ASSESSMENT OF GREY LINEAL BREEDING RAMS BY THE QUALITY OF THEIR PROGENY

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The unique Karakul breed of sheep is reared in many countries of the world beginning with its historic homeland of Central Asia and up to Europe, South Africa and other countries. The Karakul skin, which is the main product of the Karakul sheep farming, distinguishes it from other breeds of sheep reared in the world. It is obtained by removing the skins of newborn lambs slaughtered at the age of 2-3 days. Karakul lambskins are sold at auctions in large quantities; they are used for sewing fur and other products.

But due to the intensification of animal breeding and to the increasing demand for food, this breed of sheep is now also bred for milk, meat, wool, tripe, etc.

According to the results of the economic evaluation of the total products made from these sheep, the production of milk and meat is the most profitable (**Heremov Sh. R., Vinogradova M. A.,** 2003.) However, on karakul sheep farms works on the assessment and selection of particularly the main product are carried out. Many important parameters are studied, among which the qualities of the wool locks: their shape, length, width, elasticity, overgrown, silkiness and brightness.

Breeders have created a variety of colors and colorings with a specific pattern formed by different types and forms of locks, as well as with muaristy patterns (**Yusupov S. Y., Fazilov U. T., Gaziyev A.,** 2004**, Fishchenko O. P**., 1973). In addition, the quality of the skin and hair is being studied. As concerning gray karakul lambs, selection is conducted regarding the length of the black and white hair, and the desired colorings which are formed from the ratio of black and white hairs and their length. The thickness, density, and the reserve of the skin are determined using the organoleptic method. These and many other issues related to the selection and breeding work in karakul sheep farming are discussed in the works of the Moldovan scientists **Iliev F. V**. (1969), **Bogdanovici N. I., Buzu I. A., Zelinski N. A**. (1983), **Buzu I.** (2012), etc.

It should be noted, that the selection work in the color karakul sheep farming is more complex, and the desired results are obtained after a prolonged work on selection and choice of animals. Thus, for example, when heterozygous breeding of gray sheep is used, approximately 50% of grey and 50% of black lambs are produced, as well as a varied palette of colors.

We have conducted studies to assess the quality of the gray lineal sheep's progeny.

MATERIAL AND METHODS

The quality of the offspring of the line of gray breeding rams was studied at the breeding farm of the Technical and Experiment Station Maksimovka.

The researches were performed under the same conditions of keeping, feeding and exploitation of animals. On that farm was created the line of "Delicate" gray rams. Lambs obtained from 3 linear rams were studied to determine their quality. A gray ram with the individual number 0286 of elite class of the ribbed skin type of steel color had been used for 7 years. The sire of that ram was the founder of the line. That ram was chosen because of the great qualities of its skin: long, wide and elastic ribbed ringlets formed a parallel concentric pattern over the entire area of the skin. The hair was thick with excellent luster and silkiness, the length of the black-white hair was 7-8 mm. The skin was tight, of medium thickness with a normal margin. The live weight at birth was 5.5 kg, and the body length – 39 cm.

The ram with the individual number 1237 was of the elite class, of ribbed skin type and gray-blue colored. He was also the son of the founder. The qualities of the skin of this ram were also great. On an area of the skin ribbed ringlets and manes prevailed (65%), which had a great length (30 mm) and an average width. The ringlets were resilient, and formed a parallel concentric pattern. The hair was thick with excellent luster and silkiness, the length of the black-and-white hair was 13:15 mm. The skin was of average thickness and elasticity, and the skin margin was minimal. Live weight at birth was 4.8 kg, and the body length 38 cm.

The ram with the individual number 2127 was of elite class, of ribbed skin type and marble colored. With respect to the ancestor of the line, he was his grandson. As in the previous rams, the portion of the ringlets, manes and ribbed ringlets made up 70% of the skin area. The ringlets were very long, of medium width, possessed an excellent elasticity, and formed a parallel concentric pattern. The hair was characterized by a great density, luster and silkiness. The length of the black-white hair was 12:13 mm. The skin was very thick, of medium width and with a large margin.

The evaluation was carried out according to the "Instructions on the assessment of karakul lambs with the basics of breeding" (1996). The breeding rams were assessed on the quality of their offspring according to the method described in the "Recommendations on the technology of production of the sheep farming products in the Republic of Moldova" (1993). The biometric processing was carried out according to the "Guide to biometrics for livestock specialists" (**Plohinsky N. I.,** 1969).

RESULTS AND DISCUSSION

The linear gray rams with individual numbers 0286, 1237 and 2127 were used in the insemination of ewes at the Karakul breeding farm. As a result of "manual" mating, lambs were obtained that were assessed at their birth.

During 7 years of the use of the ram under the number 0286, 228 lambs were produced, of which 106 were gray (Table 1). According to the class, the descendants of this ram belonged mainly to the I-st and the elite class – 46.9% and 36.9 %, respectively. The gray lambs also belonged mostly to the high class, 35.8% being of the elite class and 42.5% of I-class, which together amounted to 78.3%. In total, 191 high class lambs were produced, which made up 83.8%. It should be noted, that the number of elite gray lambs is at a fairly high level.

After 4 years of work on the breeding farm, from the ram under the number 1237, 208 lambs were obtained, including 97 heads of gray colored lambs. A characteristic feature of the described ram was that it bred mostly I-class descendants, the ratio of which was 61%; the ratio of elite-class lambs produced by it was 26%. In the group of gray lambs, I-class lambs prevailed, with a ratio of 63.9%, and the proportion of lambs of elite class made up only 17.5%. This ram produced 81.4% of desired gray sheep lambs. In total, 181 of high-class lambs were produced form this ram, which made up 87%.

As a result of manual mating, 256 lambs including 107 gray lambs were produced from the ram under the number 2127. Of the total number of lambs the high-class ones represented a proportion of 83.2%: 21.9% of elite class and 61,3% of the I-class. This ram had a lower number of high-class gray descendants. Thus, the I-class lambs made up 62.6% and the lambs of elite class only 17.8%. The total number of high-class lambs from this ram was 213, which formed 83.2%.

Among the descendants of all the rams, fluctuations in the proportion of unwanted II-class lambs were observed. They constituted from 13% to 16.8% in the group of all lambs, and from 18.6 % to 21.7% in the group of gray lambs.

Another very important index in the assessment of karakul lambs is the fur-bearing type (Table 2).

The research into the sheepskin quality of the descendants of the ram under the number 0286 showed, that of all the lambs produced the proportion of jacketed ones was 38.6 %, and the proportion of the lambs of ribbed skin type amounted to 32%. Lambs with flat hide amounted to 17.1%.

In the group of gray lambs the descendants with ribbed hide dominated; their proportion was 35.9%. These data suggest that this ram was prepotent, that it firmly transmits its hide qualities to its offspring. 29.2% of lambs had a jacketed kind of hide, and 17.9% of them had a flat kind of skin.

The qualities of the hide of the rams under the numbers 1237 and 2127 tended to have similarities between themselves and with the founder of the line. For example, 51.5% of the descendants of the ram under the number 1237 had a jacketed kind of skin, and 22.1% had a flat type of hide. Last among the desired type of fur-bearing lambs were the ones with a ribbed type of skin, which made up a proportion of 14.4%. Grey lambs showed a similar trend. The proportion of jacketed lambs was 53.6%, of flat type – 16.5%, and that of ribbed type – 14.4%.

Among the offspring of the ram under the number 2127, jacketed type of lambs prevailed, with a proportion of 58.2%. Lambs with flat and ribbed type of hide made up 16% and 13.3%, respectively. In the group of gray lambs the same trend was observed. The largest number of lambs, namely 52.4%, had a jacket type of hide. The proportion of lambs with flat and ribbed types of skin was 16.8% and 14% respectively. It should be mentioned that the proportion of lambs with Caucasian sheepskin owned by all manufacturers was from 12% to 12.5% in the group of all descendants, and from 15.5% to 17% in the group of gray lambs.

The proportion of gray lambs derived from the rams-producers of the gray line during the whole time of their use in the flock of sheep was as follows: ram 0286 – 46.5%, ram 1237 – 46.6%, and ram 2127 – 41.8%. Consequently, the data presented show that over time the number of gray lambs tends to decrease.

Of great importance in assessing the Karakul hide is its silkiness and gloss. The correlation between the silkiness and gloss is greater in the gray lambs than in the black ones. Silkiness, as a property of hair, is in close connection with glitter, form and type of locks, and in a relative connection with locks length, evenness across the skin and patterned qualities (**Zakirov M., Karimov K.,** 1987).

The study of the silkiness in the lambs obtained from the gray linear rams showed that, the gray lambs tended to increase the silkiness of their skin compared to the total number of the offspring.

The ram under the number 0286 had 60.4% of lambs with a strong silkiness of the hide, and 25.5% with a normal silkiness; the ram under the number 1237 – 38.1% and 56.7%, respectively, and the ram under the number 2127 – 38.3% and 53.3%, respectively (Table 3). The proportion of descendants with strong silkiness, within the whole group of the lambs obtained from the studied rams, ranged 32.0-50.9%, and of those with normal silkiness – 37.3-57.8%, respectively.

Table 1. **Lamb classification, %**

№ of the ram	The lamb progeny, total				Including grey lambs			
	number of head	elite	I class	II class	number of head	elite	I class	II class
0286	228	36.9	46.9	16.2	106	35.8	42.5	21.7
1227	208	26.0	61.0	13.0	97	17.5	63.9	18.6
2127	256	21.9	61.3	16.8	107	17.8	62.6	19.6

Table 2. **Fur-bearing lambs, %**

№ of the ram	The lamb progeny, total				Including grey lambs			
	jacketed	ribbed	flat	Caucasian	jacketed	ribbed	flat	Caucasian
0286	38.6	32.0	17.1	12.3	29.2	35.9	17.9	17.0
1227	51.5	14.4	22.1	12.0	53.6	14.4	16.5	15.5
2127	58.2	13.3	16.0	12.5	52.4	14.0	16.8	16.8

Table 3. **The silkiness of the lambs' pelage, %**

№ of the ram	The lamb progeny, total				Including grey lambs			
	number of head	very silky	silky	note nough silky	number of head	very silky	silky	not enough silky
0286	228	50.9	37.3	11.8	106	60.4	25.5	14.1
1227	208	39.9	52.9	7.2	97	38.1	56.7	5.2
2127	256	32.0	57.8	10.2	107	38.3	53.3	8.4

Table 4. **The brightness of the lambs' pelage, %**

№ of the ram	The lamb progeny, total				Including grey lambs			
	number of head	high gloss	normal gloss	insuffici-ent gloss	number of head	high gloss	normal gloss	insuffici-ent gloss
0286	228	46.9	41.7	11.4	106	57.5	28.3	14.2
1227	208	37.5	53.8	8.7	97	36.1	58.8	5.1
2127	256	29.7	58.6	11.7	107	37.4	54.2	8.4

Table 5. **The assessment in points of the breeding rams**

№ of the ram	number of head	The class of lambs				M± m	Evalua-tion
		elite	I class	elite + I class			
		head	head	head	%		
0286	228	84	107	191	83.8	6.03±0.23**	Improved
1237	208	54	127	181	87.0	5.65±0.21	Neutral
2127	256	56	157	213	83.2	5.25±0.19	Impaired
Total flock	2835*	745	1554	2299	81.1	5.37±0.21	X

* The qualities of the offspring of the breeding rams older that 2.5 years
** $P<0.05$

Table 6. **Evaluation of breeding rams by the quality of the progeny**

№ of the ram	Period of evaluation, years	Number of progeny	Including elite + I class		*td*	Exactness
			head	M±m		
0286	7	228	191	83.8±2.4	2.18	*P*<0.05
1237	4	208	181	87.0±2.3	3.65	*P*<0.001
2127	4	256	213	83.2±2.3	2.01	*P*<0.05
Total number in the line	7	1188	976	82.2±1.1	3.16	*P*<0.01
Total number in the flock	7	4144	3254	78.5±0.4	x	x

The analysis of hair gloss showed that there was an increase trend in brightness in the group of gray lambs. The proportion of gray lambs with high gloss hide produced by the ram under the number 0286, was 57.5%, and of those with a normal gloss hide – 28.3% (Table 4).

The proportion of grey lambs with high gloss hide, produced by rams 1237 and 2127, made up 36.1 and 37.4%, respectively, and of those with normal gloss hide – 58.8 and 54.2%, respectively.

The proportion of the descendants with a high gloss of the hide, produced by the breeding rams, ranged from 29.7% to 46.9%, and of those with a normal gloss skin ranged from 41.7% to 58.6%, respectively.

According to the results of lamb assessment, the rams were assessed in regard to their offspring, using a point system (Table 5). The average number of points of the descendants of the ram under the number 0286 was 6.03 ± 0.23 (*P*<0.05); it was certainly higher than the average index for the whole flock of sheep, which made up 5.37 ± 0.21. This ram proved to be an improver at the farm.

The descendants of the ram under the number 1237 had on average 5.65 ± 0.21 points, which was also higher than the average index for the whole flock, but the difference was not statistically reliable. This ram was rated as neutral, i.e. at the level of the flock.

As for the ram under the number 2127, its descendants scored an average of 5.25 ± 0.19 points, which was lower than the average index for the flock. As a result, he was rated as a worsener.

For a more complete characterization of linear rams they were assessed in regard to the class their progeny belonged to (Table 6). The analysis of the data showed that all three rams exceeded the level for the whole flock of sheep regarding the number of descendants of the elite and the I-class. Thus, the ram under the number 0286 produced a total of 228 lambs; of them 191 or 83.8 ± 2.4% of the elite and the I-class. This ram exceeded on the first threshold of reliability (P <0.05) the indices obtained on the whole for the herd. The ram under the number 1237 exceeded the indices for the flock on the third threshold of reliability (*P*<0.001). Of the 208 estimated lambs 181 or 87.0 ± 2.3% were of the elite and the I-class. The lowest indices were obtained from the ram under the number 2127. Of the 256 of produced lambs 83.2 ± 2.3% belonged to the elite and the I-class. These figures allowed to reach the first threshold of reliability (*P*<0.05).

The indicators of the quality assessment of the rams' progeny averaged 78.5 ± 0.4% for the flock.

CONCLUSIONS

According to the results of a comprehensive assessment of linear breeding rams, the best proved to be the ram under the number 0286. It produced 83.8 ± 2.4% of elite and I-class lambs. According to the point assessment it was the best with an average score of 6.03 ± 0.23 points, and was identified as the improver.

The ram under the number 1237 produced 87.0 ± 2.3% of elite and I-class lambs. The average point index of this ram was 5,65 ± 0.21; it was rated as neutral, i.e. at the level of the average index for the whole flock, which amounted to 78.5 ± 0.4% of elite and I-class lambs, and an average score of 5.37 ± 0.21points.

The ram under the number 2127 was expelled from the flock.

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SUMMARY

In the paper is presented the characteristic of descendancy obtained from reproductive greyish ram with steely colour. During 7 years of activities at the Karakul sheep breeding section farm, from this ram were obtained 228 lambs with greyish and black colours. Most of the obtained lambs were of high- elite and Class I ranking and also of requested fur type – jacket, ribby and flat.

Key words: *reproductive greyish ram, line, lambs, elite, class I, fur type.*

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