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The Productive Features of Sheep in Different Types of Breeding.

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ABSTRACT

This article describes the productive characteristics of the sheep of the Jalghin merino breed from the intra- and inter-linear (cross-dressing) selection of faines of different types as wool, medium and string. It was found that the highest safety among lambs was in animals from inter-linear selection in group IV (medium), 92.3%, which is higher in comparison with peers I (fayn), II (medium) and III (strong) groups - on 4,2; 0.6 and 0.4 abs. %. Little lobules of group IV at 9 months of age exceeded by the living mass of their peers I, II and III group - by 8.3% ($P < 0.01$); 6.2% ($P < 0.05$) and 1.8%. The live weight of the sheep from the intralinear selection of Group III was 6.4% ($P < 0.01$) and 4.4% ($P > 0.05$) compared to peers in Groups I and II. The best blood counts were crossed bright, received from the rams-producers of the line in the type of "medium" and queens in the "string" type. Among linear animals, the superiority in biochemical indices of blood and natural resistance of the organism was on the side of animal lines in the type of "strong".

Keywords: Sheep breeding, Jalghin merino, Fayn, medium, string, reproduction, live weight, blood.

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INTRODUCTION

Sheep farming is a traditional branch of agriculture in the North Caucasus, which plays an important role in providing light industry with specific types of raw materials, and the population with food products.

Currently, the market of sheep breeding is focused primarily on the production of young mutton, then wool, although literally a quarter of a century ago the situation was reversed. In the gross income from one sheep, the farms began to receive only 17% of the money for the realized wool in the whole of the country. The industry has turned into a loss-making industry and to date no real ways of getting out of the protracted crisis have been found[1].

The practice of sheep breeding shows that for production of young mutton it is preferable to conduct an industrial crossing, which has a great influence on the safety of lambs in the suckling period and allows increasing their productivity[2].

One of the reserves for improving the efficiency of purebred sheep breeding is sheep breeding along the lines, which makes it possible to create separate groups of animals in the herd with some differences in the degree of expression of the most important selectable features and is an important prerequisite for the further development of the breed as a whole, based on the cross-combining lines and obtaining this basis of intraspecies heterosis[3].

Cross lines are used when, as a result of prolonged breeding, the efficiency of selection by selectable traits has sharply decreased or the task is to combine the valuable qualities inherent in the individuals of different lines through a cross-line and, on this basis, to create a new, more valuable line[4].

In this connection, the goal of the study was to study the reproductive and milking capacity of the queens, as well as the preservation, growth, development, and indicators of the biochemical status of the youngsters of the Jalghin merino breed from intra- and inter-linear selection[5].

The research was carried out on the basis of SPK "Plemzavod Second Five-Year Plan" of the Ipatovskiy district on the sheep and merino jalchiki. The farm selects three lines for the type of wool Fayn, medium and strong, characterized by their productivity.

Line fayn-animals of this line are characterized by wool of the "fayn" type (17.0-20.5 microns) with finely pronounced crimp along the entire length of the staple, excellent back and belly[4].

Medium medium line in combination with qualitative and quantitative indices of wool fibers of medium type (20.6-23.0 μm).

Strong line-representatives of this line have a large value in combination with qualitative indicators and quantitative parameters of wool fibers of the "strong" type (23.1-27.0 μm).

Mostly in the household animals of medium type predominate with an average wool thickness corresponding to 64 quality.

MATERIALS AND METHODS

In order to conduct the experiment in October 2015, the farm developed a flock of Jalghin merino mares in the number of 270 heads of three lines that differed in wool qualitative and quantitative indicators characteristic for each line in the type of "fayn" and "medium" - 67 gals and type "Strong" - 136 gals.

Sheep in the type of wool "strong" 136 heads were divided into two groups-the aquatic group (group III) of the ewes in the number of 67 heads were inseminated by mutton producers of the corresponding line "strong", and in the other (group IV) 69 sheep were inseminated by sheep producers of the type wool "medium" (cross lines).

For insemination, sheep-producers of three-year-old age used typical for each line of 3 heads in each group according to the experiment scheme (Table 1).

In order to obtain an age-maturing offspring, each of the fixed rams-producers was inseminated with the same number of queens. Experimental animals were grown in one flock with mothers[5].

Table 1: Scheme of experience

Group	Mating Options			
	rams		ewes	
	line	goals	line	goals
I	fayn	3	файн	67
II	medium	3	медиум	67
III	string	3	стронг	67
IV	medium	3	стронг	69

Parents' boning was carried out according to the "Procedure and conditions for carrying out bonitating of breeding sheep with fine-wool breeds, semi-fine-grained breeds and meat-producing breeds" (Order No. 335, October 5, 2010, as amended by Order No. 235 of the Ministry of Agriculture of Russia dated May 30, 2013). Animals participating in the experiment answered Requirements: rams producers-class elite, and ewes-first class.

RESULTS AND DISCUSSION

Fertility of sheep is considered one of the main productive indicators that determine the level and efficiency of production. Fertility and survival are usually judged and the fitness of animals to certain habitats.

By the reproductive capacity (or reproductive productivity) is meant the whole set of characteristics and properties that ensure reproduction of the livestock: fertilization, fecundity, preservation of young animals.

Therefore, the study of the reproductive ability of the sheep of the Jalga breed with a homogeneous and heterogeneous selection is topical[9].

Yat maturity was within the range of 2.9 to 4.5%. Yalowness of the queens was the lowest in groups III and IV, respectively, 3.0 and 2.9%. Hence, of all the inseminated queens, litters were given within groups with fluctuations from 95.5 to 97.1%.

Fertility of the queens is largely determined by heredity and environmental factors. During the lambing period of 270 heads, inseminated queens, 260 heads were procreated and 346 lambs were obtained, or on average over the experimental groups about 128 lambs per 100 inseminated queens. Obtained lambs for 100 inseminated queens are the most in the IV group, from the heterogeneous selection of couples - 131.1%, and the least in the I group (line in the type of fayn) - 125.4%. The highest fertility per 100 cognate queens was characterized by animals from a heterogeneous selection of group IV (135.8%), which is 4.5, 3.0 and 3.5 abs, respectively, compared to groups I, II and III, respectively. %. In turn, among the homogeneous selection, the best indicator was in group II (line in the medium type) and was 132.8%, which is 1.5 0.5% higher than in groups I and III. Obtained lambs within the groups with fluctuations from 47,3-55,8%. And the lowest indicator was in the IV group - 47.3%, and the highest in group III and amounted to 55.8%. Lambs-twins for groups ranged from 44.2-52.7%. The highest rate was in group IV - 52.7%, and the lowest in group III and was 44.2%[6].

Preservation of young animals is one of the most important economic indicators of reproduction. It was established that the highest safety in all lambs from birth to chipping was in the IV group (92.3%), which is higher in comparison with groups I, II and III from homogeneous selection by 4.2; 0.6 and 0.4 abs. %. It should be noted that the safety of lambs-twins in the IV group was slightly lower than group II - by 0.9abs. %, which is associated with a high percentage of lambs-twins obtained in group IV and low live weight at birth. If we look

at the type of birth, then the highest safety among lambs was in the fourth group (medium-strings) - 95.3%, which is higher in comparison with peers I, II and III groups by 2.8, 2.3 and 1.5 abs. %.

Thus, the animals from the inter-linear selection of the IV group were distinguished by the best fecundity and safety. Among the animals from the homogeneous selection, the best in terms of fertility was group II (medium), and in terms of safety, the animals of the third group (strong) were the best[7].

The safety of lambs during the milking period depends mainly on such qualities of the mother as milk and maternal instinct, which are better developed in adult animals than in young animals[8].

Milk sheep in the first and a half or two months for lambs is the main source of energy. The growth and development of lambs depends on the milkness of the queens. This is especially important when growing two or more lambs under the uterus. Indirectly for production and breeding purposes, milk is determined by the weight of lambs at 21 days of age, based on the fact that before this age lambs feed on one mother's milk and that about 1 kg of gain in live weight of lamb consumes about 5 kg of milk[10].

Milk sheep on average in groups of sheep were 27.2 kg, and for bright - 18.9 kg. On average, the milkness of the ewes for sheep and beets within the groups ranged from 20.0 to 23.7 kg. In general, the ewes of Group III outperformed their peers in Groups I, II and IV by 21.9; 2.8 and 0.5%. Analysis of the milking of the ewes, depending on the type of lambs' birth, showed a definite tendency in favor of group III, according to the groups, but according to the results of the bighorn sheep with double dung, the fourth group ewes were the highest dairy (57.1 kg), which exceeded the groups I, II and III to 23.6; 3.1 and 3.1%. The highest milk yield for sheep with an odorless droppings was in the third group sheep - 29.45 kg, which exceeded the I, II and IV groups by 4.8; 1.5 and 1.0 kg or 19.5, 5.2 and 3.3%. The best milk yield of the ewes was estimated in bright colors with an odorless litter in group III (19.8 kg), which is 13.5 higher than groups I, II and IV; 5.9 and 1.5%. In the case of double-litter colors, the advantage was found in the third group of queens (41.3 kg), which is 38.6, higher than in the I, II and IV ewes; 2.0 and 1.7%.

Studies have shown that the tendency to increase the milk content of queens is associated with the live weight of lambs at birth (Lakota E.A., 2012).

Practical interest is the change in the live weight of young animals, its growth, taking into account homogeneous and heterogeneous selection. Fertility of newborn lambs should be considered as an indicator of their viability, especially in the first days and months after birth. The amount of live weight during weaning can be used in the breeding process as a sign predicting subsequent growth and slaughter indicators. Live weight of young animals was determined by individual weighing of animals in the morning before feeding and drinking. Obtained young growth is characterized by a different growth rate in the age dynamics, from birth to 9 months of age (Table 2).

Table 2: Live weight of young animals, depending on sex, kg

Groups	Sex of the lamb	Period of growing, months							
		at birth		4		6		9	
		X±m	Cv	X±m	Cv	X±m	Cv	X±m	Cv
I	rams	4,09±0,09	11,2	23,85±0,60	9,1	34,31±0,66	7,1	48,71±0,90	8,1
	ewes	3,71±0,08	5,2	22,46±0,23	7,3	29,09±0,38	7,3	34,88±0,49	3,4
II	rams	4,24±0,10	4,2	24,56±0,49	6,4	35,95±0,65	6,2	49,66±0,91	5,3
	ewes	3,80±0,07	9,1	23,12±0,50	9,4	30,56±0,49	8,1	36,48±0,50	1,1
III	rams	4,30±0,13	10,6	25,45±0,40	7,3	37,08±0,57	5,5	51,82±0,77	6,3
	ewes	3,87±0,09	12,3	24,23±0,41	5,2	31,78±0,59	10,3	37,71±0,49	4,1
IV	rams	4,21±0,07	13,6	26,24±0,32	5,1	37,81±0,53	5,3	52,73±0,83	5,5
	ewes	3,78±0,06	8,2	24,77±0,43	3,3	32,76±0,38	7,7	38,72±0,37	2,2

It should be noted that the lowest live weight at birth was in lambs obtained from a homogeneous selection was in group I (fayn), which is probably associated with a low live weight of parents. Lambs at birth were the largest at group III. Thus, lambs had a live weight of 4.30 kg, which is more compared to peers I, II and IV, respectively - by 5.1%, 1.4 and 2.1% (P> 0.05). The fry of the same group had superiority to the animals of Groups I, II and IV, respectively, by 4.3%, 1.8% and 2.4% (P> 0.05). When born to live weight, the lambs of

Group IV were inferior to peers II and III groups, which is associated with greater fertility of queens in this group (135.8%).

In the case of a beat, the tendency of superiority over the live weight of lambs persisted and a significant difference was observed for some sex-age groups. Thus, group IV ruffs obtained from heterogeneous selection exceeded their peers from homogeneous selection of I, II and III groups - by 10.0% ($P < 0.001$); 6,8 ($P < 0,01$) and 3,1%. The buds from the homogeneous selection of group III exceeded the peers of the I and II groups - by 6.7% ($P < 0.05$) and 3.6%. Yarki III group from homogeneous selection at 4 months of age exceeded the peers of groups I and II, respectively - by 7.9 ($P < 0.001$) and 4.8%. It should be noted that, in the case of a beat at 4 months of age, according to the live weight, the bright colors of group IV had superiority over age groups I, II and III groups - by 10.2% ($P < 0.001$), 7.1 ($P < 0.05$) and 2.2% ($P > 0.05$).

At the age of 6 months, the sheep fat group IV outperformed their peers from the homogeneous selection of I, II and III groups - by 10.2% ($P < 0.001$); 5.2% ($P < 0.05$) and 2.0%. In turn, sheep of group III from homogeneous selection significantly exceeded by this indicator peers of the I and II group - by 8.1% ($P < 0.01$); and 3.1% ($P > 0.05$).

Ewes from a diverse selection of group IV in 6 months. age of live weight exceeded the age groups I, II and III group - by 12.6% ($P < 0.001$); 7.2 ($P < 0.001$) and 3.1% ($P > 0.05$). Analysis of the live weight of the brightly colored groups by groups of homogeneous selection at 6 months showed that the animals of group III exceeded group I by 9.2% ($P < 0.001$) and group II by 4.0% ($P > 0.05$).

The largest animals at the age of 9 months were from the IV group, since the lambs outperformed their peers in groups I, II and III, by 8.3% ($P < 0.01$); 6.2% ($P < 0.05$) and 1.8%. The live weight of the sheep from the homogeneous selection of group III was more than in peers I and II groups by 6.4% ($P < 0.01$) and 4.4% ($P > 0.05$). The group IVs exceeded the live weight peers of groups I, II and III - by 11.0% ($P < 0.001$); 6.1 ($P < 0.001$) and 2.7%. The females from the homogeneous selection of group III had superiority over contemporaries I and II groups by 8.1 ($P < 0.001$) and 3.4% ($P > 0.05$).

Biochemical blood indices, the amount of the total protein with its fractions, the resistance parameters (bactericidal - BASK, lysozyme - LASK) were determined in pre-feeding areas, using the generally accepted methods of analysis of VNIIOK, 2004[10].

The health of productive animals is directly related to the intensive course of metabolic processes, and therefore the main criteria for assessing their state of health are the intensity indices of all metabolic processes.

Metabolic indicators of blood are a reflection of biochemical processes occurring in the body of animals. The composition of the blood indicates both normal and pathological processes occurring in the organs and tissues of the animal's body[2].

The animal's organism is an extremely complex biochemical system, in which numerous chemical reactions constantly occur at a tremendous rate, many simple and complex chemical compounds are destroyed and again created. In this case, a special role is assigned to proteins, since they are the main plastic material that ensures the normal growth and development of especially young animals.

Since the blood protein is the main and important component involved in the metabolic processes of the body and determines the health and productivity of the animal, the aim of the studies was to study the protein blood spectrum - the total protein and its fractional composition in sheep from intra- and interlinear selection (Table 3).

It should be noted that all the blood indicators studied were within the physiological norm. It has been established that by the amount of the total protein and its fractions, the highest indices were crossed animals from the rams-producers in the type "medium" and the queens "string". Among the linear animals, the best indicators were noted in the line animals in the "string" type[8].

Table 3: Biochemical parameters of blood bright

Index	Group			
	I	II	III	IV
Number of animals	5	5	5	5
Lysozyme activity,%	44,84±0,91*	46,68±0,42	48,00±0,75*	50,52±2,29*
Cv, %	4,54	2,00	3,13	10,13
Bactericidal activity,%	65,32±1,35	66,02±1,85	66,85±3,52	68,16±3,67
Cv,%	4,6	6,3	10,5	12,0
Total protein, g / l	66,19±2,41*	71,47±2,04	74,21±2,74*	77,61±3,42*
Cv,%	8,2	6,4	7,4	9,9
Albumins, g / l	31,03±2,35	32,53±1,66	34,16±0,53	34,48±1,32
Globulins, g / l	35,15±2,35*	38,93±0,97	40,05±2,22	43,12±2,81*
Cv, %	15,0	5,6	11,1	14,6
α	6,98±0,70	7,10±0,17	7,35±0,37	7,52±0,38
β	9,48±0,85	10,63±0,85	11,00±1,67	11,01±1,33
γ	18,69±2,51	21,20±0,94	21,71±1,60	24,59±1,95

Note: Cv is the coefficient of variation, * P <0.05

When studying the total amount of serum protein of blood in young sheep, it was found that its greatest concentration was noted in Group IV of animals, which is 17.3 (P <0.05) higher than the indices of age groups I, II and III; 8.6 and 4.6%. In turn, the brightness of group III (line "strong") among linear animals had a better indicator of the total protein content and exceeded the group I peers, with a significant difference - by 12.1% (P <0.05) and unreliable group II - by 3 , 8% (P > 0.05).

The most biologically active fraction of proteins is albumin, which is a reserve of nitrogen in the body and plays a major role in regulating colloid osmotic pressure. Albumins perform the function of carriers of hormones, nutrients and minerals in the blood, participate in water metabolism.

The level of albumins in the crossed outfits of group IV was superior (34.48 g / l) compared to peers but insignificant and the difference was unreliable. And according to the number of globulins in the blood serum, group IV of brightly surpassed only the peers of the I group - by 22.7% (P <0.05) and the superiority with an unreliable difference over the bands II and III was 10.8 and 7.7 % (P > 0.05).

Of particular interest are the changes in the individual subglacial globulin in young animals of different selection variants. According to the concentration of α-globulin fraction, the superiority of crossed flocks over animals of groups I, II and III was 7.7; 5.9 and 2.3%, β-globulin fraction - 16.1; 3,6 and 0,1% and γ-globulin fraction - 31,6; 16.0 and 13.3% respectively.

Resistance is considered not only as a biological factor reflecting the ability of a living organism to resist unfavorable environmental influences, but also as an economic utility indicator.

A comparative study of the indices of humoral defense factors (LASK, BASK) in the experimental young testified that the serum of crossed fishes possessed a higher lysozyme and bactericidal activity, in comparison with the experimental groups of linear coevals[1].

At crossed bright, the level of LASK at 14 months of age is higher than that of peers I; II and III groups - by 5.7 (P <0.05), 3.8 (P > 0.05), 2.5% (P > 0.05), and the group III line brightens in the "string" type significantly exceeded the peers of group I - by 3.2% (P <0.05) and unreliable II group - by 1.3% (P > 0.05). According to the bactericidal activity of blood serum, the animals of group IV were superior in the case of an unreliable difference in their peers I; II and III groups - by 2.8; 2.1 and 1.3%, and this indicates a higher protective potential.

CONCLUSION

As a result of the conducted studies, it was found that the highest preservation of lambs from birth to chipping from mothers was in animals from cross-matching in group IV obtained from mutton producers of the line in the type of "medium" and queens in the "string" type. month age of live weight significantly exceeded

the peer group I and II, and the sheep from the intralinear selection of the third group "Strong" significantly exceeded the peer group of the line in the type of wool "medium." Also, the youngest of the group had better biochees and blood resistance and natural resistance, which indicates a better adaptation of the body and the high potential of their productive qualities. And among the linear animals, the best indicators were noted in Group III - lines in the type of wool "string".

REFERENCES

- [1] Aboneev V.V., Omarov A.A., Skorykh L.N. and others. The level of metabolites in the blood of half-thin-crowned young sheep, depending on the age of weaning, *Veterinary Pathology*. 2013. No. 2 (44). Pp. 69-71.
- [2] Mahdiev M.M., Moroz V.A., Belik N.I. and etc. Possibilities of increasing the meat productivity of the sheep of the Grozny breed // *Zootekhnny*. 2011. № 7. With. 17-18.
- [3] Kolosov Yu.A., Zasemchuk I.V. Relative variability and heritability of economic-useful traits in the young sheep of the Salsk breed // *Bulletin of the Agrarian Science of the Don*. 2011. № 4 (16). Pp. 64-67.
- [4] Kolosov Yu.A., Zasemchuk I.V., Kobylatsky PS Perfection of the sheep of the Salsk breed // *Sheep, goats, woolen business*. 2012. № 3. P. 13-15.
- [5] Kolosov Yu.A., Shirokova N.V. Some productive qualities of young pedigree sheep // *Collection of scientific works of the Stavropol Scientific Research Institute of Animal Breeding and Feed Production*. 2012. T.2. № 1. P. 53-56.
- [6] Lakota E.A., Vorontsova O.A., Polnikov I.A. Blood indices, nonspecific resistance and productivity of fine-fleeced sheep of different genotypes. *Vavilovsky Journal of Genetics and Selection*. 2012. Vol. 16. № 4-2. 1005-1007.
- [7] *Methods of veterinary clinical laboratory diagnosis: Handbook* / Ed. prof. I. P. Kondrakhin. M.: Kolos, 2004. 520 p.
- [8] Evgeny Nikolaevich Chernobai, Viktor Ivanovich Guzenko, Anatoly Anatol'evich Drovorub. Productive Characteristics of the Lambs to Get Of Ewe, Who Were Subject To Prenatal Shearing / *Research Journal of Pharmaceutical, Biological and Chemical Scinces*. July-August. 2015; RJPBCS / 6 (4) Page No 957.
- [9] Vladimir Ivanovich Trukhachev, Vasily Andreevich Moroz, Evgeny Nikolaevich Chernobai, and Ismail Sagidovich Ismailov. Meat and Interiol Rams of Different Genotypes / *Research Journal of Pharmaceutical, Biological and Chemical Scinces*. Januaru-Februaru. 2016; RJPBCS / 7 (1) 1627.
- [10] Gerald J.H., Hoosier L.V. *Handbook of laboratory animal science, animal models in fetal growth and development*, No. 3 by CRC Press. 2005. P. 20-34.