

# National Sheep and Goat Breeding Program and Breeder Associations' Collaboration Systems of Turkey

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## Abstract

Sheep and goat breeding has an important role in Anatolian cultural and social life for many years. Turkey is one of the major goat and sheep breeding country in Europe and it has approximately 9.2 million goat and 29.2 million sheep population which has attractive breeding systems and genetic diversity. Some major Turkish goat breeds are Angora, Kilis, Damascus, Hair goat and Honamli goat and sheep breeds are Akkaraman, Morkaraman, İvesi, Karayaka Hemsin etc. The goat population in Turkey goat population is composed of the Hair goat (97%) (Anatolian Black) and big part of sheep population are composed of Akkaraman and Morkaraman breeds (approximately 95%) and rest of population consist of different local breeds. The hair goat serves multiple purposes (mainly meat and milk), but it's productivity is quite low. Same situation is possible sheep production and Turkish breeders are using sheep for meat production primarily and milk production at second aim. Goat production is distributed to whole of Turkey but it is high intensity especially at mountainous region of Mediterranean, South-East Anatolia. Sheep production is differ from goat production and it is localized central Anatolia and East and South east Anatolia as extensive systems. In addition heavy nomadic systems and family farming type farms localized in east and south east Anatolia. South-East Anatolia region production systems are characterized as basically extensive and semi-extensive systems. On the other hand last ten years private sector investment has been getting increase especially west part of Turkey.

Due to decrease in the number of goats in Turkey at last ten years, Ministry of Food, Agriculture and Livestock (MFAL) has started National Sheep and Goat Breeding Program with Breeders and Turkish Sheep and Goat Breeders Association. Project set up 2 breeds (Akkaraman Sheep and Angora Goat) and it has reached to 12 sheep&goat breeds, 472 breeders and 80.000 animals in first stage. In second stage of the project it was expanded, due to project efficiency and requests of breeders. It is continuing with 28 national sheep and goat breeds and approximately 960.000 animals. This project has multi-partners (Breeders associations, Universities, Research Institutes of MFAL and it aims to improve native pure-bred species together with sheep and goat yields and at the same time set up national breeding program for goat and sheep production of Turkey at the same time.

## Introduction

Turkey is located in the eastern Mediterranean as a bridge between European and Asian continents. Total land area of Turkey is 785.347 km<sup>2</sup> and its population is a 75. 627.384 in 2012. Turkey has different animal domestic genetic resources as well as geographic importance and is taking place very important position in livestock production of Europe. Turkey is also one of the

most important countries in the world in terms of animal genetic resources. Turkey has 29.2 million sheep and 9.2 million goats (Figure 1) which is represent 28% of EU sheep population and 63% of the EU goat population respectively (Anonymous, 2014, 2013a). Although sheep and goat productions have many advantages in Turkey, the levels of milk production for per head, growth and carcass yield of animals are very low and not enough for intensive production level. Main reasons for low yield in sheep and goat productions are insufficient genetic improvement programs, traditional breeding methods, inadequate organizational structure and poor technical capacity of breeders. Sheep and Goat Breeders Association (SGBAT) in Turkey is very young and has been supported to develop better organizational structure for last five years. Currently SGBAT are organized with approximately 171 thousands members and 18.7 million registered sheep and goats in 80 different provinces of Turkey. As a result of low educational level, inconvenient socio-economic capacities and lack of organizational infrastructure of small ruminant breeders, these conditions do not allow them to be open to innovations in animal production. All of these mentioned reasons and problems are big barriers in front of the SGBAT and are waiting to solve.

To improve organizational infrastructure of SGBAT, increasing technical background of breeders and all of other necessities (set up small ruminant registration system), SGBAT had to needed to be supported by Ministry of Food, Agriculture and Livestock (MFAL). At this point MFAL have started to National Sheep and Goat Breeding Programme (NSGBP) and collaboration with SGBAT.



**Figure 1.** Sheep and goat populations in Turkey (Anonymous, 2014).

### **National Sheep& Goat Breeding Program in Breeder Conditions (NSGBP)**

Turkey mainly is divided into mainly seven geographical regions as seen in Figure 2. Different animal species and breeds and livestock systems carry on in seven regions. The statistics about animal production from Turkish Statistical Institute (Anonymous, 2014) indicates that there are 14.4 million cattle, 117 thousand water buffalo, 29.2 million sheep, 9.2 million goat (Figure 1)

and 257 million poultry in Turkey. MFAL has initiated National Sheep & Goat Breeding Programme (NSGBP) in the field conditions to solve the some main problems in the sheep and goat production. In the beginning of this project there were only two local breeds (Akkaraman sheep and Angora goat), which were selected as base animal material, within two provinces in Turkey. After NSGBP is started, it is improved by getting supported from partners and many Breeders organizations. The development of Sheep and Goat Breeders Association has been stimulated by the start of this project in 2006 the involvement of researchers at the Universities and MFAL-Research Institutes.



**Figure 2.** Geographical regions of Turkey (Anonymous, 2013b)

In the course of time, the project has been developing for six years and it is actually continuing with 23 sheep and 5 goat national breeds, 61 provinces, 5.000 breeders and approximately 960.000 small ruminants. The project has a selection programme and technical staff in each sub project collects data for selection. When breeders deliver the data to project leader, breeders receive financial cash support from MFAL through SGBAT (Sheep and Goat Breeders Association in Turkey).

If sheep or goat breeders want to be partner of project, they have to registered to provincial Sheep and Goat Breeders Association. Main difference of this programme from other MFAL projects are summarized below;

- Programme covers all sheep and goat production partners
- Breeders are important partner of the programme
- Breeders associations are motivated with this programme
- Scientific infrastructure of Sheep and Goat Breeding programme has started with programme
- The main component of the programme is to improve the awareness of breeders
- MFAL supporting system efficiency has started to increase.

## Project aim

The aim of the project is the improvement of different yields (milk, meat, mohair, prolificacy) of national (local) sheep and goats in breeder conditions in Turkey. While improving yield characteristics of small ruminants, infrastructure system of breeder organization, setting up animal registration systems and thereby the awareness of livestock breeders will be increased and also protect local gene resources of Turkey in breeders level

## Method

Principal of the programme is pure breeding and basic selection methods (Figure 3). Animal materials of the project were divided into 3 main groups such as elite, semi elite and base flocks (Figure 3). Elite flock provides high quality rams and he-goats for the semi elite flock. Animals in the elite flock are under full control. All the activities about mating are recorded by the breeders and technical staff of the project. The collected data are sent to the project leader for genetic evaluation to select the parents of next generation. Sheep & goat breeders as project partner have to allow ram & billygoat to be transferred among flocks based on the protocol with the association.



**Figure 3.** Project plan (prepared by Daskiran, İ.) (Anonymous, 2005)

## Project Partners

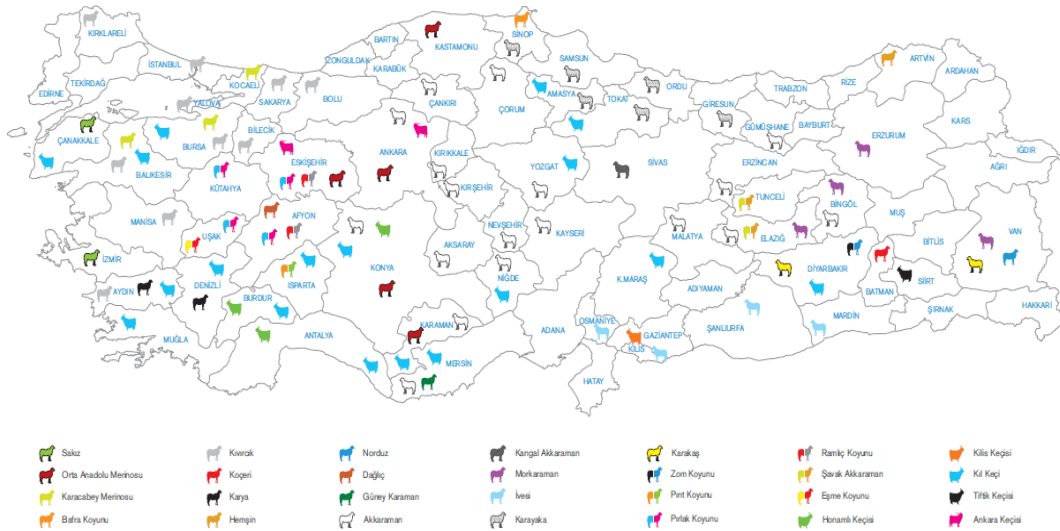
For efficiency of the project and productivity of the project partners, network is very important. We collaborated with the all sector partners in this project. Researchers from Universities and

Institutes of MFAL, Breeder Associations and sheep and goat breeders are gathering for the first time. All of them try to develop breeding strategies, and improve small ruminant production. Actually we collaborate with 25 universities all over Turkey and 40 project leaders working on the projects. Benefits of project leaders from the projects are to provide real situation for researches and to use the project budget for different scientific researches. The results from these researches are being used to improve animal materials of the projects. Except for using scientific material, they do not take any extra consultancy fee. Project leaders from MFAL Research Institutes are also taking active role in the project. Coordination of the project are provided by MFAL-General Directorate of Agriculture Research and Policies, Livestock and Fisheries Department (GDAR-TAGEM). Most important partners of the project are 54 breeder associations. They have been responsible for all of implementation process of the project, collection of data, works of technical staff in the project and breeder training activities for 2012.

## Project areas

Currently, the second period of the project has been carrying out in Turkey. The first period was implemented between 2005 and 2010 and covered approximately 80.000 goat and sheep, 472 breeders by cooperation with 13 province breeders associations.

The second period has started in 2011 and it will be finished in 2016. As of the date of 2013, sheep and goat population reaches to approximately 960.000 animals and the number of sub projects is more than 140. Sixty-one sheep & goat breeder associations have supported to this projects in 61 provinces. As seen in Figure 4, the projects cover the big part of Turkey.

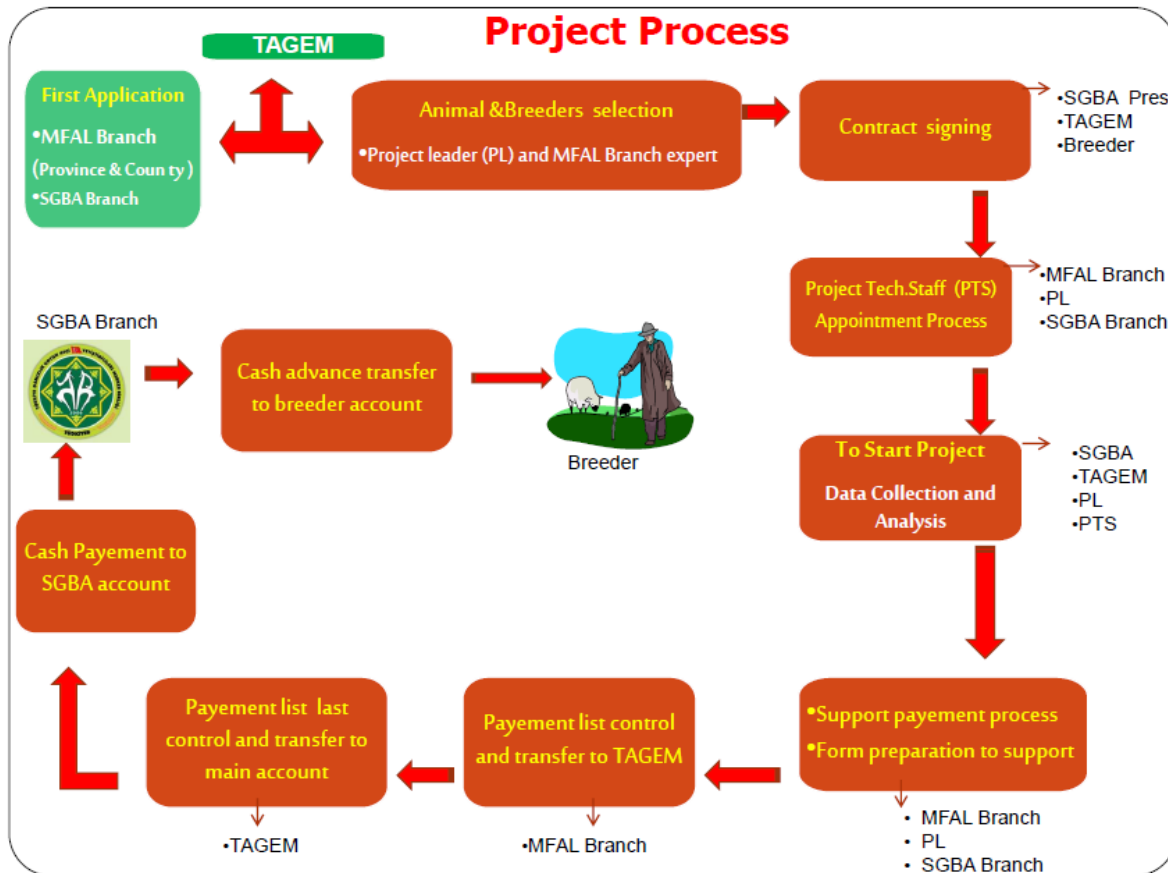


**Figure 4.** Distributions of projects and sheep and goat breeds in Turkey

## Main Activities and Organizational Structure

Main activities of the project are based on the data collection. Thus all teams in the project focus on correct and regular data collection from animals and analysis by using different computer programs. A technical staff (zootechnician, veterinary or animal or veterinary operator) is hired for each project and his salary is paid from budget of the project. MFAL provides financial

support to breeder for each animal. Project leader works with project technical staff, breeder association and GDAR-TAGEM. Breeder associations have to provide logistic support to project leader, project technical staff and share all responsibilities. Project leader collects needed data for improving yield characteristics of animals and carries out the data analysis. GDAR-TAGEM (General Directorate of Agriculture Research and Policies, Livestock and Fisheries Department) holds on annual meeting for coordinating project. All project leaders attend to this meeting and they present own data, results, problems and solutions. Annual evaluation meeting provides good opportunities all researchers and project leaders for sharing their experiences. The plan of the next year project is also determined in this meeting. The final report of annual meeting is prepared by GDAR-TAGEM experts and sent to all project partners. Process chart of project is given in Figure 5.



**GDAR-TAGEM:** General Directorate of Agriculture Research and Policies, Livestock and Fisheries Department;  
**SGBAT:** Sheep and Goat Breeder Assoc. of Turkey; **PL:** Project Leader, **PTS:** Project Technical Staff

**Figure 5.** Project process (Prepared by Daskiran)

### Perspective and Results

Actually project is in the second phase. TAGEM is going to plan one extra period to continue some projects between 2016 and 2021 and some of them will be transferred to sheep and goat associations. In this term MFAL may have developed new project vision and supporting systems based on regional or country prioritization (Daskiran et al., 2012). On the other hand within

targeted time, animal registration system must be set up and started to apply selection. Main goal of this project is established high quality breeding sheep&goat farms and develop high genetic capacity ram and billy goat in Turkey. As seen from this goal, the first and most important rule is to set up and sustainable animal registering system. The second important aim is to support the animal breeder organizations and set up infrastructure organization. Project supports for breeders to take active role in breeding and improve awareness. During the implementation period of the project, the project technical staff gathers data and training breeders on animal feeding, housing, health and breeding methods. In addition, sheep and goat researchers are promoted and their scientific activities have developed. Project leaders have produced 40 international articles and 44 national articles.

Project capacity (animal, project area, human resources capacity) is large and coordination is the most important instrument for reach the targeted aim.

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