

Regionalization of Sheep Breeds Reared in the Republic and Impact of Melatonin and Progesterone Hormones on the Mating Campaign

Siala Rustamova*, Mirzammad Hasanov, Zulfugarly Yusif

Institute of Veterinary Research of MoA of the RA

**Corresponding author e-mail: siala.rustamova@gmail.com*

Abstract

The paper studied the ensuring of innovative development in the preparation of reproduction and feeding strategies within the “Sustainable development of the sheep breeding and the creation of a value chain for food production” project in the farms of the republic, mating campaigns among sheep breeds and their adaptation peculiarities. In addition, a month before the introduction of rams into the flock, melatonin and progesterone hormones had been added to the barley and corn bulgur gruel in the form of a powder and were given to ewes, and the percentage of estrus and lambing was studied.

At the same time, the specific features of the Balbas sheep breeds, the percentage of lambing among ewes fed with different feed ratios, and the live weight of the newborn twin lambs in groups were also analyzed.

Key words: regionalization, exterior, rational feeding, infections, congenital company, selection, breed, adapted.

Introduction

Development of breeding and feeding strategies within the “Sustainable development of sheep breeding and the creation of a value chain for food production” project, funded by the Government of Azerbaijan and has been carried out since December 2018 within the framework of the partnership program between FAO and Azerbaijan, and development in a sustainable form the value chain for sheep breeding in order to ensure the production of a product based on the market requirements is one of the goals that should be achieved.

Specific characteristics of local sheep breeds should be analyzed and taken into account during regionalization in order to ensure and regulate continuous, sustainable and rational development of sheep breeding in the Republic. The very unique properties of many sheep breeds and their adaptive abilities should be studied (genetic resistance to diseases, adaptation to abrupt climate change, high lambing, etc.) (Golikov, 1985). Strict control over the genetic biodiversity of sheep and the establishment of an appropriate system for its management give a very big guarantee for global food security, as well as for satisfaction of needs of the population for food and other raw materials (hides, leather, wool, yeanling, etc.) (Veniaminov & Sergeev, 1979; Veniaminov, 1981). Therefore, the regionalization of sheep breeds should be carried out correctly in accordance with the biological and economic characteristics. Thus, rearing of Balbas breeds in Nakhchivan AR, of Bozakh breeds in Ganja and Gazakh regions, Azerbaijan Mountain Merino in Gadabay and Shamkir regions, Absheron and Gala breeds in Absheron peninsula, Garadolak breed in Agjabadi region, Jaro breed in Lankaran region, Absheron, Godek breeds in Guba-Khachmaz regions, Karabakh, Lezgi and Herik breeds in Sheki-Zagatala and Shirvan breed in Kur-Araz regions would be much more reasonable (Erokhin *et al.*, 1999; Zhiryakov *et al.*, 2002).

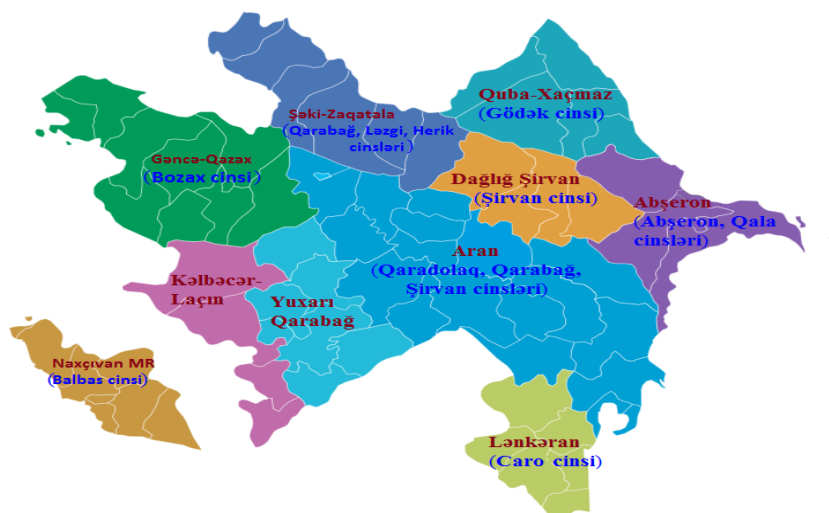


Figure 1. Map in Azerbaijan Republic

In accordance with the plan for regionalization of breeds, the color of the Balbas breed which is widespread and reared in clean conditions in the territory of the Nakhichevan Autonomous Republic is white color with scars around the eyes, ears and legs and has black spots below the joints. In terms of productivity indicators, the Balbas sheep, and to this day being one of the best sheep breeds raised in the South

Caucasus region, is developing in the meat, wool and dairy directions. Balbas sheep are hornless have high-quality wool, and their milk is fatty (Gaffarov, 1975; Gaffarov, 1952). The live weight of sheep is up to 55 kg, and rams - more than 65 kg. The accumulation of fat in the tail is 6-7 kg in rams and 4-5 kg in ewes, the wool of breed is white and rather fluffy, 12-17 cm longwise. Shearing of rams for wool is 3-4 kg, and sheep is 2.5-2.8 kg. Wool of the Balbas breed is highly valued in weaving, especially in carpet weaving. The yield of milk in Balbas sheep is higher in comparison with other local sheep breeds (Rushanov, 2015; Terentyev, 2004). During lactation, sheep of the Balbas breed can produce 70-75 kg of marketable milk. This breed was created as a result of folk selection. The legs are long, have strong hooves with well-developed joints. Therefore, these sheep can move 18-20 km per day during migration and graze freely on the slopes of the mountains. In well-fed flocks, the live weight of sheep is 60-70 kg, and the live weight of rams is 80-88 kg, sometimes 100-110 kg. Balbas sheep have a high ability to inherit their breed traits. Therefore, the regionalization of this breed in the Autonomous Republic, in accordance with its biological and economic characteristics, is appropriate.

Materials and methods

Research work has been carried out mainly among experimental animals kept in the auxiliary production-experimental farm of the "Araz" Scientific and Production Unit named after academician Hasan Aliyev operating in the Nakhchivan Autonomous Republic and in the base station of the Shakhbuz region. During the experiments, 40 heads of Balbas ewes were used/applied/enrolled/registered in the research. The study analyzed the specific features of the Balbas sheep, kept in sheep farms in various regions of the Autonomous Republic, and their mating campaign. In order to conduct an organized mating campaign, a month before the introduction of rams into the flock, the ewes were given barley and corn bulgur gruel with the addition of melatonin and progesterone hormones in a form of powder. As a result, the sheep manifest a desire to be covered by rams concurrently, and the inseminated sheep give lambs concurrently. Due to the large number of testicles in the sheep, to which the effects of the hormones melatonin and progesterone are applied, the number of twin lambs born during insemination was also high. We have studied mating campaigns in sheep breeds and their adaptive characteristics. To this end, a month before the introduction of rams into the flock, the sheep have been divided into 4 groups and fed in four forms: A) (normal feeding - control group), B) (intensive feeding - group 1), C) (mixed feed prepared from barley, sorghum and corn bulgur - group 2), D) (powdered melatonin and progesterone hormones mixed with barley and corn bulgur - group 3).

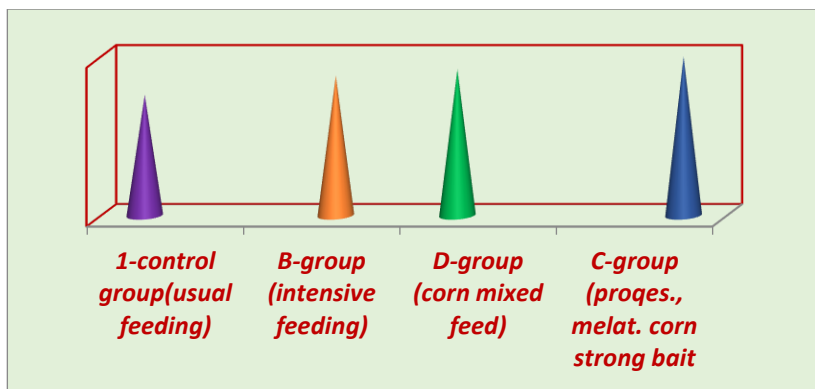


Figure 2. Diagram of feeding by groups in ewes, a month before the introduction of rams

During the analysis of research and experiments, estrus and lambing in mother sheep, which were fed with different feeding norms at the auxiliary experimental farm of “Araz” Scientific and Production Unit, were studied as follows.

Table 1. Estrus and lambing among ewes fed with different feeding norms

№	Group	Number of experimental sheep	Feeding a month before mating	Estrus (in-%)	Lambing percentage	Live weight of one day lambs (kg)
1	A-control	10	Normal feeding	70	80	2,5-2,8
2	B-1	10	Intensive feeding	80	90	2,6-3,0
3	C-2	10	Mixed feed: prepared from barley, sorghum and corn bulgur	90	110	2,0-2,7
4	D-3	10	Mixed fodder: powdered melatonin and progesterone hormones mixed with, barley and corn bulgur	100	140	1,8-2,5

Newborn lambs, A – being on-the-move actively in the control group, 2.5-2.8 kg, lambing -80%; B - live weight of lambs, born in group 1 was 2.6-3.0 kg, lambing - 90%, C - average live weight of lambs, born in group 2 was 2.0-2.7 kg, lambing- 110%, D - the average live weight of lambs born, in the group 3 was 1.8-2.5 kg less

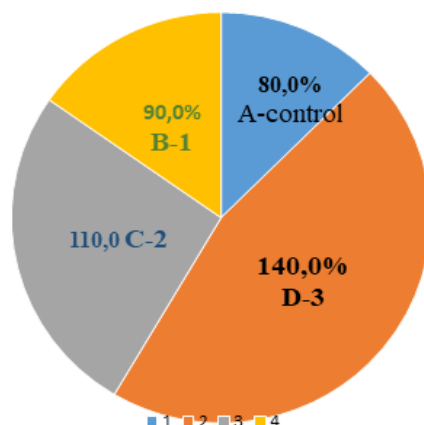


Figure 3. Chart. Lambing rate among ewes (percentage)

compared to twin lambs, lambing - 140%. As you can see, for an organized mating campaign, if the ewes are given the melatonin and progesterone hormones, added to bulgur gruel prepared from barley and corn, a month before introducing the rams into the flock, one can get 120-140 head of lambs per year from each hundred head of ewes. Sheep reach sexual maturity at the age of 8-9 months, but the first mating is recommended at the age of 12-18 months. In sheep, the sexual cycle lasts an average of 17 days, estrus lasts 24 hours, and the gestation period lasts 145-150 days. Sheep breeds belonging to short-day animals, that is, their sexual activity manifests itself in the fall, when the days become shorter. Various types of mating are used at this time. With free mating, the rams are introduced into the flock of sheep freely (per 20-25 head of ewes one ram). Although this type of mating is simple, it requires presence a number of rams. During the manual mating method, the tested rams are allowed into the flock. Sheep having estrus are determined and mated on a special bench. With this mating method, one ram is kept for 60-80 head of ewes. Artificial insemination allows the most valuable breeder to be widely used. During artificial insemination, 300-400 head of ewes are inseminated with the sperm of one ram. As a result of such activity, the ewes show a desire to be covered by a ram at the same time, and inseminated sheep give birth at the same time. A normal lambing in sheep usually takes 30-40 minutes. As soon as the lamb is born, its mouth should be wiped dry. After the mother has finished licking the lamb, the person controlling the fetus should fertilize the lamb. Fertilization of lambs with colostrum is one of the important conditions. In the absence of mother's milk, the lamb is fertilized with the egg yolk or colostrum of another sheep which gave born concurrently. Colostrum contains healthy substances that cleanse the lamb's stomach and intestines. Colostrum increases the body's resistance, prevents infections, as well as diseases of the gastrointestinal tract. The ewe which gave a birth is kept in a sheep pen together

with a newborn lamb for 2-3 days. In addition, sheep is not released into the flock for 6-7 days. In sheep breeding, lambing is carried out in winter and spring. If the sheep pen is warm and there is a sufficient feeding base for winter lambing (Enjoying a warm sheep pen and sufficient feeding base for winter lambing will lead to viable and more productive lambs), viable and more productive lambs are obtained. Lambs born in winter should be fed with good/high quality food. Each lamb, along with at least 0.6-0.7 kg of dry hay per day, should also be given mixed feed (compound feed). To one head of lamb is given 5-7 gr. of granular salt per day. In addition, rock salt (licking salt) is put in the sheep pen.

Result

Regionalization in accordance with biological-farming characteristics of sheep breeds raised in the republic should be carried out on the basis of plan for regionalization of breeds.

In order to conduct an organized mating campaign, a month before the introduction of rams into the flock, it is advisable to give ewes the barley and corn bulgur gruel with the addition of melatonin and progesterone hormones in the form of powder.

During winter and on sunny days, one should let the pregnant ewes out for walking in the open air/area every day. This has/results in a good impact on the health of ewes, easy delivery and normal development of the lamb.

The feed allowance of ewes should be composed correctly and the feed norm of sheep kept in pasture conditions should be increased by 15-20%. During the wintering period, the ration should contain 70% of dry hay, 20% of cereals, 8% of juicy fodder (fodder beet), and 2% of mineral feed additives.

External environmental factors, coldness or extremely warmth of the air or a sheep pen (yard), sudden weather changes and the presence of bilateral air flow in the sheep pen have a negative effect on the body of the ewes. The temperature in the sheep pen should be 10-12 ° C, and in the place of keeping the little lambs - 15 ° C. In winter, sheep pens should be dry, at a normally warm temperature and kept clean.

Two weeks before the birth, the ewes should be selected and grazed under the supervision of experienced shepherds. The sheep should be looked after, fed, cleaned, and other processes must also be performed at the same time every day in accordance with the work schedule.

References

- Veniaminov, A.A., & Sergeev, N. I.** (1979). Sheep Increasing the reproductive ability of sheep. M. Rosselhozzat, 111.
- Veniaminov, A. A.** (1981). Breed forming in sheep breeding //Animal husbandry. 8: 48-49.
- Golikov, A. I.** (1985). Adaptation of farm animals. M. Agropromizdat, 101.
- Gaffarov, A. K.** (1975). Recommendation on the use of trace elements in sheep breeding in Tajikistan. Dushanbe, 18.
- Gaffarov, A. K.** (1952). Development of measures to improve the feeding and keeping of Hissar sheep//Author. dis. Cand. e. x. sciences. M. 20.
- Erokhin, A. I., et al.** (1999). The effectiveness of industrial crossbreeding of merino with meat-wool rams//News TSHA. 4: 144-154.
- Zhiryakov, A. M., Shaidullin, I. N., Yu, S., et al.** (2002). Scientific basics of the restoration and development of Romanov sheep husbandry in the Russian Federation. Sheep, goats, woolen work, 4:1-
- Rushanov, A. A.** (2015). Biological features of Balbas sheep. Monography – c. Nakhichevan - 79-84.
- Terentyev, V. V.** (2004). New breeding achievements in sheep breeding. Agricultural science, 5:144-154.