

Issues of Intensification of Herd Production in Karakul Farming

Yunusov Kh.B.¹, Ruzimuradov R.R.²

1. D.B.S., Professor, Samarkand State University of Veterinary Medicine, livestock and Biotechnology

2. C.A.S., Associate Professor, Samarkand State University of Veterinary Medicine, livestock and Biotechnology

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Abstract: The article presents research results on using and testing the quality of offspring of various colored rams in their year of birth under Uzbekistan conditions. With proper selection and breeding of pedigree lambs, it is entirely possible to use them for breeding in the year they are born. Testing and evaluating the quality of offspring at 7 months of age will allow for a one-year extension of their breeding and full-fledged use and will contribute to the acceleration of the breeding process.

Keywords: Lambs, Karakul Breeding, Fur, Fur Type, Class

Introduction

Karakul sheep breeding is an important branch of Uzbekistan's pasture livestock farming and plays a large role in solving the tasks of the country's food independence and providing light industry with domestically produced raw materials [1]. One of the priority areas of the industry is the implementation of targeted breeding work. From this perspective, accelerating the generation of high-yielding rams and ewes is important. The systematic use of only high-yielding rams that transmit their valuable qualities well to offspring is the most important condition for improving the qualitative composition of the herd and increasing its productivity [2].

One of the important tasks of breeding in karakul sheep farming is the creation of a highly productive herd of pedigree breeders. To quickly replace offspring and accelerate the pace of breeding work, selecting animals at an early age is of great importance [3]. If breeding rams can be reliably evaluated by the quality of their offspring at seven months rather than the conventional 1.5 years, the generational interval in herd improvement could be shortened by a full year, meaningfully accelerating genetic progress in the herd [4].

The purpose of this study was to test whether the productive and constitutional qualities of karakul lamb offspring, sired by rams of different colors, can be reliably assessed at seven months of age, in comparison with the conventional evaluation age of 1.5 years, and thereby to determine whether early testing can justify earlier breeding use of pedigree rams [5].

Methodology

The research was conducted on karakul sheep breeding farms in the Samarkand, Navoi, and Kashkadarya regions of the Republic of Uzbekistan. The study population consisted of the offspring of black-colored and sur (brown/grey)-colored rams, with each color group further divided according to the sire's established breeding value into a group of "enhancers" (improvers, rams whose offspring show superior quality) and a group of "deteriorants" (rams whose offspring show inferior quality). This grouping allowed the comparison to control for sire breeding value while isolating the effect of the offspring's age at evaluation.

For each color and sire-quality group, offspring were assessed at two ages, seven months and 1.5 years, allowing a direct comparative analysis of whether early (seven-month) testing produces results consistent with the standard 1.5-year evaluation.

Three groups of traits were recorded and compared across the two age points. Constitutional type was scored as strong, delicate (loose), or rough, since constitution is a key indicator of an animal's health, viability, and productivity and correlates with hide quality. Color and shade distribution was recorded for sur-colored offspring, classified into sur yield overall and, within that, by silver, gold, and diamond shades, reflecting the fact that regular inheritance of color and shade is central to breeding predictability in colored karakul sheep. Pelt classification was recorded according to the standard grading of elite, Class I, and Class II, based primarily on the manifestation of desirable qualities in the skin and constitution.

Sample sizes (n) for each group and age are reported in Tables 1–3. Results are expressed as percentages of offspring falling into each trait category, and outcomes for the two age groups (seven months and 1.5 years) were compared within each sire-quality and color group to assess the consistency of early versus late evaluation.

Results and Discussion

In breeding work with karakul sheep, accounting for constitutional type is of great importance, since this trait largely determines the health, viability, and productivity of the animals, and constitution is one of the main characteristics defining an animal's individuality [6].

Table 1. Constitution of offspring of rams, %

Ram numbers	Age							
	7-month				1.5-year-olds			
	n	strong	delicate	rough	n	strong	delicate	rough
Black-colored rams								
By group of enhancers	369	76,65	9,32	14,03	641	78,90	8,95	12,15
By group of deteriorants	105	61,73	13,26	25,01	189	59,77	11,11	29,12
Sur-colored rams								
By group of enhancers	349	76,13	10,27	13,60	601	78,04	10,14	11,82
By group of deteriorants	107	55,31	15,89	28,80	186	57,56	12,92	29,52

The table data show that 7-month-old offspring of enhancer rams had a strong constitution in 76.65% of black-colored lambs and 76.13% of sur-colored lambs, compared with 78.90% and 78.04%, respectively, at 1.5 years, a small and consistent difference across colors [7]. A clear deterioration of this indicator is observed in the offspring of deteriorant rams at both ages, confirming the correlation between sire breeding value, constitutional type, and hide quality. Importantly, these studies did not reveal significant differences in the constitution of offspring between the two age groups, confirming that rams can be reliably tested for offspring quality in the year of their birth [8].

	Age									
	7-month					1.5-year-olds				
	n	Sur lambing	Including by color			n	Sur lambing	Including by color		
			silver	gold	diamond	silver		silver	Золот.	алмаз
By group of enhancers	349	85,98	61,52	22,05	0,31	601	88,03	63,74	23,42	0,35
By group of deteriorants	107	69,08	49,68	17,65	-	186	70,95	51,08	18,78	-

Lamb classification was established during evaluation based primarily on the manifestation of desirable qualities in skin and constitution. The class composition of offspring proved to be quite high, as shown in Table 3.

Ram numbers	Age							
	7-month				1.5-year-olds			
	n	Elite	Class I	Class II	n	Elite	Class I	Class II
Black-colored rams								
By group of enhancers	369	9,03	62,51	28,46	641	10,20	62,82	26,97
By group of deteriorants	105	-	55,10	40,04	189	-	50,25	41,74
Sur-colored rams								
By group of enhancers	349	8,67	62,94	28,37	601	9,20	62,84	27,96
By group of deteriorants	107	-	54,07	39,29	186	-	56,99	40,21

deteriorant group for both colors and both ages, while elite lambs were essentially absent from the deteriorant group altogether, underscoring the strength of sire effect on offspring class [12],[13].

Taken together, the three tables show that breeders (enhancer rams) were able to reproduce elite lambs at seven months of age in a proportion not much lower than the share obtained at 1.5 years, and that the high class of lambs is clearly inherited from the sire, persisting across roughly two to three generations [14]. Across constitution, color/shade distribution, and pelt class alike, the seven-month and 1.5-year evaluations produced consistent rankings of enhancer versus deteriorant rams, indicating that the age of evaluation does not materially change the conclusions drawn about a ram's breeding value [15].

Conclusion

The data show that it is entirely possible to evaluate breeding rams based on the quality of their offspring at seven months of age, since constitutional type, color and shade distribution, and pelt classification did not differ significantly between offspring assessed at seven months and those assessed at the conventional 1.5 years.

With proper selection and breeding of pedigree lambs, it is entirely possible to use them for breeding in the year of their birth. Testing and evaluating the quality of offspring at seven months of age would allow the breeding and full-fledged use of pedigree rams to be advanced by a full year, contributing to the acceleration of the selection process. A necessary condition for the early use of lambs in the year of their birth is proper feeding and maintenance.

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