A Proposal for Breeding Male Materyal in Small Ruminant Farming

Murat Yılmaz[1], Kadir Kızılkaya[1] Kemal Çelik[2], Ahmet Uzatıcı[2]

[1]*Adnan Menderes University, Faculty of Agriculture, Department of Animal Science, Aydın, Turkey*
[2]*Çanakkale Onsekiz Mart University, Faculty of Agriculture, Department of Animal Science, Çanakkale, Turkey*

Abstract
The title of the proposal addresses to the provision of breeding rams and bucks for small ruminant farms and some test stations for practical uses. To provide breeding male animals free from diseases is one of the biggest problems of small ruminant farming. Farms that can not find suitable breeding male materials have to use the same rams or bucks for long periods of time and thus the herds have not reached the desired levels in terms of the yield and yield declines are the case. By establishing ram-buck provision and test stations, this problem could be solved to according to the expectations of the breeders to provide qualified rams. The main target in the establishment of these centers is to collect ram or buck candidate male offsprings through pre-selection methods from the farms where the breeders can not keep them in their herds due to economical hardships. After the tests, the selected convenient breeding candidates could be utilized in the breeding herds in natural or artificial insemination methods to meet the need for breeding male materials, where extensive breeding is in use and where recording systems have not yet been launched yet, and towards the roles of the Breeding Sheep and Goat Breeders' Associations.

Keywords: breeding ram, Breeders' Associations, buck, test stations

1. Introduction

Sheep and goat breeding has been done all over the world extensively. In some developed countries having small ruminant flocks in great numbers, various breeding programs have been conducted and in general, open nucleus breeding schemes are recommended for a better sheep and goat breeding program in these countries [1, 2]. However, Turkey differs quite a lot from the other countries with regard to its climatic, topographic, cultural and social structures. There are sheep and goats in various genotypes, adapted to different regions. It has been observed that there are differences in the breeders' expectations and in the breeding methods. One of the foremost problems of the small ruminant breeding is the reality of the provision of male breeding materials which are secure of diseases. Since suitable male breeding material did not exist, the same ram or buck was used in the farms, and as a result of this obligation, the flocks did not reach the expected yield levels. It is an alarming situation for some farms that the yields have started to fall to undesired levels. In this article, some difficulties and proposals are given towards the establishment of test stations to provide breeding male material for small ruminant farming in countries like Turkey

2. Materials and methods

To provide breeding male animals is one of the biggest problems of small ruminant farming in Turkey. In this study recommendations are given about solutions to the problem. Breeding ram and buck provision and test stations have been proposed for this.

* Corresponding author: Murat Yılmaz
Tel: +90256 772 70 23, Fax: +902567727233,
Email: myilmaz@adu.edu.tr

Firstly, some information is given about the state of small rumminant farming in Turkey and Turkey Breeding Sheep-goat Breeders' Associations and their functions.

3. Results and discussion

The State of Small Rumminant Farming in Turkey. By 2000, the population of Turkey, which was 67.804.000 in that year, could be seen to have increased nearly five times when compared with the population in 1928. However, during the same period, the number of animals increased solely 1.39 times. While per person animal number was 2, 45 heads in 1928, the same value was 0.69 in 2000. According to the statiscis, the population increased 138% between 1945 and 1980, whereas animal number only increased 68%. After 1980, our population increased 52%. But unfortunately the animal number had a decrease of 45%. When compared with the population increase, the animal presence in Turkey performed a certain increase until 1980 even if it was not sufficient. Nevertheless, after 1980 this increasing trend lost its rise completely and turned into a fast decreasing form due to the terror, migration and the wrong breeding policies applied. This deficiency started to bite gradually around 2000 [3, 4]. The small ruminant farming that displayed a decrease until 2009 started to indicate a halting state in the following years (Table 1). In 2011, cattle made a 9% and small ruminant animals made a 10% increase with respect to the previous year. However, this increase is a relative one. As the recordings were not kept regularly, this increase might not reflect the real conditions of that period.

Table1. The number of sheep and goats over the years in Turkey [3]

Head	Sheep	Goats	Total
2001	26 972 000	7 022 000	44 542 000
2002	25 173 706	6 780 094	41 757 298
2003	25 431 539	6 771 675	41 991 316
2004	25 201 155	6 609 937	41 880 438
2005	25 304 325	6 517 464	42 348 229
2006	25 616 912	6 643 294	43 131 570
2007	25 462 293	6 286 358	42 785 404
2008	23 974 591	5 593 561	40 428 094
2009	21 749 508	5 128 285	37 601 751
2010	23 089 691	6 293 233	40 752 724
2011	25 031 565	7 277 953	44 695 855
2012	27 425 233	8 357 286	49 697 431
2013	29 284 247	9 225 548	52 925 052
2014	31 140 244	10 344 936	55 708 289
2015	31 507 934	10 416 166	55 918 171

For this reason, another significant problem could be mentioned here, the recording system. To make recording compulsory for farms was no doubt a positive approach, since all the animals could be taken under recordings. On the other hand, these recordings could not be updated every year, and some problems were experienced about the number and the genotype of the animals [3].
The governmet made the earrings mandatory to support the breeders and to make the records of the sheep and goat becaus it was not possible to conduct a breeding program regionally or throughout the country without adopting a reliable recording system, and for farms to define the present animals sufficiently.

3.1. Turkey Breeding Sheep-Goat Breeders' Associations and their Functions. These associations first started to be established in 2001. Today, there are 80 associations in 80 provinces.

In the organization of small ruminant breeding, the backing up policy provided by the Ministery of Food, Agriculture and Breeding has been encouraging. Thanks to the earring application to sheep and goats since 2006, and with the encouraging of the earring aids, and the membership condition to associations in order to get these aids, the breeders' interests and memberships to associations have increased [5-7]. However, these breeding associations have not been functioning for their main aims and contents except for the fact that the ministery views these associations as mediators in distributing the aids. Similary, it will not be wrong to say that member breeders, including some board members, are not fully aware of the fundamental aims and activities of their associations in most cities, except for few provinces [5-7]. Unfortunately, it could be said that the situation is partly the result of the wrong policies of the ministery as well. Breeding Sheep and goat Breeders' Associations function as breeding associations and are only viewed as a bridge to transfer the aids to breeders.

In Turkey, the government keeps the earrings compulsory in order to keep the sheep and goats under recordings and to aid breeders, and annually pays around 7.65 euro per head for full grown sheep or goat as earring aid. In addition to this, another aid of 4.61 euro has been made for sheep and goat milk. The breeders participating in the projects conducted in the title of "Breeding in the Herds of the Farmers Directly" under the coordination of the Ministery of Agriculture are given nearly 10.77 euro for full grown animals and approximately 12.31 euro for the offspring once in a year. In province, only 6.000 animals and totally 30-50 farms have been supported [8]. Despite these aids, it could not be achieved sufficiently and accurately to keep animal recordings. Unless perfect recordings are provided, it is not possible to carry out breeding operations.

3.2. Ram/ Buck Stores and Test Station

Healthy breeding male material provision is one of the biggest problems of small ruminant farming. Another problem in this matter is the problem of correct recordings. In reality, the breeders can not keep sufficient number of male animals in their flocks due to economical reasons. In general, they either keep the same male material from their own herds or prefer to buy a male breeding animal from another flock nearbye once in 4 or 5 years. This method, in the long run, could increase the kinship in the flock, which could lead to some decline in the yield and development characteristics. It could also bring about further troubles in time. The aim of any breeding programme is to genetically improve one or more traits of economic importance. [9]. Generally, the breeders select the best females for breeding, taking their body structures, developments, milk and offspring yields and even behavioral characteristics into account, and they tend to remove the bad, unproductive, ill and old ones from the herd. In this way, the farms manage their female selection in some way. The lacked points here are the observation of the herds, keeping the yield records, and the provision of convenient and qualified rams or bucks, which is the most important drawback in breeding. Since lamb sales are significant following weaning, the breeders prefer to sell all male lambs, or they reserve one or 2 heads as breeding male offspring. As a result of using the same ram or buck for a very long time, and then using the same ram's/buck's offspring as the breeding male animals, the yields of the flocks decline significantly in time. That's why, paying high amounts of money, the breeders trend to buy a ram or buck whose outer look he likes, but whose yield he can never know.

Breeding associations should establish ram or buck stores and test stations in order to supply their ram or buck needs for the breeding flocks. In these stations, the gap in the breeding male material will be resolved with the production of new breeding males using the qualified rams and bucks in natural mating and Artificial Insemination (AI) methods, and thus more controlled matings could be achieved. With the (AI) methods, sperms, either fresh or frozen, will be able to be used simultaneously in more farms in any desired period. Apart from these, via ram utilization programs, controlled mating programs can be employed in different farms with a rotation program for the rams the breeders already have and the ones in the stores.

3.3. How Can Breeding Ram/Buck Stores and Test Stations Be Established?

For these applications, pilot regions should be determined having sufficient pasture and shelter facilities. These test stations should carry out their tasks under the control of breeding associations.

The farms who keep regular and healthy recordings should be included into the study by making contracts. According to the number of farms where the study will be done, the sufficient numbers of rams or bucks that have the characteristics the breeders are seeking for should be collected with their pedigree recordings, if they have, and particularly with their outer looks and health screening and should be taken into the ram and buck test and store stations, and should be kept there. In addition, in case of any demand, additional sperms belonging to domestic or foreign good genotypes should be provided as well. Frozen sperm usage in sheep breeding could lead to a low pregnancy rate in insemination. For this reason, it can be used for bucks more freely.

First year, sheep and goats should be inseminated using the fresh sperms of the rams and bucks kept in the farms which are well in recording and feeding, and which are healthy and free of disease. Every year after the births in these farms, lambs and kids that the breeders will demand for and that have physical outer characteristics should be taken to ram stores, and every year the animal number should be increased in the stores. Besides their own needs, the breeders should be supported to keep additional one or two candidate rams in their herds and not to sell them until the next year.

The male lambs and kids that are ram-buck candidates and that are taken to test station are subjected to some measurements. In this way the characteristics of their maintanence and feeding conditions, as well as some body characteristics, are determined through tests. These male offsprings are further tested to define their sperm yield and characteristics. Infertile and insufficient ones are taken out and sold, and the rest are put in an order according to their scores determined by the measurements. The sperms of an approved number of rams and bucks are frozen, or as fresh, they can be used for the insemination of the animals in the farms that have been contracted with. The best breeding animals tested in the stations are kept there and the others can be given to the approved farms. For a genetical progress in a generation, selection of the male animals is more determinative than the selection of the females. The most secure way in the selection of the rams is to control of the offspring (progency test), especially in view of the characteristics that can only be seen in females about milk yield.

To define the performances of the rams or male lambs, such as meat yield, offspring control is applied. In addition, for the milk yield, the selection can be made according to the yields of the female offsprings.

During the initial years, a number of well managed farms can be included in the study. After the candidate rams and bucks are selected in the light of existing records, and particularly of physical appearance characteristics, and after the selection reaches at a certain sufficient number, the best breeding animals can be selected according to pedigree and yield records. Furthermore, a special female population could be made up for the ram-buck store; however, this would not be a practical method economically. Recordings are the most important data in this matter, so the data of the farms whose recordings are carefully made should be taken into account and these flocks must be checked up for any disease risks regularly every year. Additional rams and bucks supported and kept in farms should be taken to the store and they should be given additional feeding according to their conditions. They should be controlled about health and sperm characteristics, as well. Then they could be mated in different farms using artificial insemination methods.

Another alternative for the farms is that the ram and buck candidates that have been used for a long time by them can be tested for health prior to the mating season and ram and buck exchange programs could be prepared among the member farms. All these studies should be carried out under the authority of the associations and should technically be supported by the universities and should be aided by the Ministery. In the test stations, ram/buck transfer from breeder to breeder should be able to be conducted every year under the control of the associations.

3.4. The Main Purpose of the Breeding Ram and Buck Provision and Test Stations

The fundamental purposes of these centers are to take candidate ram or buck offsprings that can not be kept in farms economically by the breeders into the test stations through pre-selection, and thus to be able to meet the breeding male needs of the herds in natural or artificial insemination methods with the approved and selected breeding candidates. Some of the further aims can be stated as to make offspring controls of the most eminent

candidate breeding males in elite flocks made up of selected females in time, and to create a superior breeding male animal and sperm market during this process. Another application that could be done in these stations is that the rams and bucks that the breeders have used sufficiently and that they want to sell off could be taken into these stations according to their yield performances and could be encouraged to use in different farms. In addition, the utilization periods of the rams and bucks as breeding animals, and in which farms they will be used again afterwards will be monitored and conducted through the mating programs of the stations. Test stations will test the candidate ram and bucks collected from the regional breeders about their subjective characteristics in short term. On the other hand, in the long term, they should be targeted to be turned into the best and certified breeding ram and buck production stations with offspring controls as a result of creating an upper flock. By taking breeder expectations and market conditions into account, hybridization studies can be conducted in these stations and new genotypes could be provided.

3.5. The Breeding Ram and Buck Provision and Test Stations could be planned in 2 ways

1. After weaning, candidate males can be brought to test stations and tested here for a long time according to their characteristics. Later, they are tested in elite female flocks and offspring control is made, and so they can be selected to be used in breeding flocks. In this method, a suitable sized elite female flock created in a long process together with a good peligree system is the must. The application of this method and the feedback requires a long time. In addition, because of the drawbacks of the sperms kept frozen in sheep, it will not be economical to keep a limited number of male materials.

2.a) In the farms whose conditions are well, breeders should ve given additional support to keep extra 5-10 more male offsprings that could be breeding ram and buck candidates in addition to their own needs. Until the male offsprings are taken to breeding ram and buck stations, the animals should be kept in their own farms. These farms should have good recording, maintenance and feeding systems. Later, these animals are tested in the station for a short time (2-3 months) for diseases and for some characteristics (colour, body structure, body length, BCS, etc.), and are ranked according to a score index. Farms are also ranked according to their maintenance, feeding and the animal numbers they have. The breeding males and farms are matched according to their scores. Breeder farms that keep good recordings and that have animals of high yields should be regarded as elite flocks. The male and female materials that will be produced in these farms should be certified as much as possible keeping detailed recordings and they should be seen as core herds.

2.b). Good quality rams and bucks that have been used sufficiently in breeder flocks and that are thought of being sold off can also be taken to test stations. They can be taken into quaranteena and the healthy ones could be used in different farms in artificial or natural insemination methods.

3.6. Difficulties in the Establishment of Ram-Buck Stations

1. Some financial resources are needed for sheltering and feeding of the rams and bucks as well as for the performances of some other applications.
2. An area of adequate size is necessary for the establishment of test stations and for pasturing the animals.
3. Artificial insemination and sperm storing units should be put into practice the most urgently.
4. Some personal and technical staff is needed in the farms for maintenance, feedin, some testing applications, artificial insemination and animal health.
5. A good recording system should be created and sustained in the farms.
6. The breeders who are to cooperate should be trained to have the necessary information on some specific matters.
7. The numbers of full growns, rams and bucks used in breeding, and the candidate breeding male offsprings in the present farms should be determined in the regions where breeding ram-buck provision and test stations are planned to be established.
8. Characteristics of the ram and bucks that the breeders demand should be well determined.
9. Conscious farms that could be examples and whose infrastructures are convenient should be chosen.

10. For the sustainability of the ram-buck stores and test staions, financial aids are mandatory.

In the countries like Turkey, where sheep and goat breeding is done extensively, the breeding associations should be supported for their technical and scientific developments and they should particularly be directed at male breeding animals. In the mandatory animal supports for the provinces, the amount of the associations' shares should be increased and this income should be used to support the ram and buck test stations. In addition, they should be encouraged to set up their commercial organizations through which they can market live animals and animal products and some cuts like taxes could directly be transferred to some reaserch funds. Moreover, the associations should be capasitated for the purpose of better recording and accessibility to all farms within the province. All reaserch and development activities in this matter should be supported.

4. Conclusions

To sum up, if ram-buck provision and test stations can be established, the breeding male materials can easily be provided under the control of the associations regularly and in a healthy way. (AI) is not a common method in small ruminanat farms, particularly in sheep breeding. However, Provided (AI) is to be used in a farm, sheep and goats should be synchronized and then inseminated. The females that haven't been conceived, should be known that they will enter the next cycle altogether. For this reason, they should be mated or inseminated by taking all the necessary precutions.

In order to promote the animals to their ideal yielding levels, environmental conditions should be improved first in a sustainable and economical way, taking the breeders' present conditions into account. The breeders should be prevented from using the same ram or buck for a very long time. It is proposed that the search for breeding rams and bucks could be solved via ram-buck stores and test stations and this could provide a significant development in animal breeding and contribute to the issue significantly.

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