INDUSTRIAL CROSSBREEDING AS EFFICIENT SHEEP FARMING PRODUCTION

Volodymyr Pokhyl, PhD in Agricultural Sciences, Associate Professor
https://orcid.org/0000-0002-2994-879X
Olena Pokhyl, PhD in Agricultural Sciences, Associate Professor
https://orcid.org/0000-0002-7477-6501
Liudmyla Mykolaichuk, PhD, Assistant,
https://orcid.org/0000-0001-5331-719X
Dmytro Taran, Postgraduate Student
https://orcid.org/0009-0007-0067-5218
Dnipro State Agrarian and Economic University, Dnipro, Ukraine

The article examines the materials of industrial crossbreeding in sheep farming using ewes of the Dnipropetrovsk inbred type of the Prydniprovska meat breed (DT Pm) and breeding rams of the Merinolandschaf breed (Ml) and its effect on the quantitative and qualitative indicators of meat productivity.

The level of productivity of breeding rams indicates their compliance with the meat type. Their body weight is in the range of 105.4-112.1 kg; shearing of wool initially – 5.4-6.2 kg, with the output of washed wool – 59.5-61.0%, respectively, from Prydniprovska meat breed and Merinolandschaf breed. Coefficient of woolliness is 30.4-33.9 g/kg.

The level of reproductive capacity of ewes indicates that fertilization is in the range of 96.0-97.0%.

Fertility of ewes of the second group in industrial crossbreeding was 168.1%, which is 23% more than of the first one. 163 lambs were obtained from the ewes of the second group, which is 20.7% more than in purebred breeding. The preservation of lambs before weaning was 97.0%.

When crossing, the effect of heterosis is manifested, which is evidenced by the difference in body weight, when crossbred lambs dominate at birth by 9.5%, at the age of 4 months – by 13.3%, at the age of 8 months – by 14.9% compared to purebred peers.

Carcass weight of crossbred lambs was 22.6 kg against 18.9 kg of purebred peers. According to the main slaughter parameters, crossbred lambs outperformed purebred lambs, while the slaughter weight of crossbreds was higher by 19.7%, with a slaughter yield of 51%, which is a good indicator for this characteristic for meat-type sheep within production focus. As a result of a comprehensive comparative analysis of meatiness indicators of lambs of different origins, an advantage in terms of desired components was found in crossbreds.

The introduction of new genetic lines through industrial crossbreeding can contribute to the conservation and expansion of genetic potential among sheep populations, which is important for adaptation to changing conditions.

__Key words:__ crossbreeding, breeding rams Merinolandschaf, ewes Dnipropetrovsk inbred type of Prydniprovska meat breed, crossbred lambs, reproductive capacity, slaughter yield, slaughter weight, carcass weight, grade composition.

ПРОМИСЛОВЕ СХРЕЩУВАННЯ – ЕФЕКТИВНЕ ВИРОБНИЦТВО ПРОДУКЦІЇ ВІВЧАРСТВА

Володимир Похил, к. с.-г. н., доцент, https://orcid.org/0000-0002-2994-879X
Олена Похил, к. с.-г. н., доцент, https://orcid.org/0000-0002-7477-6501
Людмила Миколайчук, д. філософії, асистентка,
https://orcid.org/0000-0001-5331-719X
Дмитро Таран, аспірант
https://orcid.org/0009-0007-0067-5218
**Дніпровський державний аграрно-економічний університет
м. Дніпро, Україна**

У статті розглянуто матеріали промислового схрещування у вівчарстві з використанням вівцематок дніпропетровського внутрішньо породного типу придніпровської м'ясної (ДТ Пм) та баранів-плідників породи мериноландшаф (Мл) і його вплив на кількісні і якісні показники м'ясної продуктивності.

Рівень продуктивності у плідників вказує на їх відповідність м'ясному типу. Жива маса їх знаходиться в межах 105,4-112,1 кг; настриг вовни в оригіналі – 5,4-6,2 кг, при виході митої вовни – 59,5-61,0 % відповідно у придніпровської м'ясної та мериноландшаф. Коефіцієнт вовновості – 30,4-33,9 г/кг.

Рівень відтворної здатності вівцематок вказує на те, що заплідненість знаходиться в межах 96,0-97,0 %.

Плодючість вівцематок ІІ групи при промисловому схрещуванні склала 168,1 %, що на 23 % більше, ніж у першій. Від маток другої групи було отримано 163 ягнят, що більше ніж при чистопородному розведенні на 20.7 %. Збереженість молодняку до відлучення склала 97,0 %.

При схрещуванні проявляється ефект гетерозису, про що свідчить різниця за живою масою, де помісний молодняк домінує при народженні на 9,5 %, в 4-місячному – на 13,3 %, у 8-місячному – на 14,9 % в порівнянні з чистопородними однолітками.

Маса туш у помісного молодняку склала 22,6 кг проти 18,9 кг у чистопородних однолітків. За основними забійними показниками помісний молодняк перевершував чистопородних баранчиків, при цьому забійна маса, у помісей виявилася вищою на 19,7 %, при забійному виході 51 %, що є добрим показником за даною ознакою для овець м'ясного типу виробничої спрямованості. В результаті різнобічного порівняльного аналізу показників м'ясності у молодняку різного походження виявлено перевагу за бажаними компонентами у помісей.

Інтродукція нових генетичних ліній шляхом промислового схрещування може сприяти збереженню та розширенню генетичного потенціалу серед популяцій овець, що є важливим для адаптації до змінних умов.

Ключові слова: *схрещування, барани-плідники – Мериноландшаф, вівцематки – Дніпропетровський внутрішньо породний тип Придніпровська м'ясна, помісний молодняк, відтворювальна здатність, забійний вихід, забійна маса, маса туші, ґатунковий склад.*

Introduction. The economic and political environment, as well as priorities for food and agricultural production, have changed significantly since the beginning of the millennium. All this has relevant consequences for global agricultural production, including farms of different subordination in Ukraine.

Increasing in sheep farming production can be achieved mainly by increasing the productivity of the reproductive capacity, the preservation of breeds and the further increase of the sheep population. In this regard, the search for cost-effective, financially justified, technologically simple methods of increasing animal productivity is relevant (Polli V. A. et al., 2022; Şirin E. et al., 2024).

Sheep farming in Ukraine has been and will remain a branch of agricultural production since ancient times and takes into account national traditions and the range of products obtained.

The pace of improving the productivity of economic facilities in the industry is fully dependent on the complex action of interrelated factors, among which the feed base, adopted technology and organization of production, selection and breeding work and reproduction of flocks play a significant role in this process (Zayed M. A., Shehata M. F., Ismail I. M. et al., 2022). It should be taken into account that at the current stage, the general strategy of the industry's development is its reorientation from obtaining wool of different quality to an intensive increase in the production of meat and milk, and the rapid growth of the urban population and the reduction of the rural population require extremely high, for traditional concepts, rates for the creation of flocks of sheep with appropriate productivity (Abebe A. et al., 2023).

Therefore, solving the urgent problems that have arisen is possible not only by increasing the level of productivity in economic facilities, which takes place by selecting the best offspring in terms of productivity, but also by introducing a system of crossbreeding, taking into account the combining ability of the participating breeds in this process (Černá M., Margetín M. et al. 2023).

Lee Jung Hoon (2024) established that the well-known and most effective method of rapidly changing the heredity of traits in sheep, improving them and creating highly productive genotypes based on them, is crossbreeding, as its biological essence consists in the enrichment and expansion of hereditary information in subsequent generations.

However, crossbreeding remains a relevant and important study from a theoretical and practical point of view, since it is associated with the general biological problem of enriching the gene pool, increasing the hereditary variability and productivity of crossbred animals, creating new breeds of livestock, etc. (Vanli Y. and Kaygisiz A., 2024).

For a long time, crossbreeding in sheep farming was used in order to obtain both additive and non-additive genetic variability for one or another productive trait. Moreover, the success of this technological measure depends on the skilful selection of initial breeds, which are characterized by a good combining ability in terms of the level of the main productive traits, the realization of the genetic potential of which is possible only if, on this basis, the appropriate technological conditions are created for the lambs in the postnatal ontogenesis (Al Nehood Sudan S., 2024).

The efficiency of crossbreeding in livestock, including sheep farming, is determined by the combined ability of parental forms (lines, breeds) and the type of inheritance of traits by hybrid offspring (Hanoglu Oral H., Kecici P. D. et al., 2023). Therefore, in order to assess the perspective of various methods of crossbreeding in sheep farming with the use of merinolandschafs as an improving breed, it is necessary to carry out special studies, which aim to determine the type of inheritance of the main economically useful traits. From the practice of selection work, it is known that the improving breed can be used directly to obtain a heterosis effect in simple and complex variants of industrial crossbreeding, or in special programs of absorptive and introductive cross-

breeding in case of a predominantly additive type of gene action and a minor maternal influence caused by the original breed (Zayed M.A., Shehata M.F. et al., 2022).

In general, despite the widespread recognition of the crossbreeding system in commercial sheep farming, there is still not a sufficient level of knowledge to develop an appropriate breeding program for the maximum full exploitation of the potential genetic capabilities of sheep.

The purpose of the research is to establish the efficiency of using ewes of the Dnipropetrovsk inbred type of the Prydniprovska meat breed (DTPm) in industrial crossbreeding with Merinolandschaf breeding rams (Ml) and its effect on the level of meatiness of the lambs.

Research materials and methods. The work was carried out at *V.E. Balak LLC*, Pavlohrad District, Dnipropetrovsk oblast. The subjects of the research were ewes of the Dnipropetrovsk inbred type of the Prydniprovska meat breed and breeding rams of the Prydniprovska meat and Merinolandschaf breeds.

In order to study the efficiency of the crossbreeding, 2 groups of ewes were formed by the method of peers. The first group is the control group, to which the DTPm breeding rams are assigned, the second group is the experimental group of the Ml breeding rams. Each group has 100 heads.

Artificial insemination was carried out with freshly obtained sperm with an activity rating of at least 8 points and a concentration of 200-250 thousand gametes in one sperm dose of 0.12-0.15 ml. Insemination was carried out in August, and lambing took place in January. From breeding rams of DTPm and Ml breeds and ewes, purebred (p/b) and crossbred lambs (F_1) were obtained.

According to the existing methods, the reproductive capacity of ewes, the preservation of lambs, growth and development, and the level of their meat productivity were studied and described. The reproductive capacity of the ewes was determined by the level of fertilization, fertility, the number of live lambs and the level of preservation until weaning.

The study of growth and development, with the calculation of absolute and average daily growth, was carried out on the basis of periodic weighing.

In order to carry out studies on the assessment of growth and development, the level of meat productivity of lambs obtained in accordance with the research scheme, two groups of 20 heads were formed according to the principle of peers.

During experimental research, the international requirements of the "European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes" (Strasbourg, 1986) and the corresponding Law of Ukraine "On the Protection of Animals from Cruelty Treatment" No. 3447-IV of 21 06. 2006 were followed.

All materials were processed by the method of variational statistics using the programs STATISTIKA, Excel.

Research results. In industrial crossbreeding in sheep farming, the choice of starting breeds and the level of their combining ability becomes of great importance, which makes it possible to ensure the success of this activity in the future.

As a maternal basis, when conducting crossbreeding research, we chose a breed of sheep – Prydniprovska meat (DP), which has a fertility level of 145-150% and is characterized by good meat qualities and excellent adaptogenicity to various agri-ecological conditions of housing in Ukraine.

According to the research scheme, the improving breed in this crossbreeding is Merinolandschaf (Ml), which has a good level of reproductive capacity and is characterized by a significant energy of growth and development of lambs. The prerequisite for

this was also the fact that breeding rams of the Ml breed were used in the process of reproductive crossbreeding in the formation of a new line as part of the Kharkiv inbred type of the Prydniprovska meat breed, while this method was not used in the scheme of forming the Dnipropetrovsk type. In this regard, the involvement of the gene pool of the mentioned sheep breed, the largest in terms of live weight, to improve the meat productivity of DT Pm is justified.

The evaluation of the productive qualities of ewes and breeding rams participating in the crossbreeding was carried out based on the results of the preliminary evaluation.

Breeding rams of both breeds had a strong body type, a harmonious body structure, with well-defined fleshy forms. Moreover, the body is mostly long, wide and deep, with rounded ribs, thin, dense and light bones. All parts of the body are proportionally developed, which characterizes these breeds as intensive, of meat-oriented productive use. The conducted analysis of the level of productivity of breeding rams indicates their compliance with the meat type, and according to live weight, they are classified as elite (Table 1).

Table 1

Productivity of breeding rams, X ± Sx, n = 5

Indexes	DT Pm	Ml
Live weight, kg	104.4 ± 6.20	113.1 ± 8.41
Wool shearing, kg	5.5 ± 0.17	6.1 ± 0.24
washed fiber, kg	3.3 ± 0.17	3.7 ± 0.34
Yield of washed wool, %	59.8	61.2
Wool length, cm	12.7	10.3
Coefficient of woolliness, g/kg	31.6	32.6

The phenotypic feature of breeding rams that were used in industrial crossbreeding is that they are lumpy and have a broad, medium-length head, while the neck is short, wide with intensive development of muscle tissue. With regard to the wool cover, the fleece is dense, staple structure, and the wool is aligned by finess.

The average live weight of breeding rams is at the level of 104.4-113.1 kg, wool shearing in physical weight is 5.5-6.1 kg, and the yield of washed fiber is 59.8-61.2%, respectively, in DTPm and Ml. Moreover, the coefficient of wooliness of breeding rams is in the range of 31.6-32.6 g/kg, which indicates a direction towards the meat production.

The size of offspring, or the number of lambs born, calculated per ewe is one of the important economic indicators of the efficient use of sheep and is more important than the weight gain of individual lambs in the period of postnatal ontogenesis. Therefore, obtaining the maximum number of lambs in one biological cycle is an indicator of the reproductive performance of the ewes, and a sufficient level of milk yield makes it possible to fully preserve the lambs until weaning, which ensures the competitiveness of the sheep farming industry as a whole.

Fertility of ewes is the number of lambs obtained at lambing and weaning per 100 ewes. This indicator in sheep is mainly considered as a maternal trait, but at the same time they do not rule out the idea that a significant role (value) in this process is played by both the fertilizing ability of the breeding rams and the genotype of the fetus. As an improving breed in terms of the level of reproductive capacity, the Merinoland-

schaf breed, characterized by average fertility at the level of 180-215%, was chosen for research.

The level of reproductive capacity of DTPm ewes during purebred breeding and industrial crossbreeding indicates that the fertilization of ewes is within 96.0-97.0% (Table 2).

Table 2

Reproductive capacity of ewes

Indicators	Group	
	I	II
Fertilized ewes, in total	100	100
Ewes given birth, in total	96	97
Fertility rate, %	96.0	97.0
Obtained lambs, in total	135	163
Fertility of ewes, %	140.6	168.4
Number of lambs at weaning	131	159
Preservation of lambs, %	97.0	97.5

Ewes of the second group were characterized by an increased level of fertility and it was 168.4%, which is 27.4% more than in the first group. During industrial crossbreeding, 163 lambs were obtained from ewes, which is 20.7% more than from purebred breeding.

The indicator of preservation of lambs, as the ratio of their number at weaning to the total number of live lambs at birth, indirectly indicates the level of viability of the flock.

The preservation of lambs of various genotypes before weaning was 97.0-97.5% and indicates that the ewes of the DTPm breed are characterized by excellent maternal qualities, have good milk yield, and both ewes and lambs had appropriate physiological state and conditions of housing created for them.

Thus, in this industrial crossbreeding, positive results were obtained in terms of the reproductive capacity of ewes of the Prydniprovska meat breed with simultaneous maximum preservation and high viability of the lambs before weaning.

Body weight is an integrated quantitative indicator that characterizes the growth rate and level of fleshiness in sheep farming. Knowledge of the patterns of growth and development of livestock has not only theoretical, but also practical significance, as it allows to substantiate the complex of conditions scientifically that must be provided to the objects of management in order to realize their genetic potential for this productive trait.

When forming the meat productivity of sheep, the period of their growth and development is crucial, especially at postnatal ontogenesis. At this period, deep changes are taking place in organs and tissues increasing the intensity of metabolism and, as a consequence, increasing live weight.

Body weight of the objects of management in sheep farming is an important component of the selection process with the implementation of works related to the meat productivity of sheep. In the obtained lambs, depending on the origin, the body weight was determined by weighing at birth and in the main technological periods up to 8 months old with the subsequent determination of absolute and average daily growth. It was different in lambs depending on the genotype and period of growth (Table 3).

Table 3

Body weight of lambs, X ± Sx

Indicators	Group	
	p/b	F$_1$
at birth		
body weight, kg	4.2 ± 0.26	4.6 ± 0.32
4 months old		
body weight, kg	26.2 ± 2.43	29.7 ± 1.78
absolute growth, kg	22.0 ± 1.96	25.1 ± 2.10
average daily growth, g	183.3 ± 18.67	209.2 ± 23.75
8 months old		
body weight, kg	39.4 ± 2.53	45.30 ± 2.,21
absolute growth, kg	35.3 ± 2.46	40.7 ±3.43
average daily growth, g	147.1 ± 22.87	169.6 ± 14.69

Crossbred lambs at birth exceeded their purebred peers by body weight by 9.5%, at the age of 4 months – by 13.3%, at the age of 8 months – by 14.9%.

The conducted analysis indicates the maximum intensity of increase in body weight of lambs at the age of 4 months where crossbreds exceed purebred peers by 14.1% in terms of average daily growth. Nevertheless, by the age of 8 months, the level of metabolic processes associated with the increase in body weight decreases in the experimental lambs by 23.3-24.6%, which is indicated by the average daily growth rate.

In terms of the absolute growth in body weight, crossbred lambs during the weaning period exceeded purebred peers by 14.1%. By the age of 8 months, according to this indicator, the level of dominance was 15.3%.

For the period from birth to the age of 8 months, the growth factor of crossbred lambs is at the level of 8.8 compared to 8.4 for peers of the Prydniprovska meat breed, which indicates a significant level of metabolic processes associated assimilatively with meat orientation.

Considering the industry of sheep farming and its versatility in terms of production direction, currently, the production of meat, milk and rearing and sale of reproductive lambs is a more economically justified direction. The reorientation from wool to meat-dairy direction of the production is connected with the mismatch of price parity between the costs of production and the price of wool on sale, as well as with the insufficient supply of food to society, and the industry is ecologically clean, high-calorie, of organic origin raw material

The process related to fleshiness should be considered from the point of view of the stages of growth and development of lambs, as well as the process of transformation in the body of nutrients of plant origin into animal products and is determined by the nature of the growing organism itself, its internal laws, according to which the assimilation of environmental factors takes place.

Nevertheless, indicators that determine the level of fleshiness of live animals do not provide complete information about its true state, since, for the most part, they indicate only its potential level. Therefore, for a full and objective assessment of this indicator in sheep, it is necessary to slaughter animals, based on the results of which the slaughter weight, carcass weight, and slaughter yield are determined, followed by the determination of the grade composition of the carcass and morphological differences.

According to the results of the control slaughter, a comparative evaluation of the meat productivity of lambs of different origins was carried out at the age of 8 months (Table 4).

Table 4

Slaughter qualities of lambs (n = 3)

Indicator	Group	
	p/b	**F$_1$**
Pre-slaughter live weight, kg	39.4 ± 2.38	45.3 ± 3.64
Mass of chilled carcass, kg	18.9 ± 1.42	22.6 ± 2.09
Mass of internal fat, kg	0.4 ± 0.02	0.5 ± 0.03
Slaughter weight, kg	19.3 ± 1.45	23.1 ± 2.54
Slaughter yield, %	48.9	51.0
Carcass yield, %	47.96	49.99

Crossbred lambs dominated their purebred peers in pre-slaughter live weight and slaughter weight by 14.9 and 19.6%, respectively, while the proportion of internal fat was lower in purebred lambs by 25%.

After the slaughter, the slaughter yield was established as one of the main criteria for evaluating the level of meat productivity, which is characterized by the ratio of the carcass weight together with internal fat to the pre-slaughter live weight and indicates a certain advantage in crossbreds (+ 2.1%). Studies have proven that when the slaughter weight increases, the slaughter yield also increases. In crossbred lambs, the slaughter weight was higher, by 19.7%, with a slaughter yield of 51.0%, which is a good indicator for this characteristic for meat-type sheep with a production focus.

One of the tests that makes it possible to additionally evaluate the qualitative characteristics of raw lamb is to determine the morphological composition of the carcass, where the most valuable parts are considered to be the parts with the minimum amount of bones and the maximum amount of muscle tissue. The specific proportion of muscle tissue in the carcass was determined by mechanical crushing and dividing it into its main components (Table 5).

Crossbred lambs are characterized by better meat qualities than their purebred peers, where the dominance of chilled carcass weight and pulp weight is 19.6 and 22.7%, respectively, while the relative yield of pulp in crossbreds was higher by 2, 1%, with a smaller amount of other structural components of the carcass.

Table 5

Morphological composition of carcasses

Indicator	Group	
	p/b	**F$_1$**
Mass: chilled carcass, kg	18.9 ± 2.42	22.6 ± 2.49
pulp, kg	14.5 ± 1.28	17.8 ± 1.61
bones, cartilage and tendons, kg	4.4 ± 0.13	4.8 ± 0.11
Yield: pulp, %	76.7	78.8
bones, cartilage and tendons, %	23.3	21.2
Coefficient of fleshiness	3.3	3.7
The area of the "muscular eye", cm	16.8 ± 0.61	20.8 ± 0.29

For objective evaluation of the level of meatiness in sheep, a coefficient is used that indicates the ratio between the mass of muscle tissue and bones, while it is believed that the higher this indicator, the better the quality of lamb. The comparative analysis of this indicator in lambs of the experimental genotypes indicates a difference of + 12.1% in favor of crossbred peers.

As for the area of the "muscle eye", as a cross-section of the longest back muscle (m. Longissimus Dorsi), which indirectly indicates the content of muscle tissue in the carcass, this indicator was higher by 23.8% in crossbred lambs.

Consumer demand for mutton is constantly increasing, therefore, the comparative analysis of the grade composition of meat in experimental lambs of the newly created genotype has not only theoretical, but also practical significance from the point of view of the economic efficiency of sheep production.

The amount of meat raw materials of the I grade in the carcasses of crossbreds is 21.1% more compared to the indicators characterizing purebred peers, while the share of raw materials of the II grade is only 6.2% against 7.4% in DTPm.

The ratio of individual anatomical parts in carcasses characterizes the quantity and quality of meat products, as their taste properties and culinary value are different.

Considering cuts, depending on the grade, it was established that their specific share in relation to the total mass of the carcass is different (Table 6).

Table 6

The grade composition of lamb carcasses

Indicator	Group	
	I	II
Mass of chilled carcass, kg	18.9 ± 0.427	22.6 ± 0.498
Grade I: kg	17.5 ± 0.35	21.2 ± 0.444
%	92.6	93.8
Grade II: kg	1.4 ± 0.05	1.4 ± 0.06
%	7.4	6.2

The mass of grade I cuts in absolute and relative values was bigger in the carcasses of crossbred lambs. The difference in the weight of grade I cuts was 21.1%, and of grade II cuts was 1.2% more in purebred lambs.

The results of industrial crossbreeding in sheep farming using DT of the Prydniprovska meat breed and the Merinolandschaf breed indicate the prospects of its implementation in order to improve the indicators of meat productivity when obtaining crossbred lambs and the level of reproductive capacity, which are components of efficient production.

Discussion. Using crossbreeding as a method of rapid heredity change, it is very important to make the correct selection of improving breeds for obtaining lambs that, in one leading (dominant) trait, or simultaneously in several traits, surpass the maternal base, and sometimes the parental base, which was taken for crossbreeding and due to the biological manifestation of heterosis.

The fertility of sheep mainly depends on the breed and the level of heritability for this trait, where genetics and selection account for 25-30% of the set of measures related to reproduction.

Moreover, the multifertility indicator is influenced to a certain extent by the breeding ram used in the system of insemination of the reproductive stock, and at the current stage it is identified with the number of lambs obtained in the future.

Therefore, using Merinolandschaf breeding rams in industrial crossbreeding, which are characterized by significant fertility on ewes of the Dnipropetrovsk type of the Prydniprovska meat breed, an increased level of fertility was obtained, which is 22.9% more compared to purebred sheep farming.

The important indicator of the postnatal ontogenesis of lambs, especially newly created genotypes, is their body weight, average daily and absolute growth in different age periods. Establishing the dynamics of changes in these indicators makes it possible to observe and control the intensity of metabolic processes of assimilative orientation in a growing organism (Güngör Ö. F., Özbeyaz C., Ünal N. and Akçapınar H., 2023).

The research conducted by Imanpour A., Ganjkhanlou M., Alipour A. et al., (2024) proved that in intensive meat sheep farming, lambs are characterized by an increased level of metabolic processes up to the age of 4 months, with some slowdown thereafter. Moreover, the formation of fleshiness in lambs is associated with an increase in the amount of muscle and bone tissue, the degree of maturity of the growing organism itself, meat precociousness, the term of postnatal development, with the simultaneous formation of the exterior-body type (Mutinda S.M., 2024).

The assessment of the level of meat productivity in sheep farming is based not only on quantitative indicators, but also on qualitative indicators, while additionally establishing a number of signs for a more complete characteristic of this indicator, since this productive sign is closely related to both growth and development of lambs at different stages of postnatal ontogenesis (Tunio S. A., Naeem M., Behan A. A. and Kaka A., 2023).

Growth as a process related to heredity is determined by the intensity and nature of its course, since according to the theory of differentiated (heterogeneous) growth, in the early stages of ontogenesis, the growth of nerve, bone, muscle, and fatty tissues prevails. However, the growth rate of the skeleton in the post-embryonic period in lambs is lower than that of muscle and fat (Cam M. A. et al., 2021).

Due to the intensity of metabolic processes in a growing organism, the absolute and average daily growth rates change dynamically, while crossbreds with the additive interaction of genes due to the effect of heterosis demonstrate increase in these indicators by 13.3-14.9%.

Conclusions

1. When crossbreeding ewes of the Dnipropetrovsk inbred type of the Prydniprovska meat breed with Merinolandschaf breeding rams, the fertility level increased by 27.4% and the number of crossbred lambs obtained was 20.7% more than purebred peers, while preserving lambs until weaning at the level of 97 ,0-97.5%.

2. There is an intensive increase in body weight up to the age of 4 months, with a further slowdown up to the age of 8 months, while the level of growth decreases by 18.9-19.8%, depending on the origin.

3. Crossbreds in terms of pre-slaughter and slaughter weight dominate by 14.9% and 19.6% over purebred peers with a slaughter yield of 48.9-51.0%, respectively.

4. The coefficient of meatiness in crossbreds is 12.1%, and the yield of first-grade meat is 21.1% more than in purebred lambs.

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