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## STUDY OF PRODUCTION CHARACTERISTICS OF QARAQUL SHEEP AND ITS COMPARISON WITH HYBRID SHEEP IN SAMANGAN PROVINCE

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**Abstract:** Sheep breeding is very common in Samangan province, the presence of grassy pastures and the salubrious climate allow this occupation to be highly lucrative, that is why, many people are engaged in it and make a living this way. The sheep breeds that are mostly bred in this province include Arab and Qaraqul. This research makes it possible to identify and compare the production characteristics of the intended generations realistically and based on reliable findings, and to avoid unreliable and undocumented prejudices. The greatest importance of this research is to prevent the destruction of the plasma mass of Qaraqul generation, which is compatible with our climatic and environmental conditions and has been cultivated since ancient times. The purpose of this research is to determine the accuracy or inaccuracy of activities to replace Qaraqul sheep with Arab breed sheep and other generations. for conducting this research, three methods of observation, questionnaire and interview have been used. In observation section generally, the physical properties of lambs, namely the birth weight of lambs, lambing rate, dual calving rate, lamb weight at six months of age, age of first calving, milk production, wool weight, wool fiber length, meat quality, grazing strength, Percentage of lamb's mortality up to one year, weight loss in winter and carcass composition in three generations were considered. Digital scales were used for weight and meters were used to measure fiber length. In the interview section, 60 experienced people and sheep owners, including 4 sheep owners, 4 shepherds from each district, which makes up a total of 60 people, were interviewed, In order to collect data and information on the relevant subject, two types of questionnaires have been prepared, one of which is related to livestock and the other type is related to livestock experts, officials and livestock directorate of Samangan province, which included (90) people.

**Index Terms -** Sheep, lambs, economic characteristics, hybrids, Qaraqul generation.

### 1.INTRODUCTION

Sheep breeding is very common in Samangan province, the presence of grassy pastures and the salubrious climate allow this occupation to be highly lucrative, that is why, many people are engaged in it and make a living this way. The sheep breeds that are mostly bred in this province include Arab and Qaraqul. But in recent years, due to the slump in the Qaraqul skin market, people have become less interested in raising Qaraqul sheep, thinking that this sheep is not suitable for meat production and its other products are not very significant, they try to cross the Qaraqul sheep with the Arab sheep, which endangers the survival of the Qaraqul sheep breed.

Therefore, in this research, the production characteristics of Qaraqul sheep and Arab sheep were studied comparatively, the sheep of these two generations were compared in terms of these characteristics. This was possible in order to determine the correctness of the peasants' idea about the insignificance of Qaraqul sheep from the point of view of producing other attributes except skin. Whenever this misconception was proven, ranchers could be advised to refrain from crossing Qaraqul sheep to other generations in order to turn this generation into other generations and if this idea were to be proven right, there would still have to be thought about preserving this generation of work, because indigenous plasma mass protection is a vital necessity. The research problem: In recent years, in Samangan province, due to the slump in the Qaraqul leather market, the replacement of this generation with other generations, its cross-breeding with other generations, especially the Arab successor, has increased. Farmers who for many years bred Qaraqul sheep only for the purpose of lamb skin, think that these sheep are not so important and prominent from the point of view of other crops, Therefore, they have resorted to replacing and crossing it because this will eliminate the plasma mass of an important generation of native sheep of the country. A solution must be found to stop this process, All the economic production characteristics of Qaraqul sheep should be studied comparatively with Arab sheep. The importance of research topic: This research makes it possible to identify and compare the production characteristics of the intended generations realistically and based on reliable findings, and to avoid unreliable and undocumented prejudices. It is clear that actions based on such prejudices lead to unfortunate and unpredictable consequences, this research also makes it possible to take measures to manage the situation caused

by the recession and stagnation of the Qaraqul skin market based on scientific facts and real knowledge of the situation, and thus achieve the desired results. The greatest importance of this research is to prevent the destruction of the plasma mass of Qaraqul generation, which is compatible with our climatic and environmental conditions and has been cultivated since ancient times. research goal: The purpose of this research is to determine whether the activities to replace Qaraqul sheep with Arab and other generations of sheep are justified or not. Because this work has been going on intensively for some time and has created the danger of extinction of the Qaraqul generation, Various economic, environmental and hazardous aspects are studied to protect the plasma mass of native sheep breeds.

Research questions: This research is done to get answers to the following

- Has the real income of the farmers from the sale of Qaraqul sheep products decreased compared to the income of the Arab generation in recent years?
- Is the quality of Qaraqul sheep comparable to Arab sheep in terms of other production characteristics other than lamb skin for cattle breeders?
- Is there no other solution to the situation caused by the slump in the Qaraqul lamb skin market, other than crossing it with other generations?

## 2. Literature Review

In our country, sheep breeding is considered as one of the important livestock sectors. About 90 percent of the livestock sector's foreign exchange earnings came from sheep before the civil war and drought, and the share of livestock in the country's total exports was 40 percent. According to the Food and Agriculture Organization of the United Nations, Afghanistan had 22 million sheep, 3.5 million goats and 3.8 million cows in 1977. Another UN source reports the number of Afghan sheep at 22 million in 1977 and 20 million in 1985, according to official government statistics. According to the Food and Agriculture Organization in 1977, sheep accounted for 45% of meat production and 26% of milk production in Afghanistan. Another author claims that sheep account for 41.5 percent of milk production. A large number of sheep products in Afghanistan are made of Qaraqul skin, which previously reached an annual production of 2 million volumes and 70% of which was exported but in recent years, its marketing has been severely hampered and its production has decreased (Rashiq, 1385). One of the major parts of sheep breeding in Afghanistan is the existence of a purebred sheep breed, namely the Qaraqul sheep breed, which of course has an international reputation. The above generation has been bred in the northern parts of the country and the high quality and wavy skins of its lambs have been considered as one of the important export items of the country after carpets and have become a great source of pride for the country. Annually, by exporting the skin of that country, a considerable amount of foreign currency has been awarded to the country, which undoubtedly plays a significant role in strengthening the national economy, in addition, wool, meat, milk and other by-products are used in the country and even exported abroad. Therefore, training and keeping Qaraqul sheep in the country is important. (Moradi, 1394). Qaraqul sheep are raised in the north of the country from Badakhshan to Herat. In terms of wool and meat, it is in the second and third ranks but its main purpose is high quality skin, which is highly valued in international markets and 2.5-2 million volumes of skin are sold annually in London and New York markets (Sistani, 2008). According to the same author, over the past 25 years, Afghanistan has lost 40 percent of its animals, or 23 million heads, as a result of the civil war.

According to another report, approximately 50-60 percent of the country's exports were agricultural and livestock products, including 2 percent qaraqul, 2.7 percent wool, 7.2 percent carpets and kilims, 5.6 percent leather and 0.4 percent were intestines. In other words, before the wars, the share of animal products in the country's total exports was close to 17.9 percent (Zia, 1392). Qaraqul sheep is one of the original breeds of sheep in our country that produces the best ornamental skins for trade. The flowers on the skin of the Afghan cranberry are like the waves of the sea, from this point of view it has attracted the attention of the world. In terms of quality, continuity of elegance and beauty of its flowers, it is suitable for preparing expensive and fashionable clothes and if you need 25-30 volumes of Qaraqul skin to make a women's top and it is sold abroad for thousands of US dollars. For this reason, most countries have tried to cultivate it in their country, but have not been able to achieve any desired results with the exception of South Africa, which began breeding in 1907 and has grown considerably but the sex and longevity of South African skins cannot be compared to the sex and longevity of Afghan and Central Asian countries. In addition to our country, these countries are the major exporters of Qaraqul skin in the world, followed by South Africa but the skin of South Africa, due to its light weight, variety of flowers and special radiance, has attracted increasing attention of the world (Sorkhabi, 1388). The rump of Qaraqul sheep is small that the most important product of Qaraqul sheep is the skin of one-day-old lambs, which is very valuable in foreign markets. The value of each piece of skin is determined based on the main properties of the skin, namely color, shine, type and curl of hair, size and weight. Qaraqul wool is not high grade and is used by the owners themselves to produce wool goods. The meat production of this animal is not high, but in places where lambs are slaughtered on the day of birth, about 50 kg of milk is milked from each herb (Zanouz, 1382). The birth weight of a lamb is 3 kg that The duration of lactation is 105-120 days. Milk production per period is 65 kg, average gestation period is 149 days, average annual wool production is 2200 g, average fertility is 91.1%, average fertility is 94.5%, average lambing is 98.7%, average of twins is 7.36% (Nasr, 1390). The results of another research show the average birth weight in Andkhoy and Qorghon districts of 3.3 kg. Moradi (1394) also reports the average live weight of 410 head of Qaraqul sheep that were bred for meat production in Shulgareh district at the age of 25.2 kg with 55% net carcass weight. Another author reports the carcass weight of the new generation of Qaraqul Maldari as 16.6 kg and after gaining 32.3 kg with 0.3 kg of weight per day. According to this author, the Maldavian Qaraqul generation is heavier and produces more milk. This generation is also resistant to some diseases and produces better skin. Other characteristics of this generation, according to the same author, have given such information. Weight of lamb after calving 5.2 kg, at 20 days 9.1 kg, at three months 23.7 kg and at six months 41.4 kg, Live weight of six month old lambs was 34.4 kg, 18 month old lambs were 71 kg and 18 month old ewes were 50 kg (Buzu, 2006).

### 3. Research Methodology

In this research, the production characteristics of Qaraqul, Arab and hybrid generations in Samangan province have been studied and implemented. Newborn lambs after birth are listened to by ear number and to determine the quality of carcasses of Qaraqul, Arab and hybrid sheep from the slaughterhouse of the center and four districts of Samangan province, three lambs of Qaraqul breed, three lambs of Arab breed and three lambs of The hybrid offspring were randomly selected and then the live weight of each was measured and measured using traverses. To conduct this research, three methods of observation, questionnaire and interview have been used. In general, the physical properties of lambs, namely the birth weight of lambs, lambing rate, dualing rate, lamb weight at six months of age, age of first calving, milk production, wool weight, wool fiber length, meat quality, grazing strength, Percentage of lamb's mortality up to one year, weight loss in winter and carcass composition in three generations were considered. Digital scales were used for weighing and meters were used to measure fiber length.

In the interview section, 60 experienced people and sheep owners, including 4 sheep owners, 4 shepherds from each district, which makes up a total of 60 people, were interviewed. In order to collect data and information on the relevant subject, two types of questionnaires have been prepared, one of which is related to livestock and the other type is related to livestock experts, officials and livestock directorate of Samangan province, which included (90) people. These questionnaires included the preparation of printed questionnaires and their distribution in the districts of Hazrat Sultan, Firooz Nakhchir, Khorram and Sarbagh, on two waters and the center, which were selected as the areas of the present study. In Roy-e-Doab district, a total of 20 sheep in three villages under study, in Hazrat Sultan district, a total of 20 sheep in three villages, in Firuz Nakhchir district, a total of 20 sheep in three villages, in Khorram and Sarbagh districts, a total of 20 sheep in 20 villages and in the district The center consisted of a total of 20 sheep from three villages that three villages from each district and 4 people in each village were selected completely randomly using a lottery. During data collection, in addition to completing questionnaires, interviews and visits, in order to further enrich the images of herds, winter feed, how to weigh lambs, how to weigh scissors, how to measure fiber length with a digital camera Was taken.

### 4. Result

The findings of this research, which were conducted in relation to the characteristics of Qaraqul and cross-breed generations in Samangan province, are as following:



Figure 1: Lamb weighing at six month of age

#### 4.1 Lamb weight at six months of age

One of the other characteristics of this research was the weight of a lamb at the age of six months, the results of this research showed that the average weight of Qaraqul lambs at the age of six months was 28 kg and hybrid of 23.5 kg, from this point of view, the highest weight at the age of six months belongs to the Qaraqul generation and the lowest to the hybrid generation.

#### 4.2 Wool Production

Another production feature considered in this research was wool production that the results obtained for this description are presented in Table 1. According to these results, the highest wool production is related to Qaraqul sheep and the lowest production is related to crossbred sheep. As can be seen, Qaraqul sheep produce an average of 1.5 kilograms of wool, which is the highest wool production but hybrid sheep produce 1.4 kilograms of wool and from this point of view were in the second and third grade.

Average production of impure, pure wool and fiber length in Qaraqul and hybrid generations.

Table 1: Wool Production Average

Origins	Average production of impure wool per kilogram	Average production of pure wool per gram	Wool fiber length in centimeters
Qaraqul	1.5	500	10
Hybrid	1.4	430	8.5



Figure 2: Measurement of fleece under research

#### 4.3 Age of First Calving

The age of first calving was found to be 18-19 months in the two generations of sheep under research. From this perspective, there was no difference between the generations, but differences were observed between the research areas. In Hazrat Sultan and Firooznakhchir districts, the age of the first calving was slightly higher, probably due to the lack of winter feed for sheep in these two districts.

#### 4.4 Lamb birth weight

One of the other characteristics of this research was the weight of lambs at birth. Qaraqul sheep lambs weight 4 kg at calving and hybrid at 4.5 kg at calving. There were differences in this perspective between old and young sheep. Newly slaughtered lambs were eaten and found larger than sheep in their second and third pregnancies.

#### 5. Discussion

lamb weight at six months of age: The study and findings of the present research regarding the weight of lambs at the age of six months are similar to the report of Moradi (1394). Moradi (1394) reports that the weight of lambs of Qaraqul breed during weaning is 25.2 kg but according to the present research, the weight of Qaraqul lamb is 2.8 kg less than that due to the difference in lactation time of lambs in different provinces of the country, the climatic conditions of pastures and the difference in climate from one year to another. Khaldari (1382) also says that rapid growth causes animals of lower age to reach a suitable weight for slaughter and less time for breeding. Weaning age varies according to environmental conditions, breeding method, milk thistle production, lamb growth rate and digestive tract for forage consumption. Lambs should not be weaned earlier than 5-6 weeks of age or when they weigh less than three times their birth weight. Usually 90-120 days old is considered as a basis for comparing different animals and is calculated. The present research found that the weight of a lamb at the age of six months, according to Khaldari (1382), was the same. The weight of Qaraqul lambs at the age of six months according to the present research is slightly different from the findings of Moradi's research. Another source reported the weight of Qaraqul lambs at the age of six months as 23.7 kg, (buzu, 2006) which is different from the weight of lambs at the age of six months according to the present research. The weight of Qaraqul lambs at the age of six months in Samangan districts is 4.3 kg more than buzu report (2006) that The reason for this is the difference in the

weight of lambs at the age of six months in two studies and the difference in regional conditions. The average weight of Arab lambs at the age of six months in the districts of Samangan province is 0.4 kg lighter than the weaning weight of Arab lambs in Khuzestan province of Iran that The reason can be different breeding conditions in different areas. According to the results of the present research, the comparison of the weaning weight of the Arab generation and the Qaraqul generation shows a significant difference, the weight of the Arabian lamb at the age of six months is 4.1 kg less than the Qaraqul breed. This indicates the lower genetic potential of Arab lambs and their less effective use of the region's poor pastures. The research findings also showed that the Arab generation has a faster growth rate from the age of one month of birth and their growth rate slows down from the age of one month onwards. The reason for the difference in growth rate at different ages is probably related to the difference in the production of breast milk, the difference in climate and the difference in grazing conditions. The Arab generation is not different from the hybrid generation in terms of lamb weight at the age of six months and they are similar. Another thing about the daily weight gain of lambs is the effect of heterosis or hybridization. The results of a research showed that cross-breeding of Nyani and kind generations has the highest effect of heterosis on daily weight growth during birth to weaning. The crosses of the Nyani and Qaraqul generations were also found to be the most positive heterosis in calving weight and food intake (Farid 1977). The report of this research in terms of lamb weight at the age of six months contradicts the results of the present research and Cross-breeding with Arabic did not cause any positive heterosis in lamb weight at the age of six months, knowing the reason for which requires separate studies and research. The results show that in terms of lamb weight at the age of six months, all 30 hybrid lambs were completely characteristic of purebred Arab breed and no significant difference was observed in them but in comparison with the Qaraqul generation, a considerable difference was observed from the point of view of this trait and the weight of a hybrid lamb at the age of six months is 4.1 kg less than the Qaraqul breed and similar to Arabic.

### 5.1 Wool Production

The findings of the present research on the size of annual wool production in three different generations showed that there is a difference between them. Among these three generations, Qaraqul produced more pure wool than Arabi and hybrids. Similarly, hybrids and Arabic were in the second and third place in terms of the weight of wool produced annually which The hybrids were moderate in terms of wool production and the weight of hybrid wool production was 70 grams less than Qaraqul generation and 60 grams more compared to Arab generation. The annual production of Qaraqul generation wool was 130 grams higher compared to the Arab generation, which can be attributed to the genetic difference between the Qaraqul generation and the Arab generation. According to Nasr (1390), the average annual production of Qaraqul sheep wool is 2200 grams and the average annual production of Arabic sheep wool is 1800 to 2800 grams, which shows a difference of 1.700 grams with the results of the present study. Also, the difference between the sheep of the Afghan Arab breed and the Iranian Arab breed is 1.430 grams. Iranian Qaraqul and Arabi sheep produce more wool than Afghan Qaraqul and Arabi sheep due to genetic differences between generations of different regions and the number of times Chinese wool per year. Because in the present research, only dark fish wool was observed and it should be note that currently almost 70% of sheep owners cut their sheep only once a year. Farmers attribute this to the low value of sheep wool in local markets, the cold winter weather in the region and the cost of Chinese wool. Johari (1397) reports that the average production of Qaraqul generation wool is 1.7 kg, the average production of Arabian wool is 1.26 kg and the average production of hybrid wool is 1.39 kg. The findings of the present study on the average production of Qaraqul, Arabic and hybrid wool are similar to the mentioned report. Nasr (1390) reports that the average wool production in Turkmen Dalaq sheep in Golestan province is 1.8 kg, the findings of the present research are similar to the average production of Qaraqul wool. Suri (1384) reported that the annual wool production of Qaraqul Toos sheep is 1.96 kg which This report is based on the findings of the present research on the annual production of Qaraqul sheep wool (0.46) grams, which may be due to nutrition, environment, heredity, etc.

### 5.2 Age of the first calving

Saadat Nouri and Siah Mansour (1390) say that sexual maturity in a male lamb depends on several factors, including weight, age, breed, climate, calving season and food, respectively. It seems the weight of the animal to be more effective in this regard than other factors which Probably the nutrition issue to this. Experience has shown that autumn lambs reach maturity later than spring lambs and Also, large breeds reach puberty later than small breeds which of course, this trait depends on racial characteristics. It should be reminding that in a breed, lambs that grow faster and reach higher weights, mature sooner. Climatic conditions in terms of temperature and humidity are effective in maturing lambs. In general, lambs between 6 to 12 months of age in Iran are able to mate however, in terms of generation and reproduction, they are usually used from 18 months onwards.

So the findings of the present research, the age of the first generation corresponds to the report of Saadat Nouri and Siah Mansour (1390). Rashiq (1385) says that the breeding age of ewes is mostly bred in the second breeding season after their birth, when they are eighteen months old, and give birth to their first lamb at the age of two. Ewe lambs are not usually used for breeding and Livestock developmental breeders never allow this. In this case, they are born for the first time in one year. As a result, the findings of the present research are completely consistent with the report of Rashiq (1385) in terms of the age of the first generation. Moradi (1394) writes that some ranchers believed that if they had access to abundant forage and the presence of an experienced shepherd, one third of the lambs would reach sexual maturity at the age of six months and become pregnant, otherwise, they reach sexual maturity at the age of 12 months. From a one-year-old ewe (mish shishak), both poor lamb and poor quality skin are obtained. Sheep produce strong lambs when they are four years' old. Shishak sheep are born with a weak lamb, which at this age mating more on the ewes. In addition, the breeders stated that the strong male sheeps should not be tired after three times that Otherwise, double-lamb ewes will be born in the following years due to the effect of cross or such heifers. As a result, the findings of the present research confirm this report.

### Conclusion & Commendation

The following conclusions can be drawn from the present research on the production characteristics of Qaraqul, Arabi and their hybrid sheep. Although Qaraqul sheep is a skin generation is known for the skin of its baby animal but it also has other important economic features that need to be addressed. Among these sheep wool has better quality, produce more milk, adapts to harsh cold conditions and nozzle feeds and they have the ability to walk long distances to go to summer pastures. Whenever this sheep is to be mixed with

other domestic or foreign generations, it needs to be done on the basis of a regular generation program and to achieve defined goals in order for a new generation to emerge, it has the desired economic characteristics and characteristics of adaptation to the environmental conditions of Afghanistan but great care must be taken against the extinction of this generation. Preservation of native germplasm is an inescapable issue. The protection of the plasma mass of the Qaraqul sheep breed is an inalienable principle but generation experts can use this generation by mixing it with other domestic or foreign generations in the production of new generations.

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