RESEARCH ARTICLE **Open Access**

CORRELATION, REGRESSION COEFFICIENTS AND HERITABILITY BETWEEN MAIN SELECTION TRAITS OF SHEEP

Berdieva Xonimoy Evodullaevna
Doctoral student, Livestock and Poultry Scientific Research Institute,
Republic of Uzbekistan

Ruziboev Nuraddin Raximovich
Doctor of Agricultural Sciences, Professor, Livestock and Poultry Scientific
Research Institute, Republic of Uzbekistan

Abstract
The article presents information on improvement of selection traits of lambs born from "inbred" breeding of F2 crossbred sheep using selection-genetic indicators. Studies show that selection of lambs born from inbreeding of F2 hybrid sheep based on positive correlation coefficients between selection traits is important for creating high-yielding breeding flocks in the future. At the same time, the regression coefficients of crossbred lambs in group II were higher than the regression coefficients of pure jaidari lambs in group I, and especially it was found that the regression coefficients of crossbred rams in group II achieved the highest result. According to the heredity of the sheep, it was found that the live weight of the sheep, the height of the withers, the oblique length of the body, the width of the chest, the depth of the chest, the circumference of the udder, and the circumference of the calf, that is, the coefficients of heredity are moderate.

Keywords Breed, jaidari, hisar, ewe, ram, lamb, lamb, hybrid, selection, live weight.

INTRODUCTION

Relevance of the topic. Today, the selection of humpbacked sheep from the independent commonwealth states - Russia, Belarus, Kazakhstan, Kyrgyzstan, Turkmenistan and Tajikistan is mainly for the production of high-quality young sheep meat, which is in demand in the international market, and for the processing of sheep's wool in light industry, which meets the requirements of carpets, knitwear and various directed to the production of gas products. In this regard, it is important and urgent to regularly use the genetic potential of meat-fat sheep breeds and, on this basis, to create promising populations with high meat productivity and high heredity, together with valuable biological characteristics, to further increase the efficiency of this field [1,2,4,8].

Correlation of signs characterizes the interrelationship of the signs of each number, and when one sign changes in what direction and to what extent, the others will also change in the same order. Correlation can be positive or negative. In the first case, with the increase in the level of one character, another character related to it also increases. In the second case, as the indicator of one sign increases, the indicator level of the second sign decreases [5,10,12].

Heritability is the genetic component of the total phenotypic variation of selection traits of sheep in a flock. That is, the variability associated with the transmission of offspring. The standard of heritability is determined in the coefficient. The coefficient of heritability is given in the symbol h2. This symbol is defined as a 1-digit level or percentage. The heritability coefficient is determined in several ways: by doubling the growth correlation index of parents and offspring (h2=2r): by doubling the regression signs (h2=2R); in the dispersion method. The practical significance of the heritability coefficient is that, based on its use, it is possible to predict the effectiveness of selection of specific flocks or groups of sheep for one or another characteristic [3,6,7,9,11,13].

Research location and methods. Scientific research was conducted in 2021-2023 at the "Kholtoraev Oybek KM" breeding farm in the Ohangaron district of the Tashkent region. For research, 50 pure jaidari ewes were selected for the control group of similar origin and age, and 50 ewes were selected for the experimental group from 3/4 Hisar x 1/4 jaidari hybrid sheep with F2 joint.

Live weight, absolute, relative growth and average live weight of lambs are studied using the methods of V.I. Fyodorov (1973) and S.T. Brody (1945):

The obtained data were processed using variational statistics methods. In this case, the average indicator of signs (X), its error (Sx), variability (Cv), reliability criteria of comparative indicators (td, P) were determined. E.K. It was determined by the method of Merkureva (1970).

Correlation and regression coefficients and heritability of signs R. Schiller, Ya. Vahal, Ya. Winsh. (1970) method was calculated.

Research results. The study of correlation indicators between the main selection traits of crossbred lambs born from "in-breeding" and planned selection work on the determined positive correlation coefficients are of great practical importance in improving their selection traits.

We studied the correlation coefficients between the selection traits of 18-month-old lambs in the research (Table 1).

Table 1

Correlation coefficients between the main selection traits of 18-month-old lambs

Indicators	Male (п=8)		Female (п=9)	
	I	**II**	**I**	**II**
Тирик вазни билан яғрин баландлиги	0,048	0,696	0,125	0,285
Тирик вазни билан сағри баландлиги	0,105	0,947	0,159	0,320
Тирик вазни билан тананинг қия узунлиги	0,034	0,960	0,076	0,255
Тирик вазни билан кўкрак чуқурлиги	-0,064	0,700	-0,268	0,261
Тирик вазни билан кўкрак айланаси	0,298	0,705	0,186	0,228
Яғрин баландлиги билан танасининг қия узунлиги	0,682	0,982	0,978	0,954
Яғрин баландлиги билан кўкрак айланаси	0,998	0,995	0,995	0,993

As can be seen from the data in Table 1, in group I, regardless of gender, the ratio of lamb height with live weight, wither height with live weight, oblique length of the body with live weight, breast circumference with live weight is low (0.034-0.298), breast thickness with live weight is positive. and low negative (-0.064-0.268) correlation coefficients were found between them. In this group, high positive correlation coefficients (0.682-0.998) were found between lean height and body oblique length and lean height and chest circumference (0.682-0.998).

In group II, there is a low level between the live weight and lean height, live weight and lean length of the body and breast depth and breast circumference (0.228-0.285), between live weight and lean height, in this group the lean height and lean length of the female cows are low (0.228-0.285). and high (0.954-0.993) positive correlation coefficients were found between the height of the breast and the chest circumference.

It should be noted that high positive correlation coefficients (0.696-0.995) were found for hybrid rams in group II for all indicators. This shows that the change of one sign of hybrid rams, i.e. growth, also increases the second sign related to it. This shows that the increase of one of these positively correlated selection traits of hybrid rams obtained from "in-house" breeding undoubtedly leads to the improvement of the other, and it shows the importance of conducting selection work on the determined positive correlation coefficients in creating high-yielding breeding flocks in the future.

In studies, the amount of increase in one selection marker indicates the increase in the corresponding second marker. For this purpose, we studied the regression coefficient between the main breeding traits of sheep in the experimental groups, the results of which are presented in Table 2.

Table 2

Қўзиларнинг асосий селекция белгилари ўртасида регрессия кўрсаткичлари

№	Indicators	I				II			
		male		female		male		female	
		п-8		п-9		п-8		п-9	
		x	y	x	y	x	y	x	y
1	Тирик вазни-яғрин баландлиги	0,016	0,143	0,040	0,384	0,250	1,91	0,109	0,750
2	Тирик вазни-сағри баландлиги	0,044	0,250	0,056	0,437	0,195	4,50	0,118	0,866
3	Тирик вазни-тананинг қия узунлиги	0,012	0,096	0,032	0,182	0,261	3,42	0,109	0,600
4	Тирик вазни-кўкрак чуқурлиги	0,016	0,25	0,152	2,10	0,152	3,18	0,054	1,20
5	Тирик вазни- кўкрак айланаси	0,093	0,958	0,088	0,393	0,391	1,28	0,118	0,433
6	Яғрин баландлиги -тананинг қия узунлиги	0,536	0,682	1,30	0,773	0,750	1,28	1,31	0,700
7	Яғрин баландлиги-кўкрак айланаси	0,928	1,08	1,46	0,678	1,16	0,577	1,06	0,850

It can be seen from the data of Table 2 that at 18 months of age, an increase of 1.91 kg of live weight of II group rams, 0.250 cm of their height at the withers, an increase of 0.750 kg of live weight of the females of this group, they provide an increase of 0.109 cm of their height at the withers. During this period, pure Jaidari rams of group I increased by 0.143 kg and females by 0.750 kg live weight, showing an increase of 0.016 and 0.109 cm in their height at birth respectively. It is evidenced by the increase in the average live weight of crossbred rams of group II by 4.50 kg, in females by 0.866 kg, and the height of lambs by 0.195 and 0.118 cm.

Regardless of gender, low regression coefficients were found between live weight of lambs of group I and body height, live weight and lean length and

chest depth.

Crossbred lambs of group II increased live weight by 1.28 kg and 0.433 kg, chest circumference by 0.393 cm and 0.118 cm, height at withers increased by 1.28 cm and 0.433 cm respectively, body length by 0.750 and 1.31 cm, height at withers by 0.750 and 1.31 cm. An increase of 0.577 and 0.850 cm indicates an increase in chest circumference of 1.16 and 1.06 cm.

It should be noted that the regression coefficients of crossbred lambs in group II were higher than the regression coefficients of purebred lambs in group I, regardless of gender, and it was found that the regression coefficients of crossbred rams in group II had the highest results. This showed that if the regression indicators of 1.5-year-old crossbred lambs also changed, other related signs would also improve positively.

In our research, we have studied the results of live weight and exterior parameters of sheep from generation to generation. In the course of research, the coefficient of heredity by multiplying the correlation index of the growth of hybrids and their offspring by two bars is presented in Table 3.

From the data in Table 3, it can be seen that the transmission of various traits of sheep from generation to generation has a certain fluctuation. Live weight, height at the withers and height at the withers and other parameters (0.2-0.22) of the hybrids had a low heritability coefficient. Lamb body length, shoulder width, depth, girth and leg circumference (0.04-0.143) have the lowest heritability coefficient. At the same time, it was found that the coefficients of heredity, i.e., heritability, were at a medium and low level in terms of the live weight of the mothers, the height of the hips and waist, the oblique length of the body, the width of the chest, the depth of the chest, the circumference of the chest, and the circumference of the offspring.

Table 3

Heritability of hybrids and their offspring according to correlation coefficients

Дурагай совлиқлар белгилари	Жуфт-ликлар сони	Signs of 18-month-old hybrid female offspring							
		Тирик вазни	Яғрин баландлиги	Сағри баландлиги	Тананинг қия узунлиги	Кўкрак кенглиги	Кўкрак чуқурлиги	Кўкрак айланаси	Поча айланаси
Тирик вазни	23	0,223	0,201	0,200	0,004	0,022	0,077	0,143	0,053
Яғрин баландлиги	23	0,100	0,077	0,081	0,126	0,146	0,053	0,026	0,040
Сағри баландлиги	23	0,150	0,085	0,089	0,112	0,140	0,049	0,035	0,031
Тананинг қия узунлиги	23	0,057	0,019	0,021	0,106	0,122	0,032	0,002	0,040
Кўкрак кенглиги	23	0,150	0,111	0,118	0,001	0,013	0,008	0,057	0,010
Кўкрак чуқурлиги	23	0,156	0,045	0,045	0,012	0,029	0,014	0,008	0,014

Кўкрак айланаси	23	0,085	0,149	0,152	0,188	0,206	0,146	0,099	0,052
Поча айланаси	23	0,024	0,142	0,143	0,356	0,219	0,217	0,127	0,080

CONCLUSION

Studies show that selection of lambs born from inbreeding of F2 hybrid sheep based on positive correlation coefficients between selection traits is important for creating high-yielding breeding flocks in the future. At the same time, the regression coefficients of crossbred lambs in group II were higher than the regression coefficients of pure jaidari lambs in group I, and especially it was found that the regression coefficients of crossbred rams in group II achieved the highest result. According to the heredity of the sheep, it was found that the live weight of the sheep, the height of the withers, the oblique length of the body, the width of the chest, the depth of the chest, the circumference of the udder, and the circumference of the calf, that is, the coefficients of heredity are moderate. These data indicate that the improvement of the selection characteristics of the lambs born from the breeding of F2 hybrid sheep "in-house" using selection-genetic indicators increases the efficiency of selection.

REFERENCES

1. Амерханов Х.А., Егоров М.В., Селионова М.И.,Шумаенко С.Н., Ефимова Н.И. Новая порода овец-Российский мясноймеринос."Сельскохозяйственный журнал" Ставрополь №1 (11). 2018.с. 50-56.

2. Арипов Т.Т. Повышение мясной продуктивности местных кыргызских курдючных овец с использованием баранов гиссарской породы. Дисс. на соис. уч.ст. кан.с/н. Бишкек 2020. С. 10-15.

3. Базаров С.Р., Юсупов С.Ю., Саттаров С.Б. Селекционно-генетические аспекты повышения продуктивности каракульских овец окраски сур. «Овцы, козы, шерстное дело», №2, 2020. С. 15-16.

4. Винниаминов А.А. Справочник овцеводство. Россельхозиз,1977. с-226.

5. Газиев А. Корреляциялар асосида қўйларнинг маҳсулдорлик салоҳиятини баҳолаш. Чорвачилик ва наслчилик иши. 2021. №6 (23), 37-39 б.

6. Газиев А. Қоракўл қўйларини самарали селекциялашнинг экологик ва генетик асослари //Автореферат., дисс. док. д.с-х.н. Самарканд 2021. С 23-28.

7. Давлетова А.М. Селекционно-генетические параметры продуктивности молодняка овец эдильбаевской породы. Известия Оренбургского государственного аграрного университета. 2011. №2(30). - С. 131-132.

8. Зулаев М.С., Юлдашбаев Ю. А., Арилов А. А., Гаряев Б. Е. Новая порода – калмыцкая курдючная. Известия Тимиряз.с.-х. акад.– М., 2013. – Вып. 3. – С. 109-113.

9. Иргашев Т.А., Косилов В.И., Рахимов Ш.Т., Кубатбеков Т.С. Эколого-генетические аспекты продуктивных качеств овец разного направления. Миронова Душанбе, 2019. 355 с.

10. Кадиев А.К., Мусаева И.В. Оценка генетического сходства некоторых пород овец по группам крови. Ж.Овцы, козы, шерстное дело, №1, 2014. С. 15-16.

11. Косилов В.И., Салаев Б.К., Юлдашбаев Ю.А., Иргашев Т.А., Арилов А.Н., Кубатбеков Т.С., Миронова И.В. Эффективность использования генетических ресурсов овец в разных природно-климатических условиях. Монография . Элиста, 2019. 282 с.

12. Рахимов Ш. Т. История и современное состояние разведения овец гиссарской

породы в Таджикистане. Материалы Международной научно-практической конференции «Состояние и перспективы совершенствования генетических и продуктивных особенностей овец курдючных пород». Министерство сельского хозяйства республики Таджикистан. Таджикская академия сельскохозяйственных наук Институт животноводства и пастбищ. Душанбе-2021.29.06. «Матбаа». С. 7-16.

13. Шиллер Р., Вахал Я., Винш.Я. Математика в животноводстве М. 1970.с 42-60.