

# RESEARCH REGARDING QUALITY OF PELTS OBTAINED BY CROSS-BREEDING BETWEEN GENITORS BELONGING TO KARAKUL OF BOTOȘANI BREED, GRAY VARIETY

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## Abstract

The primary objective pursued in the research was determining how that is expressed on the genotypes of a new type the most important characters participating and influencing directly the commercial value and the aesthetic of pelts obtained from Karakul sheep breed from Botoșani.

The researches were carried out in the year 2016 on two batches of lambs placed in Iași County and respectively in Botoșani.

The purpose of the studies was represented by the evaluation and predetermination how colors are transmitted in various kinds of pairing where one of the Karakul breed of genitors belongs to the Karakul of Botoșani breed, the gray variety.

Another aim of the research carried out over the course of the study was represented by the appreciation of the real skills for production of sheep pelts belonging to the reminded colour variety, effectives in a continuous process of improvement.

Working methods applied were those typical of this kind of determination, and the results obtained having the role to certify the degree of improvement of the Karakul of Botoșani breed for some characters of production, but also the manner in which the colors are transmitted in different variations of crossings.

**Key words:** pelts, Karakul of Botoșani, sheep, crossbreeding

## INTRODUCTION

At the present, the process of improving the sheep for skins is developing in a slow pace because the growth area is not too extensive, integrated in the North-East area of Moldova, more precisely in counties Botoșani (mostly), Iași, Vaslui, Neamț (with a moderate spreading), Suceava and Neamț (limited and restricted areas). This situation is due to the fact that only in this area the meteo-geo-weather conditions are good for raising this breed, and its physiological peculiarities and adaptability are compatible with the characteristics of the abiotic and biotic factors offered here.

In order to get some clear results showing favourable characteristics to improve the breed of Karakul of Botoșani-gray variety, were conducted several activities which

followed a correct assessment of the reproductive and productive performances, with direct reference to the production of pelts. Completion of the research had as main activity the evaluation concerning the quality of pelts of sheep from the Karakul of Botoșani breed in order to improve the productive character based on genetic improvement.

## BIOLOGICAL MATERIAL AND WORK METHOD

Works planned to determine how colours are transmitted in the case of mating genitors belonging to the Karakul of Botoșani breed-grey variety, were conducted on livestock holdings owned by breeders of sheep of this breed, located throughout the area of the breed spreading.

In order to have legitimacy upon the purity of the breed and the determination of the degree of expression of character and breeding performance of production and

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reproduction were included in the experimental protocol only herds that are included in the control of their own performance, but also those which are included in the Main Genealogic Register of the Karakul of Botoșani Breed. This register is managed by the Association of Sheep and Goats Breeders Moldoovis, professional entity accredited by the MADR, through ANZ Bucharest, since the year 2007.

Productive performance evaluation was done on the newly born lambs, in the first 24-48 hours of life. The looping properties were assessed separately for each lamb, and the set qualifying was included in the certificate of origin and productive value. For each lamb subjected to assessments was drafted a certificate of origin and productive value, which becomes the document certifying the value of the individual which remains unchanged throughout its life.

All lambs were appreciated at the same place and under the same conditions, during the morning of each day. Appraisal was carried out by the same staff from the beginning and until the end of the action, in order to maintain the same degree of exigency.

## RESULTS AND DISCUSSIONS

The research was conducted during parturition that occurred in the spring of 2016. Whereas the evaluation of the quality of the looping is made in the first few hours after birth, works of appreciation were extended over the entire periods of the parturition within that year.

Immediately after each birth, lambs have been trained to assess the character evaluation of which is dependent on the production of pelts, and each of them has been subjected to the appreciation in the order it was entered in the certificate of origin and productive value. At the end, on the basis of aggregation of the scores obtained, after individual assessment, lambs are encase in the proper evaluation marks class and expresses its performance on which the main production depends.

For sheep included in the official control of output, the paper is official and shall apply for the purpose of improvement and selection of the Karakul of Botoșani breed. As a result of the review, it will be determine the destination of each youth, immediately after birth, namely:

- sacrifice;
- retention for the own breeding;
- sale as biological material for breeding.

**Evaluation of specific measurable character of pelt production.** On the occasion of the individual assessment of the specific character of pelt production some of these are valued using objective methods. It is important to know their average value because on their size depends the quality of the follicles coating and loops.

*The length of the fibers.* For the quality pelts the fibres must be mid-length and be equal over the entire surface of the body. Usually the front, throat the neck and nape, the loops are longer. The importance of this character is because when they are too long and are too rough, without the appearance of silk and luster, and if you are thin and long, the curls are loose and lacking in strength.

In the case of the determination of this character, it was found that there are differences between the two batches of lambs. Thus, if the lot located in Botoșani County has an average length of fibers of  $1515.22 \pm 0.84$  mm, for the lot located in Iași County the mean value of this character is higher with 4.93%. In the case of both groups in order to obtain a more uniform looping, more homogeneous, specific to the tubular looping, it is necessary that the average value of this to be reduced to a size smaller than 12 mm. The obtained data are closer as value to other results published in the specialty literature [1, 2, 4, 5, 6, 7, 8].

Smoothness of the fibers on the average surface of the pelts, together with the length, help directly to express the quality of the looping. Studies of specialty in our country and abroad [2, 4, 6, 8] highlights the fact that for the high-quality pelts the average fineness of fibers from the loop should be around 33  $\mu\text{m}$ .

On the analysed samples within the research it was found that the average smoothness was  $34.42 \pm 0.26 \mu\text{m}$  for the batch from Botoșani and  $35.72 \pm 0.41 \mu\text{m}$  for the one in the Iasi County. From this point of view, to reduce the thickness of the fibres, it is imposed an intensification of selection for this character.

*The average length of loops* is irrelevant in appreciation because it influences the uniformity of the looping. It would be ideally to find on the surface of the pelts loops with

the same length, which is almost impossible, also in a practical way.

Whereas as a result of the calculations performed, it was found that in both groups, the looping has lower values of 45 mm, we can say that the improving this character plays in the sense desired by the breeders. This claim is based on the fact that the curls with such a length are, usually, desired by the breeders and influence in a positive sense other characters.

Table 1 Mean values for characters on which depends the quality of pelts at gray Karakul

Genotype	UM	Breeding range	
		Botoșani County n=30	Iași County n=35
		$\bar{X} \pm s_{\bar{X}}$	$\bar{X} \pm s_{\bar{X}}$
Length of fibres	mm	15.22±0.84	16.01±0.32
Average smoothness of fibres	$\mu\text{m}$	34.42±0.26	35.72±0.41
The average length of loops	mm	43.18±0.08	32.15±0.47
The average width of loops	mm	8.14±0.61	10.85±0.55
The average height of loops	mm	4.30±0.44	3.88±0.14

*The width of looping* represents an important character because it affects the quality of the loops. The selection aims for the loop to not be very large when it is desirable to intensify improvements for the tubular looping. The values of this character of  $8.14 \pm 0.61$  mm and  $10.85 \pm 0.55$  mm indicates the presence of some very large loops.

*The average height of loops.* This character is extremely important because for the grey variety, more appreciated are the pelts with flattened and low-curls as it prints a smooth and mostly mottled aspect. Because the values are more under 4.5 mm it may be found that the farmers in the two counties have directed toward the improvement of the process of obtaining mottled pelts, with a high luster.

*Gloss and silky aspect of fibres* are usually associated with a certain degree of reflection of natural light and depends on the length, fineness and uniformity, and on the structure of the cuticle layer [2, 3, 5]. The degree of softness of fibres influences also directly the silk of the curls as a whole. Always when the fibres are glossy have a

higher expression of silk ness and perception of softness to the palpation of pelts, these have a higher aesthetic and commercial value.

In the case of both batches it was ascertain that the curls were silky and shiny to over 65% of the subjects submitted for evaluation for these characters. This fact allows us to affirm that, at the grey variety, for both characters it is required a greater selection. Studies in this area show that the two characters are positively correlated, which creates the advantage that selection for glossiness attracts an improvement of the silk ness.

**Assessment of body conformation.** The purpose of these ratings is to retain for breeding only lambs that in addition to high quality of looping, presents very well, easily revealed, the breed characters, robust constitution and high vitality.

Breed characters are appreciated by the assessor through analytical examination of body regions, and in the certificate of origin and productive value is outlined the appropriate qualifiers. Depending on the way of exteriority, breed characters can be: *typical*, *semi-typical* or *atypical*.

Throught selection is followed to promote the selective breeders that have typical conformation and have a robust constitution or strong toward fine. Because for all the elements of the assessment the values are set at maximum it can be said that the lambs from both lots have a body conformation and specific constitution to the pelt sheep.

During the character assessment of the breed it was found that the largest share was represented by shapes that are typical of the breed in both the head and the upper line or at the base of the tail. To secure the desired types it is enough that after a correct assessment to be identified and then eliminated from breeding the individuals showing the breed characters to an atypical semi-typical level.

Table 2 Evaluation of body conformation and constitution

Specification	Anatomical basis of assessment	Followed character	Bath BT county		Batch IS county	
			n	%	n	%
Body conformation	head	typical	31	88.57	28	92.86
		semi-typical	2	5.71	1	3.57
		atypical	1	2.85	1	3.57
	upper line	typical	34	97.15	28	93.7
		semi-typical	1	2.85	-	-
		atypical	-	-	2	6.6
	tail	typical	35	100	30	-
		semi-typical	-	-	-	-
		atypical	-	-	-	-
Constitution	robust	33	94.3	29	96.43	
	fine	2	5.7	-	-	
	gross	-	-	1	3.57	

Between batches are slight differences, however, by removing the unwanted deviations from reproduction creates prerequisites for increasing the uniformity and desired types of weighting.

**Transmission of colours where one of genitors is of gray variety.** Research shows

that in the case in which the male and female are of the gray variety, transmitting to the descendants of the same colours is made in percentage of 73.5%. From this type of matting it also result 18% lambs with a dark brown color and in an equal share of 3% black lambs and halili.

Table 3 Transmission of colors by crossing grey Karakul with other colors

Genotype		n	The type of color of the descendants									
♂	♀		grey		brown		black		halili		Other colors	
			n	%	n	%	n	%	n	%	n	%
Gray Karakul	Gray Karakul	136	100	73.5	25	18	4	3	4	3	3	2.5
Brown Karakul	Gray Karakul	57	19	33.5	26	45.5	8	14	3	5	1	2
Gray Karakul	Black Karakul	5	1	20	3	60	1	20	-	-	-	-

From the crossing brown Karakul rams with ewes from the gray variety in progeny the share was represented by brown lambs (45.5%) and those of gray colour (33.5%). The black lambs and the halili ones had a share of 14% and respectively 5%.

In the case of crossing grey Karakul males with females from the brown colour variety, the produced offspring were of brown in a percentage of 60%, the black color and respectively the grey color having equal values, each representing 20%.

## CONCLUSIONS

1. For the average fibre length is found a different study of the degree of improvement because for the batch from Botoșani County the mean value of this character was  $15.22 \pm 0.84$  mm and at that one from Iasi County, the fibers were longer with 4.93% favoring a higher and unbound looping.

2. To reduce the thickness of the fibres, it is required an intensification of the selection for this character because the average smoothness of the fibers was of  $34.42 \pm 0.26$   $\mu\text{m}$  at the batch from Botoșani and of  $35.72 \pm 0.41$   $\mu\text{m}$  at the batch situated in Iasi.

3. The average values of  $8.14 \pm 0.61$  mm and respectively  $10.85 \pm 0.55$  mm for the width of the loop indicates the presence of some very large loops and maybe it could be required an intensification of selection for this character.

4. By the fact that the upper line, tail and head presented typical forms for the breed, for the majority of the individuals which formed the two batches it can be concluded that the level of selection is a high one.

5. From crossing brown Karakul rams with ewes from the gray variety in progeny the share was represented by brown lambs (45.5%) and those of gray colour (33.5%). The black lambs and the halili ones had a share of 14% and respectively 5%.

6. From crossing gray Karakul males with females from the brown colour variety, the produced offspring were of brown in a percentage of 60%, the black colour and

respectively the grey colour having equal values, each representing 20%.

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