has been paid to their quality. Feed consumption of 1 liter of milk obtained from Bushuev dairy cattle is equal to 1.15 feed units. The average amount of milk milked from one head of cattle in the farm was 3572 kg. During lactation, the feed unit was 4107.

4 Conclusions

Based on the results of the experiment, the following conclusion was drawn:

1. The milk productivity of Bushuev cattle was higher in 4-6 months of lactation;
2. On average, 700 kg more milk was milked from dairy cattle in III-lactation than in I and II-lactation;
3. It was observed that the coefficient of milk yield of Bushuev cattle bred in the "Turon" farm increased with the increase of lactation periods, the difference between them

was 100-200. The results of the analysis showed that the highest live weight was observed in the group of cattle in the III-lactation;

4. According to the results of the inspection carried out on the farm, the fat content of the milk of the cattle in the herd was 3.9-4.1%. The average fat content of milk was 113.4 - 164.7 kg;

5. At the "Turon" farm, a sufficient amount of fodder was created for wintering, attention was paid to their quality. Feed consumption of 1 liter of milk obtained from dairy cattle belonging to the Bushuev breed is equal to 1.15 feed units. The average amount of milk milked from one head of cattle in the farm was 3572 kg. During lactation, the feed unit was 4107.

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