



## COMPOSITION IN KARAKUL LAMBS FED WITH EXTRUDED CONCENTRATE FEED

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**Summary.** The article examines the influence of the extruded "Barokat" feed on the growth and development characteristics of Karakul lambs at various stages of their development, specifically regarding exterior indicators, meat productivity, and the chemical composition of the meat.

**Keywords:** Karakul lamb, growth and development, live weight, exterior, meat productivity, chemical composition of meat, pre-slaughter live weight, slaughter weight, slaughter yield, internal fat, extruded feed.

**Аннотация:** Статья посвящена изучению особенностей роста и развития каракульских ягнят на разных возрастных стадиях, а именно экстерьерным показателям, мясной продуктивности и химическому составу мяса под влиянием экструдированного корма "Барокат".

**Ключевые слова:** каракульский ягнят, рост и развитие, живая масса, экстерьер, выход мяса, химический состав мяса, предубойная живая масса, убойная масса, убойный выход, внутренний жир, экструдированные корма.

**Introduction:** In today's world, where ensuring food security has become a global issue, providing the population with food, particularly livestock products, has also become one of the top priorities of our government's policy.

In addition to the main product of Karakul breeding, which is Karakul pelts, the sector also provides affordable meat, wool, and leather products for the population. Developing technologies for sheep meat production requires determining the effects of extruded concentrate feeds on the growth, development, meat productivity, and chemical composition of Karakul lambs.

Nutrition plays an essential role in the development of exterior indicators. Research has shown that adding the "Aktivil-3" probiotic to the feed positively affects the growth and development of lambs [6].

Jaydari (fat-tailed) and Karakul breeds are distinguished by their high slaughter yield and significant fat accumulation. The slaughter yield in Karakul sheep ranged from 48.66% to 53.99%, while in Jaydari sheep, it ranged from 53.68% to 58.92%. The fat yield in Karakul sheep was 6.33%-7.76%, whereas in Jaydari sheep, it was 7.90%-10.43% [2].

During the control slaughter of 6-7 month-old Ramonov breed animals, the pre-slaughter live weight averaged 40 kg, the carcass weight ranged from 14 to 22 kg, and the slaughter yield was 48%-55%. The chemical composition of the meat samples showed that protein content was 17.9%-18.2%, and fat content was 12%-14% [1].

**Research Methods.** The research was conducted at "Saxoba Ota Karakul Breeding" LLC in Nurabad District, Samarkand Region. For the experiment, 30 male lambs were selected for the experimental group and 30 for the control group.



The lambs in the experimental and control groups were selected based on the principle of analogs, as there was almost no difference in their birth live weight.

Starting from 4.5 months of age, the lambs in the experimental group were additionally fed 200 grams of extruded concentrate feed per day per head, while the control group was fed 200 grams of barley feed.

The chemical composition of the Karakul sheep meat in the experiment was studied at the State Center for Animal Disease Diagnostics and Food Safety. Protein was analyzed according to State Standard 25011-2017, fat by State Standard 23042-2015, ash by ISO 936:1998, and moisture by ISO 1442-2008.

Exterior measurements (withers height, slanting body length, chest depth, chest width, chest girth, and leg girth) were taken using a measuring stick and tape [4].

The meat productivity of the sheep was evaluated based on the following indicators: pre-slaughter live weight, body weight, internal fat weight, slaughter weight, and slaughter yield. The meat productivity of the sheep in the experiment was determined through control slaughter by weighing on a scale [3].

The data obtained from the experiment were processed using variation statistical methods. This included determining the arithmetic mean (X) of each trait, its standard error (Sx), and the level of significance (P) for the differences between group indicators [5].

**Research Results.** The growth characteristics of lambs fed with extruded concentrate feed were studied. Full-value feeding is also of great importance for Karakul breeding, which is considered a sector of livestock farming. Nutrition directly influences productivity, growth, and development.

Exterior indicators are considered key parameters that determine the growth and development of animals. The body parts of animals, from birth onwards, reveal specific exterior traits characteristic of the breed, thus reflecting the particular qualities of the breed.

The data on the exterior indicators of male Karakul lambs obtained from the research are presented in Table 1.

Exterior measurements are important indicators associated with the live weight of agricultural animals. Proper and full-value feeding of lambs is crucial for the development of these exterior indicators. The analysis of the data obtained during the research shows that from birth to 8 months, the chest width increased by 203.3% in the experimental group and 185.9% in the control group; chest depth increased by 166.66% and 156.29%, respectively; and chest circumference increased by 194.3% and 162.63%, respectively. From 8 to 18 months, chest width increased by 121.08% and 118.71%, chest depth by 122.0% and 118.64%, and chest circumference by 124.32% and 123.6% in the experimental and control groups, respectively. The experimental group outperformed the control group in terms of key exterior indicators related to meat productivity.

**Table 1**  
**Exterior measurements of lambs, cm**

Groups	n	Measurements, M±m					
		Withers height	Slanting body length	Chest width	Chest depth	Chest girth	Cannon bone girth
<b>At birth</b>							
Experiment	30	38,9±0,18	34,3±0,12	9,1±0,1	15,0±0,1	38,08±0,16	6,3±0,1
Control	30	39,0±0,16	34,4±0,13	9,2±0,1	15,1±0,1	38,0±0,2	6,3±0,1
<b>at 8 months</b>							
Experiment	30	60,1±0,6	61,0±0,5	18,5±0,2	25,0±0,2	74,0±0,5	7,6±0,1
Control	30	55,0±0,5	55,6±0,4	17,1±0,2	23,6±0,3	61,8±0,5	7,4±0,1
<b>at 18 months</b>							
Experiment	27	68,9±0,6	71,9±0,6	22,4±0,2	30,5±0,3	92,0±0,7	8,4±0,12
Control	27	60,3±0,5	65,0±0,6	20,3±0,3	28,0±0,3	76,4±0,6	8,0±0,12

Note: P<0,999.

Based on this information, it was concluded that the rapid digestion of the extruded concentrate feed and the low energy expenditure for feed intake had a positive effect on the exterior indicators of the lambs.

Research was conducted to increase meat production by using extruded concentrate feed in addition to pasture feed, focusing on producing high-quality lamb meat.

The data on the meat-fat productivity of Karakul lambs at 8 and 18 months of age are presented in Table 2.

**Table 2**

**Meat-fat productivity of sheep**

Groups	n	Live weight, kg	Pre-slaughter live weight, kg	Carcass weight, kg	Internal fat, kg	Slaughter weight, kg	Slaughter yield, %
<b>at 8 months</b>							
Experiment	3	43,9±0,7	41,62±0,65	22,67±0,35	1,67±0,02	24,34±0,4	58,48±0,006
Control	3	35,5±0,9	33,82±0,82	17,11±0,42	0,296±0,008	17,41±0,47	51,47±0,006
<b>at 18 months</b>							
Experiment	3	48,1±1,06	46,02±1,07	24,76±0,75	3,94±0,1	28,70±0,7	62,34±0,006
Control	3	37,6±1,98	36,0±0,9	17,41±0,5	1,28±0,04	18,71±0,5	51,92±0,02

Note: P<0,98; P<0,999; P<0,9; P<0,99.

According to the data analysis, the live weight of the 8-month-old lambs in the experimental group was 8.4 kg, or 23.7%, higher than that of the control group. In terms of pre-slaughter live weight, the experimental group was 7.8 kg, or 23.1%, higher, carcass weight was 5.56 kg, or 32.5%, higher, internal fat was 1.374 kg, or 464.2%, higher, slaughter weight was 6.93 kg, or 39.8%, higher, and the slaughter yield was 13.6% higher.

At 18 months, the superiority in live weight was 10.5 kg, or 28.0%, pre-slaughter live weight was 10.02 kg, or 27.8%, carcass weight was 7.35 kg, or 42.2%, internal fat was 2.66 kg, or 307.8%, slaughter weight was 9.99 kg, or 53.4%, and slaughter yield was 10.42% higher.

The extruded feed positively impacted the meat productivity of the lambs.

Sheep meat differs in its chemical composition from the meat of other agricultural animals, and Karakul sheep meat differs from that of other sheep breeds. Meat productivity also depends on factors such as the age, gender, fatness, feeding, and living conditions of the sheep.

The data on the chemical composition of the meat from 18-month-old sheep are presented in Table 3.

**Table 3**

**Chemical composition of sheep meat**

Indicators	Experimental group		Control group	
	X±Sx	Cv, %	X±Sx	Cv, %
Water content in the meat	70,9±0,2	0,4	72,2±0,3	0,7
Protein	19,1±0,3	2,6	18,8±0,4	3,8
Fat	8,9±0,2	4,5	7,9±0,2	3,8
Ash	1,1±0,01	1,8	1,08±0,01	1,0

According to the results of the chemical composition analysis of the meat, the difference between the experimental and control groups in terms of water content was 1.3%, protein 0.3%, fat 1.0%, and ash content 0.02%.

The rapid digestion of the extruded concentrate feed used in the experiment, along with low energy expenditure for feed consumption, resulted in energy savings, which had a positive effect on the growth of the lambs, the development of their exterior measurements, meat productivity, and the increase in protein and fat content in the meat.

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