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Economic - Useful and Biological Features of Dorper Breeds into Adaptation Period to Arid Conditions the South Of Russia.

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ABSTRACT

The data of weight growth, exteriors and biochemical parameters of blood are presented, as well as the characteristics of the wool of Dorper dumplings in the process of adaptation to the new climatic conditions of Kalmykia. The purpose of these studies was to study the indices of weight growth and exteriors, as well as biochemical parameters of blood and the quality of the wool of Dorper dumplings in the process of adaptation to the new climatic conditions of Kalmykia. The work was carried out in LLC Agrofirma Aduchi, Republic of Kalmykia in 2016. The subject of the research was Dorper dumplings imported from Germany. Feeding the young was carried out by full balanced diets, which were relatively balanced in all basic nutrients according to the norms and rations of feeding farm animals. As a whole, the blood counts of the Dorper breed do not differ significantly and correspond to the norms, which indicates good health of animals and their relatively high adaptive abilities in new environmental conditions (in the natural and climatic conditions of the Republic of Kalmykia).

Keywords: sheep, Dorper breed, growth, live weight, body build indices, biochemical blood indices, wool quality.

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INTRODUCTION

The Dorpersheep breed was bred in South Africa in the 30s of the last century by crossing rams dorset horn with black-headed Persian sheep from South Africa. The breed emerged from the need to have sheep that possess good meat qualities and are able to produce in arid conditions [4, 7].

In connection with these biological characteristics of animals, the dorper breeds began to be imported to the Russian Federation. In 2016, the Republic of Kalmykia introduced bunches of this breed to increase the meat productivity of sheep raised in this region. Proceeding from this, it is very important to study the patterns of growth, development and biological characteristics of animals of this breed during the period of adaptation to new habitat conditions.

The purpose of these studies was to study the indices of weight growth and exteriors, as well as biochemical parameters of blood and the quality of the wool of Dorper dumplings in the process of adaptation to the new climatic conditions of Kalmykia.

MATERIALS AND METHODS

The work was carried out in LLC AgrofirmaAduchi, Republic of Kalmykia in 2016. The subject of the research was Dorper dumplings imported from Germany. Feeding the young was carried out by full balanced diets, which were relatively balanced in all basic nutrients according to the norms and rations of feeding farm animals.

The live weight was determined monthly to determine the ram growth rates. Weigh-in was done in the morning before feeding. Based on the results of weighing, the absolute, relative and daily average increments of live weight were determined [3, 6].

To study the exteriors of the sheep barks, measurements of body articles were taken, on the basis of which body build indexes were calculated.

To study the changes in the hematological parameters of the sheep, blood samples were taken in the morning before feeding from the jugular vein. Biochemical analyzes were carried out according to standard methods [1].

Studies of wool were carried out in the Laboratory of Morphology and Product Quality of the FGBNU VNIIOK, according to the methods of the Stavropol Research Institute of Livestock and Fodder Production [2, 5].

RESULTS AND DISCUSSION

The results of our studies indicate high rates of lamb growth, despite artificial feeding (Table 1).

Table 1: Indicators of growth of the sheep No. 6111 of the Dorpher breed

Age	Live weight, kg	Total gain, kg	Average daily gain, g	Relative gain, %
At birth	4	-	-	-
1 month	9,9	5,9	197	147,5
2 month	16,1	6,2	207	62,63
3 month	22,5	6,4	213	39,75
4 month	29,0	6,5	217	28,89
5 month	35,6	6,6	220	22,76
6 month	42,3	6,7	223	19,14
7 month	49,0	6,7	223	15,84
For the whole period	-	45	214	1125,0

During the period of rearing the sheep barrel No. 6111 of the Dorper breed intensively grew, the

average daily gain increased with age and the average for the entire period was 214 g. The live weight from birth to the 7th month of age increased from 4 kg to 49 kg, the absolute increase was 45 kg. It should be noted that the highest relative increase (147.5%) was in the first two months of life, and with age it decreased to 15.8%. Over the entire period of cultivation, this figure was 1125%, which indicates a high energy growth in the animal.

The results of studying the dynamics of the live weight of the sheep No. 429512 showed that the live weight gradually increased with age, and reached 65.7 kg by the age of 12 months (Table 2).

Table 2: Growth rates of lamb

Age	Live weight, kg	Total gain, kg	Average daily gain, g	Relative gain, %
lamb № 429512				
7	44	-	-	-
8	48,6	4,6	153	10,45
9	53,1	4,5	150	9,26
10	57,5	4,4	147	8,29
11	61,4	4,2	140	7,30
12	65,7	4,0	133	6,51
For the whole period	-	21,7	145	49,32
lamb №377758				
13	62,8	-	-	-
14	65,8	3,0	100	4,78
15	68,6	2,8	93	4,25
16	71,2	2,6	87	3,79
17	73,4	2,2	73	3,09
18	75,5	2,1	70	2,86
For the whole period	-	12,7	85	20,22

However, the absolute, average daily and relative increments decrease with age, which is due to the physiology of the organism, and with the onset of sexual maturity. So, the absolute increase at the age of 8 months was 4.6 kg, and by 12 months - 4 kg, which is 0.6 kg less. The average daily growth for the entire period was 145 g, the relative increase was 49.32%.

As for the lamb № 377758, the intensity of its growth was much lower, which is due to its age. In the period from 13 to 18 months of age there is a tendency to decrease the average daily gain. Thus, the average daily gain gradually decreased from 100 g at the age of 13 months to 70 g at 18 months. Over the entire period, this figure was 85 grams, and an absolute increase of 12.7 kg.

Representations of constitutional and exterior features were obtained on the basis of sampling and calculation of body build indices.

At birth, the height at the withers of baranet No. 6111 was 34.4 cm, and by the age of 7 months - 59 cm. The indices of longness and boneiness decrease with age, and the indices of stretch, chest, depression and massiveness increase. In baranchik No. 377758, the indices of stretch and chest index increased by 5.64 and 5.77% by the end of the accounting period, while the indices of confusion and massiveness decreased by 8.62 and 2.99%, respectively.

As a result of blood tests, it was found that most of the indicators correspond to the norms, this indicates the absence of infectious and inflammatory processes in the body, the normal functioning of the kidneys, and the absence of pathological conditions in the functioning of the liver and heart of animals.

As for creatinine, its content in the serum of the sheep was slightly lower than the physiological norm by 12-15%. In our opinion, this can be explained by the fact that animals undergo adaptation to new natural and climatic conditions.

Microelements in the blood serum, such as calcium, phosphorus, magnesium, were within the physiological norm, which indicates a full balanced feeding of the sheep.

It is established that in animals of the breed dorper wool is not uniform, consists of down, transitional hair, awn and dead hair.

The wool of sheep's horns on tonin was on the average 40.08 - 45.67 microns. Tinned fluff on the side of the lamb № 377758 was 20.16 microns, on the thigh - 21.31 microns, which is 5.7 percent rougher. At the lamb No. 429512, the fluff on the side is 16.51 μm. The tonic of the transitional hair on the side of the little horse No. 377758 is less than on the thigh - by 7.34 microns and less than at the lamb No. 429512 on the side - by 21.96 microns. The quality of the coat on the side differs from the fur on the thigh and on average is 44 and 40, respectively. In baranchik No. 377758, the wool is coarser than that of lamb № 429512.

A study of the morphological composition of the wool of dorpumdorhar showed that the percentage of fibers in the samples under study was in lamb No. 377758 on average: down 70.8%, transitional hair 16.0%, dead hair 7.5%, young lamb on the side of the fluff was 16.8% more than in No. 377758, transitional hair, awn and dead hair were reduced by 12.5%, 2.2% and 2.1%, respectively. At the thigh, the coat is coarser, with a lower content of down.

It is known that the length of the wool is an important breeding feature, which closely correlates with the indexes of sheep wool productivity. The length of wool fibers not only characterizes the quality of the wool as a whole, but also significantly affects the value of wool productivity.

In turn, the fat is important in the formation of the rune. So, with a sufficient amount of good quality grease, the fleece becomes more dense, which prevents it from penetrating mineral and other impurities. The criterion for estimating the amount of fat is considered to be the size of the zone of washing and contamination of the staple. From the data of many studies it follows that the wash zone on the side should not exceed 15-20% of the total length of the staple on the side (Table 3.)

Table 3: Wool length, contamination and staple washing zone

Number of animal	Place of sampling	Length of wool, cm	Staple contamination zone, cm	Zone of staple washing, cm	The washed zone of the staple, %
377758	Side	3,50±0,19	1,25±0,09	0,50±0,10	14,3
429512	Side	3,83±0,18	1,67±0,11	1,17±0,20	30,5

The shortest natural length of the fur on the side was the animals with a lot of down. The length of the wool is 3.5 - 3.8 cm in the investigated sheep, which, most likely, corresponds to the parameters of the Dorper breed.

In this case, the young sheep's wool is longer by 8.6% (P <0.95). The contamination zone of the staple in the young sheep is more than in No. 377758 by 0.42 cm, or by 33.6%, and the staple washing zone is twice as large. In our opinion, this is due to the fact that the 16 year-old lamb has a more fat-like part that ensures better gluing of the staple and the fleece does not disintegrate, while in the young, on the contrary, rune contamination occurs almost to the skin base. The washed zone of the staple of the lamb No. 377758 is 14.3%.

CONCLUSION

Burrs of Dorper breed have a high energy of growth, have a wide, deep and massive body, this indicates a high meat productivity of animals.

As a whole, the blood counts of the Doran breed do not differ significantly and correspond to the norms, which indicates good health of animals and their relatively high adaptive abilities in new environmental conditions (in the natural and climatic conditions of the Republic of Kalmykia).

Animals dorper breeds have coarse and short unequal wool along the length and fineness, in which the ovoid part of the fiber exceeds the parameters of down and transient hair.



REFERENCES

- [1] Vasilyeva, E.A. Clinical Biochemistry of Agricultural Animals. Agropromizdat 2000. pp. 359.
- [2] OmarovRuslan, Gorlov Ivan, ZakotinVladislav, Shlykov Sergei. Development of marble beef technology. In: 16th International Scientific Conference ENGINEERING FOR RURAL DEVELOPMENT, 25-27 May, 2017, Jelgava, Latvia: 956-959.
- [3] Dmitrik I.I., Zavgorodnyaya G.V., Pavlova M.I. The use of instrumental methods in assessing the wool of sheep-producers. Collection of scientific works of the All-Russian Scientific Research Institute of Sheep and Goat. 2003.1. pp. 62-65.
- [4] Kostomahina, N.M. Breeding with the basics of private zootechny: Under general. prof. N.M. Kostomahina. Publishing house Lan 2006. pp. 448.
- [5] OmarovRuslan, Agarkov Alexander, RastovarovEvgeny, Shlykov Sergei. Modern methods for food. In: 16th International Scientific Conference ENGINEERING FOR RURAL DEVELOPMENT, 25-27 May, 2017, Jelgava, Latvia: 960-963.
- [6] Sergeeva, N.V. Dorper - a promising meat breed of sheep. Animal husbandry of the South of Russia. 2016. 7(17). pp.19 - 21.
- [7] Sadovoy V., Omarov R., Shlykov S., Shchedrina T. Assessment compliance of qualitative food characteristics to standard requirements. In: 15th International Scientific Conference on Engineering for Rural Development, 25-27 May, 2016, Jelgava, Latvia 2016; 360–363.