

LIVE WEIGHT AND EXTERIOR CHARACTERISTICS OF KARAKUL LAMBS AND THE QUALITY INDICATORS OF THEIR DESCENDANTS' PATTERNS AND WOOL-FIBERS

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Abstract

This article examines the live weight and exterior characteristics of Karakul lambs, as well as the quality indicators of the patterns and wool-fibers of their descendants. Since Karakul raw materials are highly valuable, it is important to study the exterior and the quality of the patterns and wool-fibers of lambs from which the skins are obtained.

Keywords

Pattern and wool-fiber, semicircular pencil curl, ribbed, flat, dense curl, quality and size, wool-fiber coat.

Introduction. There is a positive correlation between the live weight of lambs at birth and the surface area of the leather obtained from them. The greater the live weight at birth, the larger the skin surface obtained. The size of the obtained skin directly affects its quality and price. From this perspective, the live weight and exterior measurements of the experimental lambs were studied.

Research Objective. To study the live weight and exterior characteristics of Karakul lambs and the quality indicators of their descendants' patterns and wool-fibers..

Research Content. Live Weight and Its Dynamics. Live weight is one of the key indicators influencing the formation of sheep productivity. It is desirable for live weight to be at or above the required level, as this ensures the optimal expression of all characteristics. Karakul sheep are not particularly large in terms of live weight, but their offspring have a higher weight at birth compared to their

mothers' live weight (10-13%) than other sheep breeds. This characteristic enables them to have high resistance to extreme desert conditions.

Table 1

Live Weight of Descendants at Birth

Offspring	n	Live Weight, kg			
		At Birth, kg $\bar{X} \pm S_x$		At Birth, %	
		Silver Ribbed	Diamond	Silver Ribbed	Diamond
Semicircular Pencil Curl	50	3,9 ±0,04	4,0 ±0,05	10,05	13,3
Ribbed	35	4,0±0,03 ^x	3,9±0,007 ^x	10,7	9,77
Flat	35	3,8±0,12 ^x	3,9±0,09	12,4	12,2
Dense Curl	25	4,1±0,01	4,2±0,06 ^x	11,6	15,5

X-P<0,05

The birth weight of the offspring obtained from different groups of sheep was studied according to their curl types (Table 1).

Most studies have shown that Karakul lambs with a flat curl type tend to have a slightly lower live weight compared to other curl types.

The research results indicate that the live weight of lambs with a dense curl type is higher than that of other curl types (4.1±0.01; 4.2±0.06x). In terms of color variation, the highest average live weight was recorded in the diamond-colored group (4.2±0.06x; 15.6%). The lowest live weight was observed in the silver-colored group (3.8±0.12x), which was 0.4 kg or 3.2% lower compared to the diamond-colored dense curl type.

The findings suggest that live weight indicators are to some extent dependent on the curl type and their color characteristics.

Dynamics of Exterior Characteristics. The growth rate of different body parts in animals is not uniform. Body dimensions that grow rapidly during the embryonic period slow down in the post-embryonic period, while those that grow slowly in the embryonic period accelerate their growth later. As a result, when animals reach a certain age, they attain optimal body proportions.

It is important to note that proportional body growth determines the constitutional strength, breed purity, productivity, and vitality of animals. For example, disproportionate growth of body parts can lead to exterior defects, a decrease in productivity indicators, and overall constitutional weakness. Such developments often indicate breed impurity or a high degree of hybridization. From this perspective, studying the genetic characteristics of animals should be conducted alongside research on their exterior features.

Based on these considerations, the research focused on assessing the formation and dynamics of body dimensions in experimental lambs. The results are summarized in Table 2.

The recorded data on the dynamics of exterior dimensions (Table 2) show that there are no significant differences between the indicators of the silver and diamond-colored groups. The slight superiority of the silver-colored group falls within the acceptable margin of experimental error and is not statistically significant.

Table 2

Exterior Dimensions of Lambs, cm

No.	Color Variation	At Birth	
		Silver Ribbed	Diamond
1	Withers Height	34,2±6,70	34,3±6,71
2	Oblique Body Length	30,5±6,50	30,7±6,51
3	Chest Circumference	41,0±6,92	41,2±6,93
4	Chest Depth	14,3±4,93	14,4±4,96

5	Chest Width	9,38±4,12	9,41±4,13
6	Cannon Bone Circumference	5,8±3,29	5,8±3,29

A key characteristic that determines the popularity of the Karakul sheep breed is the variety and shape of Karakul curls formed on the surface of the skin. According to classification, Karakul curls are divided into highly valuable, valuable, and less valuable categories. Highly valuable curls include pencil curls and mane curls, valuable curls include dot curls, while less valuable curls include ring, screw, and other low-quality curls.

The main characteristics that determine the value of Karakul curls are the quality and dimensional indicators of the wool-fiber coating that forms these curls. If highly valuable curls are present but the wool fiber is of poor quality, such sheep and their Karakul pelts are not considered valuable. From this perspective, the optimal combination of these two groups of traits determines the value of the sheep and its products.

During the study, the genetic characteristics of the selected groups of sheep were assessed based on the quality and dimensional indicators of the curls in their offspring. The assessment included the type and shape of the curls, their length and width, durability, the pattern they form on the skin surface, and the silkiness, luster, length, and density of the wool-fiber coating. The analysis of the collected data is presented below.

Curl Length and Width. These indicators are among the key factors determining the value of sheep. This is especially important in the selection of colored Karakul sheep, including the selection of Sur Karakul sheep, as research has shown that their wool fibers are longer compared to black-colored sheep. This contributes to the shortening and enlargement of curls.

The shortening of curls in terms of length and their broadening in terms of width, even under conditions where the color variation of colored sheep is highly expressed, can reduce their genetic value.

Table 3

Indicators of Curl Length in Offspring

*P<0,001; ** P<0,05

Groups		Lambs' Curl		Distribution by Curl Length, %		
		Length, mm		$(\bar{X} \pm Sx)$		
		$\bar{X} \pm Sx$	C	Long Curls	Medium Curls	Large Curls
Silver ribbed	4	51,4±0,30*	1 6,46	52,0±7,04*	39,0±6,8*	9,0±3,83**
Diamond	1	35,9±0,38	1 7,21	32,0±6,59	54,0±7,06	14,0±5,18

Conclusion

From this perspective, directing selection in Sur Karakul breeding towards flat and ribbed types, which have shorter wool fibers, may help prevent emerging issues. Under these conditions, the shortening of wool fibers facilitates the formation of flat pencil curls, ribbed pencil curls, and mane curls. This, in turn, allows for the optimal development of curl length and width, as well as improved color variation expression.

Most research findings indicate that achieving homozygosity in Karakul sheep based on curl type is a challenging task, despite being a primary breeding goal. This is mainly due to variations in wool fiber length across different topographic areas of the skin, which complicates the process. However, achieving a 65-70% homozygosity level would enable the formation of highly valuable and genetically superior groups of sheep.

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