UDC 636.3:636.083.37/575.22:636.3.082.2
DOI 10.31521/2313-092X/2021-1(109)-9

Ukrainian Black Sea Region Agrarian Science
Vol. 25, No. 1

Characteristics of growth, development and meat qualities of young sheep of different genotypes

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Abstract. The study of the development of the organism, taking into account the genotype of animals and environmental conditions, makes it possible to significantly speed up the process of improving existing breeds. The intensity of growth and development is of great importance, because premature young animals reach the term of economic use faster with lower feed costs per unit of growth. By the dynamics of live weight with age, it is possible to characterize the intensity of growth, the nature of metabolism, prematurity and the state of the body as a whole. Therefore, it is of scientific and practical interest to study the features of growth and development of purebred and cross-breed sheep of the meat direction of productivity. Precocious young animals reach the term of economic use faster with lower feed costs per unit of growth. The dynamics of live mass indicate the intensity of growth, the nature of metabolism, precociousness and the state of the organism. The purpose of the article was to determine the crossbreeding option that has the highest genetic potential for meat productivity and growth intensity. In the course of the study, the authors used the method of laboratory analysis, comparison, synthesis and forecasting. Peculiarities of growth and development of lambs of three different genotypes from birth to six months of age were studied, in particular: purebred young Askanian thin-wool breed (ATB); crosses of this gene pool with Texel (ATBxT) and Merinolandscape (ATBxM) breeds. Control over the growth and development of experimental animals was carried out by the method of weighing in different age periods. Evaluation of meat qualities was carried out based on the results of slaughter. It was established that the best development parameters were characterized by crossbreeds of the Texel with the Ascanian fine-wool breed, therefore this crossbreeding option has the highest genetic potential for meat productivity. The practical value consists in obtaining a potentially greater increase in the live weight of sheep in a shorter period of time and in the laboratory study of the properties of the offspring of the obtained breed

Keywords: sheep, genotype, live weight, linear parameters, growth intensity

INTRODUCTION

Studying the development of the organism taking into account the genotype of animals and environmental conditions makes it possible to significantly accelerate the process of improving existing breeds. The intensity of growth and development, as well as the increase in live weight in different age periods, are of great importance, since premature young animals reach the term of economic use faster with lower feed costs per unit of growth. The dynamics of live weight with age can be used to judge the intensity of growth, the nature of

Article's History:
Received: 14.09.2020
Revised: 06.01.2021
Accepted: 23.02.2021

Suggested Citation:
Iovenko, V., & Hladiy, I. (2021). Characteristics of growth, development and meat qualities of young sheep of different genotypes. *Ukrainian Black Sea Region Agrarian Science*, 25(1), 69-76.

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metabolism, prematurity and the state of the body as a whole. Therefore, it is of scientific and practical interest to study the features of growth and development of purebred and cross-breed sheep of the meat direction of productivity.

Today, a new domestic breed of sheep is being created at the Askania-Nova Institute of Animal Husbandry by crossbreeding using imported high-yielding meat rams of the Texel and Merinolandscape breeds on ewes of the local Merenos breed.

The Askanian thin-fleece breed belongs to the wool-meat direction of productivity. Due to its valuable hereditary and productive qualities, good adaptability to environmental conditions, it has received general recognition and wide distribution and is the main breed for obtaining merino wool [1].

Taking into account the current state and trends in the development of sheep breeding in Ukraine and the world, the question arises as to the feasibility of using the Askanian fine-wool breed in industrial crossing with breeders of foreign selection.

The Texel is one of the most common breeds in the world and is extremely popular in Europe, America, New Zealand and Australia. They easily adapt and adapt to the external environment, are characterized by increased resistance. The main distinguishing feature of the animals is the high content of muscle tissue in the carcasses. This breed is widely used for selection purposes when crossing with other genotypes to increase the meat productivity of existing and create new genetic formations [2; 3].

The Merinolandscape breed has a meat-wool production direction. Old types of German and French Prekos and a number of English breeds took part in its creation. Today, in Germany, meat merino, thanks to high indicators of productivity and competitiveness, occupies a leading place [4].

Taking into account the mentioned useful features and biological features, the use of Texel and Merino Ladshaff breeders is promising, therefore it is appropriate to study the growth and development of young sheep obtained using these genotypes.

Scientists note that the relationship between the processes of growth and development is the correspondence between the quantitative and qualitative changes that occur in the animal's body during ontogenesis [5]. Many scientists studied the impact of the intensity of animal growth on their productive qualities, which was reflected in their scientific works [6-9]. The intensity of formation is determined by heredity and conditions of keeping, as evidenced by the breed and constitutional features of animals [10-13].

Since the productivity of adult animals is related to growth and development in early ontogeny, and their level is established during the period of growing young animals, live weight is the subject of in-depth study. K.B. Svechin in his works emphasized the importance of the peculiarities of the periodization of individual growth and development of animals in ontogenesis [8].

Modern researchers, when studying the intensity of growth of young animals of various options for selecting parental pairs, found that the best indicators of average daily growth have animals obtained in selections using rams of meat types [14].

In view of the above, studying the patterns of growth and development of young animals of various origins is relevant and has both scientific and practical significance.

The purpose of the article is to study the efficiency of using breeding rams of the specialized meat breeds Merinolandshaf and Texel with ewes of the Askanian fine-wool breed and their effect on the meat qualities of the obtained young, in particular on the live weight, absolute, average daily, relative growth of crossbred lambs in steppe conditions zones of Ukraine.

MATERIALS AND METHODS

The research was carried out in the conditions of the SEEF "Askania-Nova", which is subordinate to the Institute of Animal Husbandry of Steppe Regions named after M.F. Ivanov "Askania-Nova" and is located in the village of Askania-Nova, Chaplin district, Kherson region.

Lambs of three experimental groups served as the object of research: 1st group – purebred Ascanian merinos (ATB), n=20; 2nd group – crossbreeds of half blood Merino x Merinolandshaf (ATBxM), n=21; 3rd group – crossbreeds of ½ blood Merino x Texel (ATBxT), n=15.

Growth and development of lambs was monitored by individual weighing for six months.

Exterior evaluation was carried out by measuring the main dimensions: height at the withers, height at the withers, width of the chest, depth of the chest, oblique length of the trunk, width at the withers, chest girth, wrist girth, head length, head width. Based on the results of the measurements, the following indices of body structure were calculated: long-legged, stretched, pelvic-thoracic, massive, bony, thoracic, short, deep-chested, large-headed. Measurements were taken from animals at birth at 2, 4 and 6 months of age.

Based on the data on the dynamics of live mass, the indicator of the intensity of the formation of live mass of young animals (dt) was determined, according to the method of Yu.K. Svechyn [9]:

$$\Delta T = \frac{W_4 - W_0}{0.5(W_4 + W_0)} - \frac{W_6 - W_4}{0.5(W_6 + W_3)}, \quad (1)$$

where ΔT is the intensity of formation; W_0, W_4, W_6 – live weight of lambs at birth and at the age of 4 and 6 months, respectively, kg.

The index of uniformity (Iu) and tension (It) of growth was calculated according to the method of V.P. Kovalenko [16]:

$$\Delta T = \frac{W_4 - W_0}{0.5(W_4 + W_0)} - \frac{W_6 - W_4}{0.5(W_6 + W_3)}, \quad (2)$$

where I_u is the growth uniformity index; *AG* – average daily growth from birth to 6 months of age, kg.

$$I_t = \frac{\Delta t}{\mathrm{RG}} AG, \quad (3)$$

where *AG* is the average daily growth from birth to 6 months of age; RG – relative growth from birth to 6 months of age.

All quantitative indicators were determined by the method of variational statistics according to the algorithms of M.O. Plokhinsky [16].

The study of meat productivity was carried out based on the results of the control slaughter of lambs at the age of 6 months (3 heads from each group). At the same time, the live weight after a 24-hour starvation period and the results of the initial processing of carcasses were taken into account.

Biometric data processing was carried out using MS Excel software using statistical functions.

RESULTS

Growth and development indicators are one of the criteria for evaluating sheep genotypes, in particular their meat qualities.Animal growth is a process of increasing, first of all, live mass. At the same time, knowledge of the prematurity of lambs in the period from birth to weaning from ewes makes it possible to assess their biological capabilities in relation to growth speed.

The development of sheep and the shape of their physique are judged by live weight and linear parameters. This assessment allows you to identify positive and negative features of the animals' exterior and get a more complete picture of them.

The growth rate has an important economic value because animals with high growth intensity have a better feed conversion. The live weight of lambs at birth is an indicator of the interaction of a large number of external and internal factors that affect the degree of fetal development in the embryonic period. In general, as the results of our research show, the development in the post-embryonic period and the formation of subsequent productivity are related to the parameters of live weight of lambs at birth (Table 1).

Table 1. *Live weight dynamics of lambs in different age periods*

Age, months	Genotype					
	ATB (n=20)		ATBxM (n=21)		ATBxT (n=15)	
		C_v, %		C_v, %		C_v, %
At birth	4.7±0.18	17.48	4.7±0.23	24.42	5.8±0.36*	26.24
2	20.1±0.61	10.84	19.8±0.94	22.71	20.9±0.93	18.23
4	26.3±0.87	14.37	27.7±1.43	23.06	32.4±1.51**	17.42
6	33.7±1.15	13.67	34.5±1.73	20.69	39.1±2.19*	18.56

Note*: * – p≤0.1; ** – p≤0.01; *** – p≤0.001*

It was established that at birth and during the entire period of the experiment, the lambs were characterized by a relatively high live weight. With regard to their growth, it was found that crossbreeds obtained from crossing ATBxT had a probably higher live weight at birth – 5.8 kg (P<0.1). Peers of other genotypes are inferior to them by 1.1 kg (P<0.1). A similar situation occurred up to the age of 6 months. At the same time, the variability of this feature in the presented group at birth was the highest, Cv=26.24%. For comparison, in the environment of purebred animals, the coefficient of variability was only 17.48%. During the next growing period, the identified difference was preserved and, for example, at the age of 6 months, purebred animals were inferior to their counterparts in this indicator by 4.89-7.02. That is, the established dependence indicates that local sheep with a long history of breeding are more consolidated in terms of body weight and are better adapted to environmental conditions compared to newly created genotypes.

A more detailed result of the growth and development of lambs was obtained by means of a complex analysis through the assessment of average daily, absolute and relative growth (Table 2).

Table 2. *Dynamics of increases in live weight of lambs,* $\overline{X} \pm S\overline{x}$

Age, months	Genotype		
	ATB	ATBxM	ATBxT
Absolute gains, kg			
0-2	15.1±0.53	15.1±0.84	15.0±0.70
2-4	7.1±0.65	7.6±0.69	11.3±0.74***
4-6	7.7±0.50	7.1±0.42	6.8±0.80
0-6	27.5±1.93	29.9±1.65	33.1±1.92*
Average daily increments, g			
0-2	247.9±8.28	271.1±14.15	255.6±13.39
2-4	88.8±7.46	98.7±8.46	140.0±8.54***
4-6	108.1±7.01	100.2±5.88	95.1±11.32

Table 2, Continued

Age, months	Genotype		
	ATB	ATBxM	ATBxT
0-6	130.5±8.48	147.0±7.10	156.6±8.52
Relative gains, %			
0-2	120.2±2.07	122.1±3.02	111.9±2.86*
2-4	29.9±2.23	31.9±2.20	42.4±2.31***
4-6	25.9±1.74	24.1±1.79	19.1±2.03
0-6	148.0±2.24	152.6±2.41	146.3±2.62
Growth rate			
0-2	4.1±0.14	4.3±0.20	3.6±0.16
2-4	1.4±0.03	1.4±0.03	1.5±0.04
4-6	1.3±0.02	1.3±0.02	1.2±0.02
0-6	6.8±0.35	7.8±0.47	6.7±0.42

***Note**: * – p≤0.1; ** – p≤0.01; *** – p≤0.001*

It was established that the ATBxT group exceeded its peers in terms of absolute growth during the entire study period (ATB – 27.5; ATBxM – 29.9; ATBxT – 33.1). That is, at that time, the animals obtained from crossing the Ascanian fine-wool breed with the Texel breed were more stress-resistant.

During the period from birth to 6 months of age, these same genotypes had the highest average daily gains (156.6 g versus 130.5 and 147.0 g).

As for relative growth, a rather interesting situation is observed. From birth to 2 months of age and from birth to 6 months of age, ATBxM hybrids had a significant advantage, and the ATBxT group had the lowest indicators throughout the entire period, except for the period from 2 to 4 months of age: I – 29.9%; II – 31.9%; III – 42.4%.

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In this way, it was established that the best indicators of the development of live body weight during the six-month period of ontogenesis are characterized by local young animals of the Ascanian fine-wool breed and the Texel breed.However, there is no linear dynamics of the value of this feature, which is related, in our opinion, to different feeding conditions of these animals at different stages of growth.

The value of the linear parameters of young animals was studied at birth at the age of 2, 4 and 6 months (Table 3).

The superiority of the specified genotype over peers of other groups of lambs under investigation is fully confirmed by body structure indices (Table 4).

***Table 3.** Linear parameters of body sexes of lambs in different age periods, $\overline{X} \pm S\overline{x}$*

Genotype	Measure, sm					
	height at the withers,	height at the withers,	chest width	chest depth	braid, body length	chest girth
At birth						
ATB	38.1±0.45	39.1±0.46	9.4±0.22	14.2±0.19	31.2±0.54	40.7±0.57
ATBxM	39.3±0.57	40.1±0.60	9.5±0.21	14.2±0.24	32.5±0.67	40.6±0.56
ATBxT	40.5±0.58*	41.3±0.58	10.9±0.30***	14.9±0.25	33.8±0.77	43.4±0.86*
2 months						
ATB	53.3±0.84	54.2±0.83	17.0±0.37	24.3±0.25	57.5±1.03	71.8±1.03
ATBxM	53.7±0.73	54.1±0.77	17.5±0.42	23.6±0.39	56.1±1.00	70.6±1.84
ATBxT	54.1±0.77	54.4±0.78	18.5±0.41**	24.3±0.46	55.8±0.72	75.0±1.38
4 months						
ATB	58.2±0.46	58.7±0.50	22.3±0.41	27.7±0.28	60.7±0.74	81.6±2.12
ATBxM	60.9±0.90	60.7±0.93	20.7±0.63	28.9±0.50	61.9±1.33	83.0±1.81
ATBxT	61.1±1.01	61.2±0.97	23.5±0.41*	30.1±0.61	62.9±0.96	87.5±2.03*

Table 3, Continued

Genotype	Measure, sm					
	height at the withers,	height at the withers,	chest width	chest depth	braid, body length	chest girth
			6 months			
ATB	58.7±0.82	59.8±0.87	22.1±0.42	27.7±0.37	61.6±0.86	96.1±1.22
ATBxM	57.1±1.04	58.5±1.23	21.8±0.57	27.0±0.44	64.2±1.31	94.4±2.22
ATBxT	59.1±1.15	60.4±1.33	24.0±0.41**	28.8±0.68	66.0±1.4*	104.0±2.3**

Note: * – p≤0.1; ** – p≤0.01; *** – p≤0.001

Table 4. *Indices of body structure of lambs, $\bar{X} \pm S\bar{x}$*

Genotype	Index					
	Sprains	Overgrowth	Bones	Contusion	Chest	Massiveness
			At birth			
ATB	82.1±1.23	102.8±0.59	18.3±0.33	130.7±1.69	66.2±1.22	107.2±1.63
ATBxM	82.6±1.26	101.9±0.29	17.3±0.17	125.9±1.88	66.9±1.29	103.5±0.65
ATBxT	83.5±1.29	102.1±0.36	19.3±0.27	128.6±1.87	73.2±1.65	107.0±1.05
			2 months			
ATB	108.2±2.39	101.8±0.55	17.5±0.22	125.2±1.99	70.1±1.23	135.2±2.75
ATBxM	104.5±1.44	100.7±0.28	16.3±0.21	125.8±2.73	74.0±1.09	131.2±2.76
ATBxT	103.3±1.41	100.5±0.41	16.9±0.20	134.4±1.94**	76.7±1.68	138.6±1.61
			4 months			
ATB	104.3±1.06	100.9±0.49	16.7±0.28	134.6±3.47	80.8±1.38	140.2±3.54
ATBxM	101.5±1.16	99.8±0.48	15.9±0.28	134.4±2.01	71.6±1.68	136.2±1.96
ATBxT	103.2±1.24	100.3±0.73	16.3±0.32	139.1±2.35	78.3±1.29	143.5±3.01
			6 months			
ATB	105.1±1.64	102.0±1.01	17.3±0.52	156.1±1.29	79.9±1.67	164.0±2.02
ATBxM	112.6±1.72	102.3±0.81	17.5±0.52	147.2±2.67	80.7±1.55	165.1±2.00
ATBxT	111.6±1.47	102.1±1.05	16.7±0.61	157.6±1.64	83.5±1.40	175.9±2.53***

Note: * – p≤0.1; ** – p≤0.01; *** – p≤0.001

Thus, at birth and at the age of two, four, and six months, these young animals had higher values of the indices of rump, thoracic, and massiveness. For example, chest at the age of 6 months was 83.5 cm against 79.9 and 80.7 cm. The index of collapse is 157.6 at the age of 6 months, which is 10.4 more than the age group; mass index at 6 months of age was 175.9 cm versus 164.0 and 165.1 cm in the other two groups (P<0.001). Differences between genotypes were also determined by indicators of growth intensity (Table 5). It was established that the higher intensity of formation is characteristic of ATBxT and was 1.21, which is 0.01-0.06 higher than peer groups.

Table 5. *Indices of growth intensity of lambs*

Genotype	Indicator		
	dt	I_u	I_t
ATB	1.15	0.06	1.01
ATBxM	1.2	0.06	1.15
ATBxT	1.21	0.07	1.29

According to the research results, it was also established that ATBxT animals were characterized by the highest growth tension (1.29), which is 0.14-0.28 higher than in other tested genotypes.

In the creation of new genotypes of sheep for meat productivity, in addition to growth parameters, the development of their meat qualities is extremely important. Sheep meat has a number of distinctive features compared to the meat of other farm animals and is in demand among the population. Mutton belongs to valuable human food products and is characterized by good taste, aroma and dietary properties. Sheep fat is distinguished by its high energy content and low cholesterol content. This product is obtained from sheep of all breeds, but breeds specialized in meat, meat-wool and meat-fat directions have the highest meat productivity.

Sheep meat productivity and meat quality are affected by many factors, including breed, sex, age, feeding and maintenance, belonging to a certain type of constitution [17-19]. Formation of fleshiness in young sheep also occurs under the influence of environmental factors.

The formation of meat qualities of animals occurs during the period of growth and development. Features of meat productivity manifest themselves at an early age and are closely related to the exterior of animals [20]. The highest increase in muscle tissue occurs in early ontogeny before puberty. In adult animals, weight gain occurs mainly due to fat deposition. It has also been proven that in the absence of fat deposition in the carcass, it is impossible to achieve maximum muscle growth. [21; 22]. It is known that the best quality parameters are characterized by young lamb obtained from animals at the age of 6-8 months. In this context, below are the results of research on the relevant local young. Objective indicators of sheep meat productivity are the pre-slaughter weight of the carcass, the slaughter weight, the ratio of bones and pulp in animal carcasses, and the slaughter yield.

Table 6 shows the slaughter qualities of rams in different age periods. It was shown that the carcasses of ATBxT rams significantly outperformed the indicators of the other two groups in terms of certain parameters.

Table 6. *Slaughter qualities of rams in different age periods*

Indicator	Genotype		
	ATB	ATBxM	ATBxT
Number of animals	3	3	3
Pre-slaughter weight, kg	34.7±0.67	37.8±0.44**	39.5±1.50***
Weight of the steamed carcass, kg	14.2±0.46	16.8±0.42**	18.3±0.91**
Mass of internal fat, kg	0.54±0.08	0.68±0.10	0.46±0.05
Slaughter weight, kg	14.8±0.54	17.5±0.33**	18.7±0.96*
Slaughter yield, %	42.6±0.76	46.3±0.33**	47.4±1.20*

***Note**: * – p≤0.1; ** – p≤0.01; *** – p≤0.001*

As for the slaughter yield, according to the data of many scientists [23; 24], it has been established that depending on the direction of productivity of sheep, this indicator ranges from 35-60% and depends on the sex, age, breed, fatness of the animals, as well as the number of lambs born. According to the results of our research, the slaughter yield of crossbred lambs at the age of 6 months was 46.3% (ATBxM) and 47.4% (ATBxT) of the pre-slaughter weight, respectively. In purebred lambs, this indicator was at the level of only 42.6%.

As for visceral fat, ATBxM animals had a higher index than peers, and ATBxT animals had the lowest.

The carcasses of crossbred animals are significantly and positively different from those of purebreds. There is also a noticeable difference between groups of hybrid genotypes in favor of the ATBxT variant.

In general, we can make a preliminary conclusion that domestic rams are characterized by better slaughter qualities, and ATBxT genotypes have a special advantage, which indicates their early maturity.

The morphological composition of the carcass depends on the breed, sex, age and fatness of the sheep. Lamb carcasses contain more bones, less pulp and fat than adult animal carcasses. With increasing fatness, the content of pulp and fat increases, the specific mass of bones decreases. At the same time, the output of the most valuable offcuts increases – the back part, shoulder blade, brisket and rear part.

The morphological composition of the carcass is established by deboning its individual cuts. Since deboning carcasses is a time-consuming process, indicators characterizing the meatiness of carcasses without deboning have been proposed. Indicators related to these data are presented in Table 7.

Table 7. *Morphological composition of carcasses of experimental animals*

Indicator	Genotype		
	ATB	ATBxM	ATBxT
Mass of chilled carcass, kg	13.3±0.42	15.9±0.43**	17.3±0.89**
Muscle and fat tissue, kg	9.6±0.39	11.2±0.27*	12.6±0.81*
Bones and tendons, kg	3.8±0.03	4.6±0.16**	4.7±0.13***
Yield, %: pulp	71.8±0.64	70.9±0.32	72.6±1.13
bones	28.2±0.64	29.1±0.29	27.4±1.13
Coefficient of fleshiness	2.5±0.08	2.4±0.04	2.7±0.14

***Note**: * – p≤0.1; ** – p≤0.01; *** – p≤0.001*

It was established that animals of the ATBxT crossbreed had the largest weight of the chilled carcass (17.3 kg), which is 1.4 kg more than ATBxM and 4 kg more than ATB. ATBxT crossbreds had the highest mass of muscle and fat tissue, and purebreds had the lowest, in particular, 12.6 kg versus 9.6 kg (p≤0.1). And domestic

animals ATBxM – 1.4 kg less than ATBxT. The same situation was observed with regard to bones and tendons (ATBxT – 0.9 kg more than ATB; and 0.1 kg from ATBxM).

According to the percentage of the yield of pulp and bones, the following is established. Local animals of ATBxT have the largest output of pulp and the smallest - bones. Their pulp yield was 72.6%, in ATBxM it was 1.7% less, and in purebred animals it was 0.8% less. The yield of bones in these lambs was 27.4%, which is 1.7% less than from cross-breeds and 0.8% from purebred animals.

The fleshiness coefficient of ATBxT was 2.7%, which is 0.3% more than that of ATBxM crossbred animals and 0.2% more than that of purebred Merinos.

CONCLUSIONS

It was established that the best development parameters were characterized by crossbreeds of the Texel with the Ascanian fine-wool breed, therefore this crossbreeding option has the highest genetic potential for meat productivity. In contrast to purebred Merino peers in the early post-embryonic period, they are characterized by probably higher parameters of live weight gain, growth intensity, growth tension, as well as better characteristics of meat qualities of young lamb. That is, due to their adaptive abilities, these animals are quite suitable for breeding in the conditions of southern Ukraine when creating new highly productive genotypes of the meat sector of productivity.

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Характеристика росту, розвитку та м'ясних якостей молодняку овець різних генотипів

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Анотація. Дослідження розвитку організму, враховуючи генотип тварин та умови середовища, дає можливість суттєво пришвидшити процес удосконалення існуючих порід. Інтенсивність росту і розвитку має вагоме значення, тому що скоростиглий молодняк швидше досягає строку господарського використання з меншими витратами корму на одиницю приросту. За динамікою живої маси з віком можна характеризувати інтенсивність росту, характер обміну речовин, скоростиглість і стан організму в цілому. Тому представляє науковий і практичний інтерес вивчення особливостей росту і розвитку чистопородних і помісних овець м'ясного напряму продуктивності. Скоростиглий молодняк швидше досягає строку господарського використання з меншими витратами корму на одиницю приросту. На інтенсивність росту, характер обміну речовин, скоростиглість і стан організму вказує динаміка живої маси. Метою статті було визначити варіант схрещування, який володіє найвищим генетичним потенціалом м'ясної продуктивності та інтенсивності росту. У ході дослідження автори використали метод лабораторного аналізу, порівняння, синтезу та прогнозування. Досліджено особливості росту та розвитку баранчиків трьох різних генотипів від народження до шестимісячного віку, зокрема: чистопородного молодняку асканійської тонкорунної породи (АТП); помісей цього генофонду з породами тексель (АТПхТ) та мериноландшаф (АТПхМ). Контроль за ростом і розвитком піддослідних тварин здійснювали методом зважування у різні вікові періоди. Оцінку м'ясних якостей проведено за результатами забою. Встановлено, що кращими параметрами розвитку характеризувалися помісі тексель з асканійською тонкорунною породою, тому цей варіант схрещування має найвищий генетичний потенціал м'ясної продуктивності. Практична цінність полягає в отриманні потенційно більшого приросту живої маси овець за коротший період часу і лабораторному вивченні властивостей потомства отриманої породи

Ключові слова: вівці, генотип, жива маса, лінійні параметри, інтенсивність росту