

CHARACTERISTICS OF THE INITIAL RACES AND HERDS WHICH WERE THE BASIS OF CREATION TYPE OF SHEEP MOLDAVIAN KARAKUL

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Abstract

The purpose of the present research was to highlight the biological and morpho-productive particularities of the initial Țuşca and Karakul sheep races and herds from experimental households, involved in the process of creating the new type (race) of Moldavian Karakul sheep. Scientific research was conducted on the biological material of purrace Karakul sheep, imported from Central Asia and the local race Țuşca and its crossbreeds (Țuşca x Karakul) of different generations, raised on farms: Kotovski sovkhov, Căinari district and the "Agrosargal" Agricultural Production Cooperative, Hânceşti district. Research has shown that the local Țuşca sheep race is an ancient one with mixed production skills for milk-furskins-wool, being a rustic one with well-preserved biological features, expressed by unpretentiousness in food and maintenance conditions, increased resistance to weather and disease, having a fairly good milk productivity. At the same time, the Țuşca sheep race is a late one, with a low body weight and low meat skills. The quality of the furskins obtained from lambs slaughtered 1-5 days after birth is low, characterized by the presence of inferior quality scattered curls, such as the types: rings and semi-rings, peas, manes, corkscrew. The Asian Karakul sheep race is unique in the world with distinct biological features from other races. Karakul lambs at birth have an extraordinarily beautiful fur, characterized by the presence, on the entire surface, of valuable elastic curls of wave type, bob, narrow and long ridges of milled type, with silky and shiny hairy coating, of different colors (black, white, greyish, brown, gray, pink) and colors (greyish - blue, silver, marble, grayed; gray - gold, silver, bronze, platinum, diamond, amber), which is rightly considered a luxury fur. At the same time, the Karakul sheep race has some disadvantages, such as: very low milk production, body mass and meat skills quite low, increased sensitivity to air humidity and wet lowland pastures, excessive susceptibility to helminthic diseases. The initial flocks of sheep Karakul, Țuşca and their crossbreeds (Țuşca x Karakul) from the farms of the experimental households had the breeding value and the degree of development of the morpho-productive characters below the level of the standard-purpose requirements. Based on these findings, a genetic amelioration methodology was developed for the creation of a new type of Moldavian Karakul sheep, based on the application of methods and procedures for selection of Țuşca x Karakul sheep according to a defined complex of morpho-productive characteristics: fur quality, body mass (meat aptitude) and milk production.

Key words: particularities, biological, morpho-productive, herds, initials, sheep, Țuşca, Karakul

INTRODUCTION

According to current research [3], based on FAO data [12], more than 1129 sheep races are raised in the world. In different geographical areas of the world were created by humans, raised and spread those races of sheep that, meeting the requirements of

society, corresponded more adequately to local traditions and pedo-climatic conditions.

In the Republic of Moldova, oviculture is one of the oldest and most traditional branches of the livestock sector [32, 33].

Sheep ensure the food security of the rural population with dairy products (cheese, urda) and meat, and the processing industry - with raw materials (furskins, furs, hides, wool), efficiently using natural pastures and vegetable waste after harvesting crops. For these reasons,

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oviculture is an accessible and indispensable branch for the rural population and of major importance for the national economy [2].

According to historical traditions, in the North and Central areas of the Country, the natives raised the Țușca sheep race, with mixed production skills for milk-furskins-wool, but the qualities of the furskins were inferior. In order to improve their qualities, the local Țușca race began to be absorbed by crossbreeding with the Karakul breeding race, imported from Central Asia. Imports of Karakul sheep into Bessarabia were made periodically, from 1884 until World War II [5].

During the post-World War II period (1947-1979), imports of Karakul sheep from Central Asia were made permanently, and the local Țușca sheep race was practically replaced by the Karakul race through mass absorption crosses [14-17, 25-31, 34-35]. As a result of these crosses, it was observed that the level of milk production and body mass (meat production) in sheep began to decrease, which did not correspond to the traditions of sheep farming as milk and meat producers [7, 14].

This degrading situation was created due to the lack of an objective and critical analysis of evaluation of the biological particularities of the initial races of sheep, involved in the process of improvement of the local Țușca race in the conditions of the Republic of Moldova. The process of genetic amelioration of local sheep also stagnated due to the application, at that time, of unilateral selection, only according to fur skin quality, without taking into account the specificity of their phenotypic and genotypic correlative links with the main productive characters (body mass, milk), without estimating the degree of heritability and variability of the characters and selection traits [2].

About the importance of appreciating the biological and morpho-productive particularities of the races involved in crossbreeding, it was emphasized at the time by the classics of animal husbandry [18, 24, 37].

For example, the famous academician Борисенко Е.Я., mentioned that *“When choosing races for crossing, the basic direction of animal husbandry in the given district and the purpose of crossing should be*

taken into account. If, for example, crossbreeding is applied to the breeding of one race with the help of another, then the breeding race, in terms of productivity, must correspond to the main purpose of breeding, be biologically well adapted to local environmental conditions and be distinguished by a fairly stable heredity, to constantly transmit its qualities to the race subject to amelioration. From the mixed-race offspring, born from the females of the local race, the best individuals must be chosen, well developed, with high vitality and well adapted to the environmental conditions”[18].

Academician Pascal C., in his valuable "Treaty for the rearing of sheep and goats" revealed that, *"Knowledge of the primary forms from which the current races of sheep are derived is useful both for the process of breeding by selection and for the creation of new races, more resistant to environmental conditions and with a higher productive potential"*[10].

Therefore, at the anticipated phase of initiation in the Republic of Moldova of the first crosses of local Țușca ewes with Karakul rams of Asian type, a deep preliminary analysis of the biological particularities of the sheep races and herds involved in the genetic breeding process was needed. Only on the basis of such an analysis, it could be possible to develop a complex program of genetic amelioration of the local race of sheep for milk-furskins-wool and to create a new type (race) of Moldavian Karakul sheep with increased production skills for furskins-meat-milk.

In this context, the purpose of this research was to highlight the biological and morpho-productive particularities of the initial Țușca and Karakul sheep races and herds from experimental households, involved in the process of creating the new type (race) of Moldavian Karakul sheep.

MATERIALS AND METHODS

Scientific research has been conducted on the biological material of pure race Karakul sheep, imported from Central Asia, and the local race Țușca and its crossbreeds (Țușca x Karakul) of different generations, raised on farms: the "Kotovski" sovkhov, Căinari district

and „Agrosargal” Agricultural Production Cooperative (APC), Hâncești district.

The description of the biological and morpho-productive particularities of the initial races of sheep was made both on the basis of the analysis of the information from the profile literature, as well as on the basis of their own scientific research [4].

The assessment of the breeding value and morpho-productive performances of the sheep from the initial flocks, which were the basis for the creation of the new type of Moldavian Karakul sheep, was carried out in accordance with the provisions of the Instructions for rating Karakul sheep with breeding principles in the Republic of Moldova [6].

Based on the analysis of the breeding value of the biological material from the initial herds, a selection methodology was developed to create a new type of Karakul sheep, which included the application of a number of well-known methods in animal husbandry, as well as some improved or developed procedures and methods of us.

The main of these methods and procedures applied were:

- the annual assessment of all the animals in the herds and of the herds as a whole according to the main indices of the morpho-productive characters followed;

- the use, at the first stages, of the progressive directed method of selection according to the primordial character - the quality of the furskin;

- the use, at the later stages, of the progressive directed method of selection according to the independent limits of several characters (furskin quality, body mass, milk production);

- the „in itself” breeding of sheep of the desired type with the use of distant, moderate and, in some cases (1982), even close inbreeding, of the semi-fraternal x semi-sister type;

- assessment of the furskin qualities of the lambs according to the scoring system, according to the rating Instructions, elaborated by us;

- application, when selecting greyish rams for breeding, of the metric method for assessing the morphological structure of the hair coat - according to the numerical ratio of black and white fibers, their thickness and length (determined under a microscope), as

well as according to the length of white and black fibers;

- the use, when mating sheep, of both heterogeneous and homogeneous mating methods by color, type of looping and class of animals;

- elaboration and annual application of concrete mating plans nominated (by genotype) and in groups (by class, color, type of loop);

- the application, when testing rams according to the qualities of the descendants, of the method of comparison with the average of the congeners as a whole per herd and the appreciation of the certainty of its difference according to the criteria developed by us [8];

- appreciation of the milk production of the sheep both by the calculation method (according to the increase of the lambs' body mass at the age of 20 days), and by the control milking on the entire lactation, according to Tudor Nica's method [9];

- appreciation of the bodily development and the growth speed of the youth through the method of individual weighing at birth, at 20 days, at 3 months (weaning), at 6 and 18 months;

- annual determination of the main genetic parameters for the selection of sheep populations.

These selection methods and procedures were widely applied annually to the creation of selected groups (breeding nuclei) for the reproduction of the required type of sheep Moldavian Karakul.

RESULTS AND DISCUSSIONS

Țușca aboriginal race. The Țușca sheep race has its origins in antiquity. On the territory of the Republic of Moldova, it is well known from the works of Moldovan chroniclers for tasty cheese, hat furskins, warm furs, delicious lamb and wool for Moldavian carpets. Țușca sheep are rustic, well acclimatized, unpretentious to the conditions of maintenance and food, have a robust constitution, the organism resistant to various diseases, especially those of helminthosis, and weather conditions [28].

According to Kayфман И.С. [36] (one of the largest sheep owners in Bessarabia - the former Governorate of Tsarist Russia), from the Țușca sheep, the native population obtained multilateral benefits, such as: sheep

fur from which hoods were made; coarse wool from which knitted garments were made (catrines, sweaters, gloves, stockings), cloths for coats and felt, traditional Moldavian carpets; lambskin for furskins from which hats and coats for coats were made; ewes milk from which cheese (cheese), urda, sour milk, butter were prepared; lamb meat or sheep youth from which pemmican or other dishes are prepared.

According to the report of Prof. Ильев Ф.В. [28], from lambs of this race, slaughtered at the age of 3-5 days, were obtained the furskins „smușca” of poor quality, usually having worthless curls in the shape of a corkscrew, ringed and semi-ringed. The milk was obtained from ewes, from which Moldavian cheese was traditionally prepared, much in demand by both the native and the foreign population. The coarse wool of the Țușca sheep was widely used in the making of traditional carpets, cloths and other garments. Sheep and lamb meat were and are used in human food as about 55-70% of newborn lambs are slaughtered for their furskins, and carcasses are traditionally used in human food, under the name of "Easter lamb".

At the same time, the Țușca sheep is a late, poorly productive animal. Wool is coarse, composed of three fractions or types of fibers: thick fibers - with a diameter of over 42μ , intermediate fibers - with a diameter of 28 to 42μ , and down fibers - with a diameter of up to 28μ [28].

According to the zoological classification, this race belongs to the group of sheep with a "thin and long" tail.

According to the productive characteristics, Țușca sheep represent the mixed type of production for milk-furskin-wool. The body mass of a sheep (fig. 1) is on average 42-45 kg. The trunk of the sheep is pear-shaped. Elongated head with straight profile. Sheep are both hornless and horned, often rudimentary.



Fig. 1. Ewes of the Țușca race (photo Ильев Ф., 1969)

The ears are small, directed in parts or forward. Long, thin tail. There are also many short-tailed sheep. The udder has a globular shape with well-developed nipples. Țușca ewes show good milk production. The average milk production per lactation lasting 150 days is over 100 kg. The average raw wool production of a sheep is 2.5-3.0 kg. The prolificacy of the ewes is not high and constitutes 105-110% [28].

Rams have semi-spiral twisted horns (fig. 2).

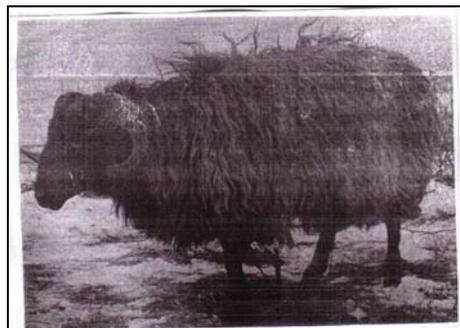


Fig. 2. Ram from the Țușca race (photo Ильев Ф., 1969)

The body weight of a ram is 55 - 65 kg. The limbs are very sturdy. The capital horn is resistant to necrobacterial disease. The coarse wool coat covers the animal's body very tightly. The wool production of rams is 3.5 - 4.5 kg. The type of constitution in most rams is robust, with tendencies towards the coarse one.

At birth, Țușca race lambs are underdeveloped (fig. 3). At the same time,

they are very robust and stand on their feet, easily finding the mother ewes udder for the first sucking of colostrum. From Țușca lambs, slaughtered 2-3 days after birth, the furskins of poor quality are obtained, which, according to the specification, are attributed to the invaluable assortment „smușca”. On the main regions of the furskin (croup, back) there are worthless scattered loops such as rings, seeds and peas, and on the sides predominate defective loops such as corkscrew, snail, overgrown fiber strands, unrolled. The head, neck, abdomen, legs and tail are covered with long unrolled fibers, creating the impression of mustaches.



Fig. 3. Țușca race lamb (photo Ильев Ф., 1969)

The fibers are rough, with glassy or opaque luster, low black pigmentation or rust. The furskin may be black or greyish. The furskin of the greyish can be dark, medium or light. The furskins greyish of the dark shade can be grayed, pearly and hat coloring. Those of medium shade can be blue (sinite), silver, lilac [29].

Breeding race asian Karakul.

The Asian Karakul sheep race is unique in the world with distinct biological features from other races. Karakul lambs at birth have an extraordinarily beautiful furskin, characterized by the presence, on the entire surface, of valuable elastic curls of wave type, bob, narrow and long ridges of milled type, with silky and shiny hairy coating, of different colors (black, white, greyish, brown, gray, pink) and coloring (on the skins of the greyish - blue, silver, marble, grayed; on the skins gray - gold, silver, bronze, platinum, diamond, amber). This race, rightly, is considered a

luxury, because it provides, first of all, noble furs, which are used to make very beautiful and highly appreciated (expensive) items [4].

There are two hypotheses about the origin of Karakul sheep. Some researchers [11] believe that this race originated in antiquity, in the area of the Tigris and Euphrates rivers, from where, in the Middle Ages (VII - VIII centuries), it was spread by the Arabs throughout Central Asia. Professor Adametz L. of the Agricultural University of Vienna, [1] considers that the mutation of the fat tail in sheep first occurred by 2000 years until e. n. in Syria, Palestine, Mesopotamia. Later, in mutated-tailed sheep in these regions, the mutation of the furskin curls appeared from 1500-1600 years ago to en. Aspects depicting the loincloths were found on the ancient bas-reliefs of northern Syria 1300 years ago with the appearance of the king of the Hivites (Syrian tribe), whose hat and coat collar were made of looped furskins, similar to those of Karakul.

Another group of researchers [22, 23, 39] find that the Karakul race was formed in the XVII-XVIII centuries in Karakul district, Bukhara region, hence the name of this race.

At the end of the XIX th century and the beginning of the XX th century, due to the demands of the Karakul furskins market, sheep of this race were imported to Ukraine, Bessarabia, Romania, Austria, Germany, Namibia, South Africa, where they were successfully acclimatized and are growing so far. Currently, Karakul race sheep are growing in over 50 countries around the world.

According to our estimates, the total worldwide herd of sheep of this race is over 42 million heads. The largest number of Karakul sheep is growing in Turkmenistan - 12.6 million head, Uzbekistan - 11.8 million head, Kazakhstan - 6.1 million head, Afghanistan - 5.3 million head, Namibia - 2.9 million head and Republic of South Africa - 1.3 million head [3].

Compared to other races, in addition to the original productivity, Karakul sheep have a number of other biological particularities.

First of all, being created in steppe and semi-desert conditions with a very hot and dry climate, Karakul sheep endure very high temperatures (over 50° C) and water deficit. They are able to consume water with high

salinity and capitalize on "poor" pastures with fibrous and harsh vegetation. In winter, it resists relatively well to low temperatures, but does not tolerate the climate with precipitation and high humidity, they are sensitive to lowland pastures at low altitudes, being vulnerable to helminthic diseases [19].

According to Ильев Ф.В., in some Nordic countries, helminthic invasions have become an impenetrable barrier to raising Karakul sheep in new conditions. After the importation of Karakul sheep from Bukhara to Bessarabia (1913) and Moldova (1933), in the localities of Todirești, Bender and Cucuruzeni, Orhei, where they were growing in pure race, for two years they perished due to strongyloidosis and dictiocaulosis, respectively, 17 and 60% of the imported herd [31].

Being originating from semi-desert steppes with arid conditions, their prolificacy is not high and constitutes 105 - 107% [13, 38, 40].

According to the neuro-physiological type, Karakul sheep are choleric, with an allergic temperament, easily irritable. Raised in extensive semi-desert steppe conditions, where humans, animals and means of transport are rarely encountered, Karakul sheep are very easily frightened by the appearance of any foreign object. In particular, they have a pronounced herd instinct and do not tolerate loneliness (separation of separate individuals) [20].

After the exterior, the Karakul sheep (fig. 4, 5, 6), in fact, have a small habitus, the body shape is specific, the relatively large head with a convex (convex) profile, large and blunt ears. Sheep with small ears are also found. Karakul race rams usually have horns developed of different shapes: semispiral, sickle, corkscrew, laterally oriented. The calves of the rams are small, the trunk short. The body weight of rams is 55-65 kg.

Ewes are usually hornless. The body weight of adult ewes is 40-45 kg. Milk production is low and is only 40-50 kg.

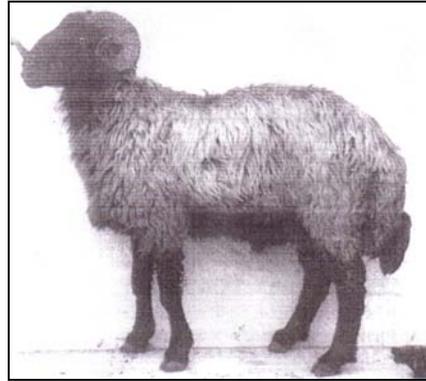


Fig. 4. Karakul race ram (photo Buzu I., 1981)

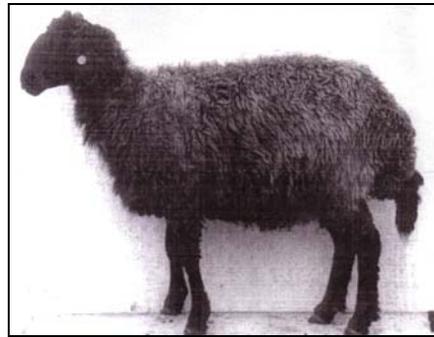


Fig. 5. Karakul race ewe (photo Buzu I., 1981)

The head, ears and legs up to the hips are covered with hair (embers) made of short, shiny and silky fibers [3]. Karakul sheep's wool is coarse, composed of three types of fibers: thick, intermediate and thin down [41].

After body conformation, Karakul sheep have a relatively short trunk length with relatively long legs.

The neck is thin and long, the thorax is usually deep and narrow, the rump chamfered, the tail wide with considerable deposits of fat. The tip of the tail is fat-free, thin and curved in the shape of the letter «S». According to the zoological classification, this race belongs to the group of sheep with a "thick and long" tail. The limbs are thin and dry, with the right aplomb. The height at the withers of ewes, on average, is 61 cm, the oblique length of the trunk - 65 cm, the perimeter of the chest - 77 cm [3].

Karakul lambs, at birth, have a body weight of 4.0-4.5 kg, with a specific external appearance, long, thin ears, beveled rump [21, 42].



Fig. 6. Lambs of the Asian Karakul race (photo Гигинейшвили Н.С., 1976)

The furskin qualities of the lambs are exceptional, expressed by the silky and shiny hairy coating, formed by wave-shaped curls, grain, milled furrows, modeled in parallel-concentric design with a pleasant aesthetic appearance.

Sheep skins are also obtained from Karakul sheep, useful for making sheepskins, as well as up to 2-3 kg of uneven, coarse wool, appreciated for making carpets and felt. In the breeding area of this race are appreciated the carcasses of lamb obtained after slaughter for the furskin, the carcasses of young (6-18 months) well fattened, as well as milk, which is mostly used by locals as a raw material for cheese preparation and yogurts with local destination.

Given that Karakul lambs are slaughtered at the age of 1-3 days, the ewes released by the lambs can be milked, which increases the economic efficiency of exploitation of this race.

The original flock of sheep from the Kotovski sovkhos, Căinari district.

This herd, in fact, has a genealogical connection with four famous breeders in Uzbekistan, such as the "Karnab" sovkhos, the "Kenimeh" sovkhos, the "Nurata" sovkhos and the "Lenin" kolkhoz, of which, from 1978 to 1979, imported 4769 heads of pure-blooded black Karakul sheep.

In 1979, the herd was completed with 871 sheep from the local Țușca race and half caste (Țușca-Karakul) greyish, brought from Telenesti district, Republic of Moldova.

The breeding male consisted of 19 Karakul rams, imported from the Lenin kolkhoz, Uzbekistan, 5 local Țușca race rams, purchased from the individual household sector (Sălcuța village), and 2 Karakul rams from Askania type, purchased from the district. Ananiev, Odessa region, Ukraine (tab. 1).

Table 1 Composition of the initial flock of sheep from the Kotovski sovkhos

The household from which the sheep were purchased	Year of purchase	Total head	Race	inclusive					
				elite		class I		class II	
				head	%	head	%	head	%
Ewes									
s-hoz «Karnab»	1978-1979	3152	Karakul	198	6.3	1932	61.3	1022	32.4
s-hoz «Kenimeh»	1978	998	Karakul	78	7.9	474	47.5	546	54.7
s-hoz «Nurata»	1978	421	Karakul	4	1.0	162	38.5	255	60.5
k-hoz «Lenin»	1979	198	Karakul	5	2.5	139	70.2	54	27.3
k-hoz Măndrești, dist. Telenesti	1979	871	Țușca (greyish)	-	-	254	29.2	617	70.8
Breeding rams									
k-hoz «Lenin»	1979	19	Karakul	-	0	19	100	-	-
household village Sălcuța	1978	5	Țușca (greyish)	-	0	5	100	-	-
dist. „Ananiev”	1980	2	Karakul	-	0	2	100	-	-

It was found that the most valuable flock of sheep, according to the breeding qualities (ranking), was the one imported from the sovkhoses "Lenin" and "Karnab". In these herds there were 2.5 - 6.3% of elite class animals and, 70.2 - 61.3% of class I. The sheep of class II in these herds occupied a moderate weight of 27.3 - 32.4 %.

The breeding qualities of sheep imported from the Kenimeh and Nurata households were much lower and were below the requirements of the breeding farms. It is enough to mention that the majority of sheep (54.7 - 60.5%) were of class II, and the share of higher class animals in these herds was very small.

In this sense, the breeding value of the Țușca sheep, procured from the village of Mândrești, Telenești district, did not yield

much to the flock of sheep imported from the "Nurata" sovkhos. The vast majority of them (70.8%) were class II and only 29.2% of sheep were class I.

The breeding value of rams imported from the "Lenin" sovkhos was also of the lowest class (class I) permissible for use in breeding. Elite upper-class males were completely absent from the ram herd.

The herd sheep of the Agricultural Production Cooperative (APC) «Agrosargal», Hâncești district.

At the beginning of the breeding stage (1993), this herd was very varied and with a low breeding value (Tab. 2).

Most of the sheep were of the Țușca or mestizo race (Țușca x Karakul) of different generations. The sheep ranking was below average.

Table 2 Composition of the initial flock of sheep Țușca-Karakul from APC "Agrosargal"

Sex group and age	Nr. of head	Ranking				Tip of curling			
		Class I		Class II		Jacket		Kaukasian	
		head	%	head	%	head	%	head	%
Rams reproduction	25	19	70	6	30	17	68	6	24
Ewes	712	292	41	420	59	230	32	472	66
Ewes young 18 months	209	82	39	125	60	73	35	123	59
Ewes young 6 months	284	114	40	165	58	108	38	170	60
Total on the herd	1230	507	41	716	58	428	35	771	63

In 1993, only 70% of breeding rams were class I. The rest of the rams were class II or non-class. In all sex and age groups, elite class sheep were missing. Overall in the herd, there were only 41% class I sheep, and the rest class II or no class.

Depending on the type of curling, the sheep left much to be desired. Most sheep had the most valuable type of curling – Kaukasian. Sheep with the costal curling type made up only 1.4%, and with the flat curling type - they were completely missing.

The body development of the sheep was also unsatisfactory. Breeding rams were far inferior to those to be used for herding. For example, the body mass of breeding rams in 1994 was 60.7 ± 1.8 kg, sheep 40.5 ± 0.2 kg, 18-month-old ewes - 36.5 ± 0.3 kg and sheep youth 6 ewes - 25.1 ± 0.2 kg.

The ranking of the lambs obtained had some specific inferior qualities, which were

reflected during several years of activity in this herd. Most lambs were class II. In 1994, unwanted lambs (class II) accounted for 68%.

According to the type of curling, most lambs were of the unsolicited Kaukasian type (59.5%) which had to be reduced to a minimum. The qualities of leather goods, in 1993, were unsatisfactory. The furskins of the first sort, as a whole per batch, made up only 6.6%.

The purpose of genetic amelioration of the initial flocks of sheep.

Having a very varied selection material, composed of a flock of Țușca, Asian Karakul sheep and crossbreeds (Țușca x Karakul) of different generations, in 1980 we started the selection works, first of all, for the amelioration of the furskin qualities of lambs. In particular, the aim was to improve the quality of the curls, their shape and size, the hair coat, silkiness and luster, as well as the

quality of the skin and constitution of the newborn lambs. Subsequently, the objectives of amelioration the body mass of the sheep and the milk production of the ewes throughout the lactation were pursued.

It was proposed to create a new type of Karakul sheep, which would combine good furskin qualities with increased milk production and high body mass.

The standard-purpose was elaborated, in which the main indices of the productive characters were included, which were to be selected: the quality of the furskin, the body mass and the milk production.

The established standard provided for the monitoring and selection of lambs for rating according to the following characters: class, type of curling, color and coloration in individuals of greyish and gray color, body mass and trunk length.

Subsequently, in young sheep, body development was monitored at the age of 20 days, 3 months, 6 months, 18 months and annually at mature age. In ewes, milk production was monitored, determined by control milking throughout lactation.

The sheep of the desired type had to be of robust constitution with a strong skeleton. Harmonized exterior, body conformation typical of the Karakul race.

The elaboration of the standard was based on the analysis of the genetic parameters of the morpho-productive characters of the sheep populations included in the selection, in particular, of the arithmetic mean and the degree of their variability.

The standard - purpose developed provided the following parameters:

Sheep classification - elite and class I;

The type of curling - jacket, coastal and flat.

For greyish sheep the required coloring are allowed - blue, marble, grayed, pearl and silver.

The body mass of sheep depends on sex and age:

in breeding rams	85-100 kg;
in ewes	50 - 55 kg;
in 18-month-old rams	65 - 70 kg;
for young ewes 18 months	45 - 49 kg;
in 6-month-old rams	35 - 40 kg;
in 6-month-old ewes	30 - 35 kg.

The milk production of the ewes, on the whole lactation, should be of 70-80 kg.

It should be noted that the parameters developed for the new type of sheep far exceed (especially after body mass and milk production) the Karakul race standard (according to the rating instructions). In order to obtain sheep with these high productive indices, a plan of measures was developed for the selection of animals of the desired type (requested) and their directed mating, according to the elaborated plan.

CONCLUSIONS

1. The local race of sheep Țușca is an ancient one with mixed production skills for milk-furskins-wool, being a rustic one has some well-preserved biological particularities that are expressed by unpretentiousness to food and maintenance conditions, increased resistance to weather and diseases, having a fairly good milk productivity in the conditions of the Republic of Moldova.

2. At the same time, the Țușca sheep race is a late one, with a low body weight and low meat skills. The quality of the furskins obtained from lambs slaughtered 1-5 days after birth is low, characterized by the presence of low quality scattered curls, such as the types: rings and semi-rings, peas, manes, corkscrew.

3. The Asian Karakul sheep race is unique in the world with biological particularities different from other races. Karakul lambs at birth have an extraordinarily beautiful furskin, characterized by the presence on the entire surface of valuable elastic curls of the wave, bean, narrow and long ridges of the millet type, with silky and shiny hairy coating, of different colors (black, white, greyish, brown, gray, pink) and coloring (on the furskins of the greyish - blue, silver, marble, grayed; on the skins gray - gold, silver, tan, platinum, diamond, amber), which is rightly considered a luxury fur.

4. At the same time, the Karakul sheep race possesses some particularities disadvantages, such as: very low milk production, body weight and meat skills quite low, increased sensitivity to air humidity and wet lowland pastures, excessive susceptibility to helminthic diseases.

5. The initial flocks of sheep Karakul, Țușca and their crossbreeds (Țușca x Karakul) from the farms of the households where the selection works for the creation of a new type of sheep were initiated had the value of offspring and the degree of development of morpho-productive characters below the level standard-purpose requirements.

6. Based on these findings, a genetic amelioration methodology was developed for the creation of a new type of Moldavian Karakul sheep, based on the application of methods and procedures for the selection of Țușca x Karakul sheep according to a defined complex of morpho-productive characters: quality fur, body mass (meat ability) and milk production.

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