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**DENSITY OF CURLS IN KARAKUL LAMB SKINS OF SUR
COLOR OF THE KARAKALPAK BREED TYPE****Ospanov Asemkhan Kadir Khanovich**

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Abstract: The article presents the results of a study conducted to examine the curl density indicator in karakul lamb skins and the strength of skins of lambs of the sur coloration, specifically the pulaty sur type of the Karakalpak breed.

Keywords: pattern, curl, density, thickness, flesh layer thickness, smushka type.

Introduction:

According to numerous authors, curl density is the ability of curls to retain their shape and position under mechanical воздействие. This indicator is considered one of the most important in assessing karakul raw materials.

According to researchers, the density of curls in karakul skins depends on the age of the ewes, conditions of intrauterine development of the fetus, the number of lambs in a litter, the weight of lambs at birth, their smushka type, as well as the structural characteristics of the curl and hair quality. Under equal conditions, ribbed (valkovaty) curls have the highest density. Less valuable curls have lower density and greater looseness.

Scientists have proven that in the most valuable grades of karakul skins, especially in jacket and ribbed smushka groups, curl density is higher than in less valuable ones. In flat and Caucasian groups, more valuable skins have moderate curl density, while less valuable ones have insufficient density and loose curls.

Hair fineness and length also affect curl density. The finer and longer the hair, the looser the curl, and vice versa. Hair thickness and uniformity of curls across the skin have a direct relationship with curl density.

It has been confirmed that the sparser the hair, the lower the curl density, and conversely, the denser the hair, the higher the curl density. The correlation coefficient between hair density and curl density is significant in black skins, somewhat lower in gray skins, while sur skins occupy an intermediate position. A slightly different relationship exists between curl density and their

uniformity over the commercial area of the raw material. This relationship is stronger in black and sur skins and weaker in gray skins.

With uniform hair fineness, the curl is denser than with excessively thin, thick, or uneven hair. Dense curls are less susceptible to mechanical damage. This property is an important quality indicator of karakul.

Research objectives: To study the curl density of skins of the pulaty sur coloration and to develop methods for obtaining karakul skins of the desired type.

Research tasks: To study the features of manifestation of qualitative traits in lambs of the sur coloration, specifically the pulaty sur type.

The research objects were lamb skins of sur color varieties: shamchirakgul, uryukgul, pulaty sur, and kamar of the Karakalpak breed type.

Subject of research: The inheritance of qualitative traits of karakul, productivity indicators, and the identification of innovative methods for karakul sheep of the sur coloration, specifically pulaty sur.

Research methods: The quality of karakul skins obtained during the study was examined in a dried state according to the methodology of the All-Russian Research Institute of Karakul Breeding (I.N. Dyachkov, R.T. Pismennaya, M.D. Zakirov, 1963).

Research results: The results of our study on curl density are presented in Table 1.

Curl density on pelts of different color types

in percentages

Color type	n	Density pelts		
		Dense	Insufficiently dense	Loose
		M±m		
Shamchirokgul	30	50,0±9,13	33,3±8,6	16,7±6,81
Urykgul	30	56,6±9,05	30,0±8,4	13,4±6,22
Pulaty Sur	30	60,0±8,94	26,6±8,07	13,4±6,22
Kamar Sur	30	63,4±8,8	26,6±8,07	10,0±5,48

According to the data presented in Table 1, among karakul skins of different color types of the Karakalpak sur, the proportion of skins with dense curls is as follows: in the shamchirakgul

color type - $50.0 \pm 9.13\%$, in uryukgul - $56.6 \pm 9.05\%$, in pulaty sur - $60.0 \pm 8.94\%$, and in kamar sur - $63.4 \pm 8.8\%$.

It should be noted that among shamchirakgul skins, the proportion of skins with loose curl density is significantly higher ($16.7 \pm 6.81\%$) compared to the others. In comparison with shamchirakgul skins, the proportion of loose curls in kamar sur is lower by 6.7%, while in uryukgul and pulaty sur it is lower by 3.3%.

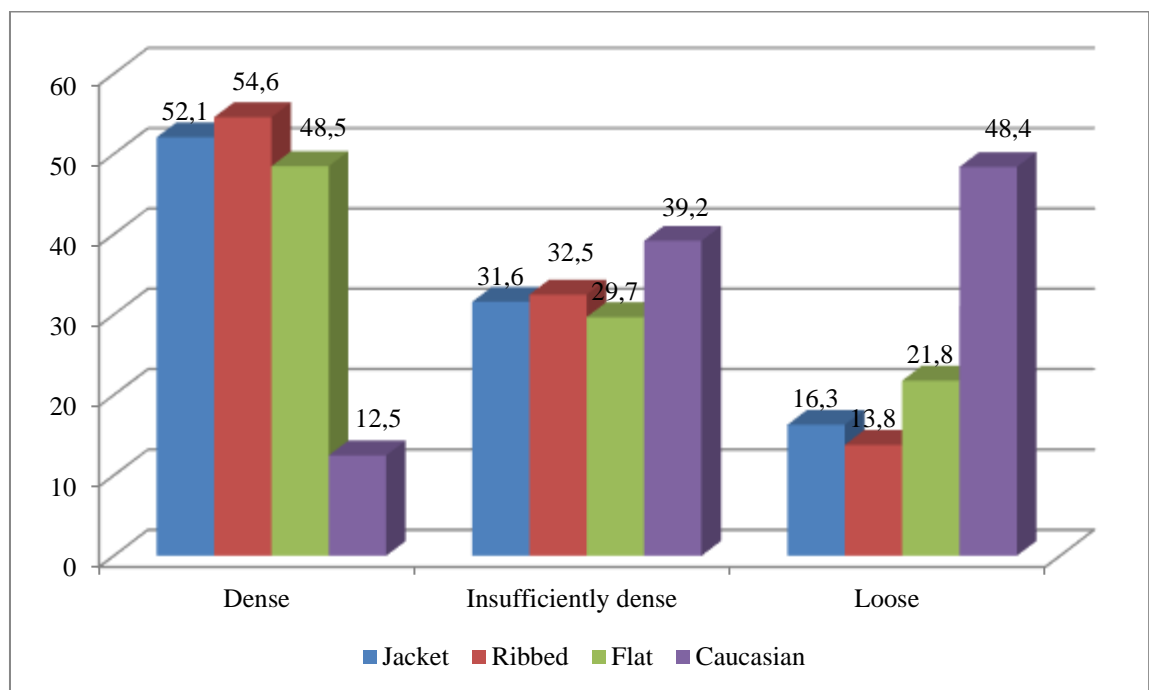
Based on the above, it can be concluded that the curl density indicator varies depending on the color type of the skins, the smushka type, and the feeding level of lambs. This is explained by the pasture conditions of newborn lambs. Lambs raised in poor pasture conditions, due to insufficient nutrition, tend to have shorter hair and denser curls compared to lambs raised under normal feeding conditions.

The data obtained as a result of the study are of great importance for improving the productivity of Karakul sheep of the Karakalpak sur type and should be taken into account during the selection process.

Below, Figure 1 presents the indicators used to determine the density of karakul skins of the pulaty sur color type.

Figure 1.

Parameters Used to Determine the Curl Density of Karakul Skins of the Pulaty Sur Color Type



Data Analysis

The analysis of the figure shows that among the skins of the Pulaty Sur color type, the proportion of dense and insufficiently dense pelts is as follows: in the jacket smushkovy type - 83.7%; in the ribbed smushkovy type - 87.1%; in the flat smushkovy type - 78.2%; and in the Caucasian smushkovy type - 51.6%.

According to this indicator, the differences in the degree of density among the smushkovy types (\pm ; %) in the Pulaty Sur colored pelts were as follows: compared to the “dense” pelts of the jacket smushkovy type, ribbed pelts showed +3.4%, flat type pelts – 5.4%, and Caucasian smushkovy type pelts – 32.1%.

Conclusions

During the selection of the Karakalpak Sur breed, it is necessary to take into account the density of curl formation, as it is a key indicator of the grading quality of karakul pelts.

During lamb bonitation, special attention should be paid to curl density, since the improvement of this trait depends on the correct organization of breeding work.

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