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Ankara (Tiftik) Keçisi Yetiştiricilerinin Tiftik Üretimi ve Pazarlama Yapılarına İlişkin Hayvancılık Faaliyetlerinin Değerlendirilmesi

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ÖZET: Ankara keçisi yetiştiriciliği son yıllarda Türkiye'de önem kazanmaktadır. Ankara keçisinin anavatanı Türkiye olmasına rağmen son birkaç on yılda sayıları önemli ölçüde azalmıştır. Bu nedenle ulusal bazda kamu tarafından küçükbaş hayvan yetiştiriciliği projesi yürütülmeye başlanmıştır. Bu ulusal projenin alt projelerinden biri de Ankara keçisi yetiştirme projesidir. Bu araştırmada Ankara keçisi alt projesine katılan yetiştiricilerin hayvancılık faaliyetleri, tiftik üretim ve pazarlama yapıları değerlendirilmiştir. Buna göre yetiştiricilerin tiftik fiyatlarını yetersiz bulması, verimliliğin düşük olması, mera sorunları, çoban sorunları ve hastalıklardan kaynaklanan hayvan kayıplarının başlıca sorunlar olduğu ifade edilebilir. Yetiştiricilere verimliliği artıracak teknik destek ve diğer desteklerin sağlanması, elde edilen tiftiğin pazarlanmasına kamu gücünün dahil edilmesi ve özellikle çoban istihdamına ilişkin etkin politikaların sağlanması önerilmektedir. Proje kapsamının genişletilmesi, yetiştiricilerin hayvanlarına başka cins hayvanları eklemeden sürdürülebilirliği sağlaması ve projedeki desteklerin projeye dahil olmayan işletmelere de yaygınlaştırılması önerilmektedir. Bütünsel ilerlemenin sağlanmasının önemli olduğu düşünülmektedir.

Anahtar Kelimeler – *Ankara Keçisi, Yetiştiricilik, Tiftik üretimi ve pazarlama, Türkiye.*

Evaluation of Livestock Activities Associated with Mohair Production and Marketing Structures of Angora (Mohair) Goat Breeders

ABSTRACT: Angora goat breeding has been gaining importance in Türkiye in recent years. Although Turkiye is the homeland of the Angora goat, their numbers have decreased significantly over the past few decades. For this reason, a small cattle breeding project has started to be carried out by the public on a national basis. One of the subprojects of this national project is the Angora goat breeding project. In this research, the livestock activities, mohair production and marketing structures of the breeders participating in the Angora goat sub-project were evaluated. Accordingly, it can be stated that breeders find mohair prices insufficient, productivity is low, pasture problems, shepherd problems and animal losses due to diseases are the main problems. It is recommended to provide technical support and other supports to the breeders that will increase productivity, to involve the public power in the marketing of the mohair obtained, and to provide effective policies, especially regarding the employment of shepherds. It is recommended to expand the scope of the project, to ensure that the breeders ensure sustainability without adding animals from other breeds to their animals, and to extend the supports in the project to enterprises that are not included in the project. It is considered important to ensure holistic progress.

Keywords – *Angora Goat, Breeders, Mohair production and marketing, Türkiye.*

1. Introduction

Angora goat breeding is carried out throughout Türkiye in the provinces of Ankara, Konya, Karaman, Eskişehir, Afyon, Çankırı, Çorum, Kastamonu, Kırşehir, Kütahya, Niğde, Yozgat, Bolu, Siirt, Mardin, Bitlis and Van (Tarım ve Köyişleri, 2004). According to TURKSTAT data for 2023, Ankara province has 76.40% of the country's entire Angora

goat population and exhibits the best breed characteristics here. Cultivation is carried out in all districts of Ankara province, and Güdül, Ayaş, and Beypazarı districts are the most intensive cultivation regions. The Central Anatolian plateau has the most suitable breeding conditions (Örkiz, 1980).

The main purpose of breeding Angora goats is to obtain mohair, which is used as an important raw material for the textile industry. Mohair, a valuable animal fiber, is soft, thin, shiny, and white in color and does not contain kemp hair. White mohair is in great demand in trade and industry. Colored mohair, on the other hand, is used by blanket producers in the domestic market in the region where it is located or by turning it into traditional products such as carpets, rugs, hats, and gloves for touristic purposes.

1.1. Angora goat breeding and mohair production in the world

The main mohair producers in the world are Türkiye, South Africa, USA, Lesotho, Argentina, New Zealand, and Australia. Despite Anatolia being the homeland of the Angora goat, unfortunately, with the start of Angora goat breeding in other countries after 1836, Türkiye remained in the background in mohair production and export.

With the establishment of mohair spinning in England in 1835, the demand for mohair increased and the interest of other countries in Angora goat breeding increased. Breeding efforts were successful when Angora goats were brought to South Africa in 1838 and to the United States in 1849, and the foundations of the mohair industry were laid through commercial initiatives. Later, commercial scale initiatives were successfully completed in Australia and New Zealand (Yalçın, 1986).

World mohair production increased until 1998 and reached its highest level of 25.95 thousand tons. However, it decreased to 23.89 thousand tons in 1989, and a sharp decline occurred in the 1990s. This decline continued in the following years. In the last 20 years, production figures have followed a more stable course, and today approximately five million kg of mohair is produced (Woodward, 2022; Petrie, 1995).

According to data received by Textile Exchange from Mohair Rewiev, 4,550 tons of raw mohair were produced in 2019 and 4,430 tons in 2020. World mohair production in 2021 is as follows: Republic of South Africa 2,160 tons, Latvia 740 tons, Turkiye 460 tons, Argentina 360 tons, USA 230 tons, New Zealand 30 tons, Australia 10 tons and other countries 330 tons, a total of 4,590 tons of mohair. produced (Textile-Exchange, 2021).

South Africa produces more than half of the world's mohair. In South Africa, which produced 2,400 tons of raw mohair in 2013, this figure decreased by approximately 3% to 2,330 tons in 2021. The share of South Africa, which had 53% of the world mohair production in 2013, decreased to 51% in 2021. Mohair production in other countries except Türkiye and the USA has decreased. Türkiye's mohair production accounted for approximately 6% (260 tons) of the world's mohair production in 2013. However, in 2021, this figure will increase by approximately 81% to 470 tons, and Türkiye's share in world mohair production will increase from 6% to 10%. The USA, on the other hand, increased its mohair production from 150 tons in 2013 to 250 tons, an increase of 67%, and its share in world mohair production increased from 3% to 5%. In Australia, mohair production has almost halved, in New Zealand it has decreased by approximately 33% and in Lesotho by approximately 6%.

Although Türkiye has a deep-rooted history as an Angora goat breeder, it ranks third in production. While the total world mohair production was 0.26 tons in 2013, today it is more supported and with the positive results of the implemented policies, mohair production increased by 62% and rose to 417 tons in 2022.

While there is a global decrease in mohair production, Türkiye continues to gain momentum and increase the number of animals, mohair production, mohair quality, and efficiency. While it had approximately 6% of the world mohair production in 2013, it proves that it is an important producer in the mohair industry, reaching a share of 10% in 2022.

1.2. Presence of small ruminant animals, Angora Goats, and mohair production in Türkiye

While the total number of small ruminants in Türkiye was recorded as 51.2 million in 1991, it decreased until 2009 and reached the lowest level of 26.9 million. However, the number of small ruminants has continued to increase since 2009. In 2020, the total number of small ruminants was recorded as approximately 54.1 million (TURKSAT, 2023). In this way, after 29 years, the animal population returned to the 1991 level and even exceeded it. While the presence of domestic sheep, merino, and hair goats has increased, the existence of Angora goats has decreased significantly and is even almost in danger of extinction.

The existence of small ruminant decreased between 2007 and 2008, and one of the main reasons for this was drought. Drought decreased the production of barley and other forage crops and resulted in a 100% increase in prices. During this crisis period, feed was imported at high prices. To cope with the increase in global food prices, export restrictions have been introduced, and agricultural supports and domestic market regulations have been implemented. However, during this period, no changes were made in the support for farmers in Türkiye (Ergun and Bayram, 2021; DAKA, 2012; Saygın and Demirbaş, 2017; Yıldırım, 2008).

During this crisis, maternal animals were sent to slaughter, and this situation continued until 2009, causing the presence of small ruminants to decrease (Ergun and Bayram, 2021). This decrease occurred in parallel with the presence of sheep and goats. However, the presence of goats decreased more than the presence of sheep. The presence of Ankara(Angora) goats experienced a greater decrease than the presence of hair goats and fell to the lowest level in 2009, 146.9 heads. However, the incentives, supports, and policies implemented after 2009 have yielded successful results, and the animal population has increased in all breeds.

While there was a total small livestock presence of 57 million 519 thousand heads in 2021, it decreased by 2.18% in 2022 to 56 million 266 thousand heads. While the sheep population decreased by 1.1% compared with the previous year, the goat population decreased by 6.2%. The biggest reason for the decrease in the amount of small livestock is the increase in red meat prices and breeders sending their animals to slaughter. Small ruminants have a share of 76.77% of total animal wealth.

In the small livestock population, sheep have a share of 79.42% and goats have a share of 20.58%. There are 11,578 thousand head of goats in 2022, of which 97.77% are hair goats and 2.23% are Ankara (Angora) goats (TURKSAT, 2023). It is seen that the ratio between goat and sheep wealth has not changed much in the past period, but the share of Angora goats in total goat wealth has decreased significantly.

1.3. Türkiye number of sheep sheared animals and wool, hair, and mohair production

The number of animals sheared in Türkiye decreased continuously between 1991 and 2009. However, the number of sheared animals increased after 2009. While the amount of wool obtained from domestic sheep was 57,902 tons in 1991, it increased to 73,633 tons in 2021 and decreased to 72,681 tons in 2022. While merino wool production was 2,590 tons in 1991, it increased to 12,283 tons in 2021 and decreased to 12,204 tons in 2022. While the amount of hair obtained from goat hair was 3,955 tons in 1991, it increased to 6,162 tons in 2021 and decreased to 6,393 tons in 2022 (TURKSAT, 2023).

In 2022, fleece and mohair production decreased compared with the previous year. Domestic sheep fleece production decreased by 1.29%, merino fleece production by 0.65%, hair production by 4.58%, and mohair production by 10.86%. Compared with 1991, merino fleece production increased by 371.26%, hair production increased by 61.67%, and domestic sheep fleece increased by 25.52%. The fleece yield of merino is much higher than that of domestic sheep and others. Unfortunately, mohair production decreased by 69.74% despite the increase in wool and hair. The mohair obtained from the Angora goat decreased from 1,379 tons in 1991 to 417 tons in 2022.

Fleece/wool yield per animal increased from 1.46 kg to 1.79 kg in domestic sheep. The average amount of fleece/wool obtained from merino is between 3.07 and3.17 kg per animal. The average hair yield per animal is between 0.54 and 0.60 kg. The average yield of mohair obtained from Angora goats per animal increased from 1.53 kg to 1.76 kg (TURKSAT, 2023).

As the demand for raw mohair increased in the early 19th-century, Türkiye could not raise its flocks quickly enough to meet the demand. Efforts to increase the number of mohair-producing animals using hair goats and crossbreeding them with Angora goats have become widespread in breeding regions. This situation led to a significant decrease in the number of purebred Angora goats (Lambert, 1937). This situation has significantly affected the mohair quality and yield. During this period, while the availability of mohair decreased in Türkiye, Angora goat breeding developed in South Africa and the USA, and the production volume was increased by conducting studies on mohair yield and quality.

When examining the distribution of the Ankara (Angora) goat population by province in 2022, Ankara ranks first, followed by Siirt, Eskişehir, Mardin, and Bolu province. In 2022, Ankara will have 76.51% of the mohair population, Siirt has 7.19%, and Eskişehir has 4.75%. In 2022, the presence of mohair decreased by 11.01% compared with the previous year. While it decreased by 7.24% in Ankara, the presence of mohair decreased by 85.42% in Karaman, 41.23% in Kırıkkale, 39.06% in Siirt, 32.52% in Kastamonu, and 27.84% in Bolu.

In Türkiye, no direct support was given to mohair producers between 1994 and 1999. However, Yapağı ve Tiftik A.Ş. was established in 1955 to support the production of merino fleece and mohair, which are important raw materials for the weaving industry. was established. This company purchased mohair from mohair producers through subsidy purchases until 1994. However, this company closed in 1995 (Şahinli, 2011). Reasons such as the end of support purchases, producers turning to meat production, which they see as more profitable, instead of mohair, prices not being in line with the interests of producers, and traders being influential in market prices have led to a tendency to decrease in mohair production.

To prevent decreases, it was included in the scope of support again by providing Direct Income Support to Ankara (Angora) goat breeders between 2000 and 2005 (Ankara Development Agency, 2018). However, this support measure could not prevent a decrease in the presence of mohair.

The aim of this study is to determine the socioeconomic structures of Ankara (Angora) goat breeders in Ankara province within the scope of the Public Small Cattle Breeding National Project conducted by TAGEM. This study aims to reveal the sociodemographic aspects of the enterprises, determine the breeding structure of the enterprises, reveal the main purpose of breeding, identify marketing opportunities, determine satisfaction with the support, examine the problems experienced in breeding, and determine their impact on breeders.

2. Materials and Methods

The main material of this research consists of primary data obtained from the survey conducted with all 61 enterprises breeding Ankara goats in the sub-project within the scope of the Public National Livestock Project in Ankara. Data were collected through a survey from face-to-face interviews with agribusiness owners involved in the project using the full census method. The public breeding project has been providing both economic and technical support since 2005 for pure breed breeding of local Ankara (mohair) goats, especially in Ankara province, and to obtain sustainable quality mohair. It is of great importance for breeders to select animals with strong racial characteristics for the continuity of the herd. The project provides high quality and sustainable mohair by selective breeding from highly qualified individuals and certain breeding techniques, while also allowing quality breeders to be obtained.

Table 1. Districts and amount of Agribusinesses Studying
Tablo 1. Çalışmadaki Tarım İşletmelerinin İlçeleri ve Sayıları

Districts	**Number of agribusinesses**
Güdül	17
Ayaş	16
Beypazarı	17
Nallıhan	3
Polatlı	3
Haymana	2
Kızılcahamam	2
Çubuk	1
Total	61

The survey procedure was applied to the agribusiness examined. Cross tables were created with the obtained dataset.

Table 2. Distribution of breeders by agribusiness size groups
Tablo 2. Yetiştiricilerin tarımsal işletme büyüklük gruplarına göre dağılımı

	Small animal enterprise size (unit)			**Total**
	0–715	**716–1250**	**1251-+**	
N	20	20	21	61
%	100.00	100.00	100.00	100.00

Statistically, Chi-square test and ANOVA was performed on the variables in the cross tables to reveal the differences between agribusiness size groups.

The chi-square test is used to explain the significance of the difference between observed values (GF) and expected values (BF) (Last, 2001; Dawson and Trapp, 2001). Calculated value (χ^2_{hes}) is compared with the table value (χ^2_{tab}).

3. Research Findings

In the enterprises examined, it was determined that 100% of the breeders in the first group, 90.00% of the breeders in the second group, and 90.50% of the breeders in the third group were male. In total, it can be stated that 93.40% of the breeders are men and 6.60% are women. The ages of the operators are between 20 and 81 years old, and the average age of the agribusiness is 53.44years. It can be said that 52.60% of the trainers are primary school graduates, 11.50% are secondary school graduates, 24.60% are high school graduates, and 11.50% are university graduates. When the shares of breeders' agricultural income in their total income are examined, the rate of those with a share of agricultural income up to 80% is 34.40%, the rate of those with a share of 81-95% is 26.20%, and the rate of those with a share of 96-100% is 39.30%.

Table 3. Employment status of family members in breeders' enterprises by agribusiness size groups
Tablo 3. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre İşletmelerinde Aile Bireylerinin Çalışma Durumu

Employment Status of Family Members in Agribusiness		**Small animal enterprise size (unit)**			**Total**
		0–715	**716–1250**	**1251-+**	
working	N	14	17	16	47
	%	70.00	85.00	76.20	77.00
Not working	N	6	3	5	14
	%	30.00	15.00	23.80	23.00
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
		Chi-Square: 1.286	**df: 2**	**P: P:0.526**	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

When the distribution of the working status of family members in the breeders' agribusiness according to their agribusiness size groups is examined, it can be stated that 70.00% of the breeders in the first group, 85.00% of the breeders in the second group, and 76.20% of the breeders in the third group have family members working in their agribusiness. In total, it was determined that 77.00% of the breeders had family members working in their agribusinesses, and 23.00% had no family members working in their agribusiness. The average family population working in the agribusiness is 3.04. According to the chi-square analysis, the family agribusiness status of breeders does not statistically differ in terms of agribusiness size groups.

The status of breeders in performing crop production activities in their enterprises according to agribusiness size groups is given in Table 4.

Table 4. Status of Breeders conducting Crop Production Activities in Their Enterprises according to Agribusiness Size Groups
Tablo 4. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre İşletmelerinde Bitkisel Üretim Faaliyeti Gerçekleştirme Durumu

		Small animal enterprise size (unit)			**Total**
		0–715	**716–1250**	**1251-+**	
Yes	N	11	13	20	44
	%	55.00	65,00	95,20	72,10
No	N	9	7	1	17
	%	45.00	35,00	4,80	27,90
Total	N	20	20	21	61
	%	100.00	100,00	100,00	100,00
		Chi-Sqaure: 9.004	**df: 2**	**P:0.011****	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

Table 4 shows that 55.00% of the breeders in the first group, 65.00% of the breeders in the second group, and 95.20% of the breeders in the third group perform plant production activities in their enterprises. In total, it can be stated that 72.10% of the breeders perform crop production activities and 27.90% do not.

47.54% of the enterprises dealing with plant production breed wheat and barley. While the purpose of 75.86% of the enterprises breeding wheat and barley is to meet agribusiness needs, 10.34% breed it for both internal use and sale, and 13.80% breed it only for sale. Oguz et al. (2019) stated that 29.41% of enterprises engage in crop production regularly and 70.59% do not.

The status of breeders employing shepherds according to agribusiness size groups is given in Table 5.

Table 5. Shepherd working status of breeders according to agribusiness size groups
Tablo 5. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Çoban Çalışma Durumu

		Small animal enterprise size (unit)			**Total**
		0–715	**716–1250**	**1251-+**	
Employing a Shepherd	N	16	17	20	53
	%	80.00	85.00	95.20	86.90
Not Employing a Shepherd	N	4	3	1	8
	%	20.00	15.00	4.80	13.10
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
		Chi-Square: 2,180	**df: 2**	**P:0,336**	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

Table 5 shows that 80% of the breeders in the first group, 85% of the breeders in the second group, and 95.20% of the breeders in the third group employ shepherds. In total, it can be stated that 86.90% of the breeders employ shepherds and 13.10% does not employ paid shepherds from outside.

8.20% of the enterprises provide their shepherd needs only from the family, 49.18% only from foreign immigrants, 22.95% from families and foreigners, 6.55% from foreigners and villagers, and 6.55% from outsiders.

Because of his study, Özdemir (2009) stated that 46.86% of enterprises employ shepherds from the family, 29.14% employ paid shepherds, and 24% employ both family and paid shepherds. Ceyhan et al. (2015), in their study of goat breeding enterprises in Niğde

province, found that 73.7% of the enterprises were from within the family, 26.3% from outside, 7.9% from within the village, and 13.2% from within the village. It was determined that they met the need for shepherds from the nearby village and 5.2% from another province.

When the livestock assets of the breeders are examined, all of the enterprises are engaged in goat breeding, and the rate of those raising only goats is 36.06%. In addition to goat breeding, 57.37% of the enterprises have sheep and 24.59% have cattle. 68.57% of the enterprises with sheep assets have only sheep, and 31.42% have cattle along with sheep. The number of enterprises that do not have sheep but have cattle in addition to goats is 4. Enterprises that raise cattle stated that they raise milk and dairy products to meet their needs and because the products they produce have market value.

Some information about the mohair obtained from breeders according to agribusiness size groups is given in Table 6.

Table 6. Some Information on Mohair Obtained by Breeders by Agribusiness Size Groups
Tablo 6. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Elde Ettikleri Tiftiğe İlişkin Bazı Bilgiler

Some Information about the Obtained Lint	**0–715**	**716–1250**	**1251-+**	**Total**	**Variance Analysis Results**	
	Average	**Average**	**Average**	**Average**	**F**	**P**
Number of animals sheared	389.40	767.05	1.232.55	796.33	52.345	0.00*
Capricorn mohair	119.79	231.68	633.68	328.39	10.603	0.00*
Main commodity mohair	398.95	927.90	1.588.60	971.82	43.773	0.00*
Secondary mohair	17.50	27.50	53.00	33.31	2.47	0.123
Total amount of lint obtained	507.37	1,188.50	2,216.50	1,317.63	33.214	0.00*
Average Lint yield	1.30	1.55	1.80	1.65		

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

When Table 6 is examined, the number of animals sheared in the breeders' farms according to their agribusiness size groups is 389.40 heads in the first group, 737.05 heads in the second group, and 1232.55 heads in the third group. According to the average number of enterprises, the average number of animals sheared is 796.33. The average amount of mohair obtained in the breeders' farms according to their agribusiness size groups was 507.37 kg in the first group, 1,188.60 kg in the second group, and 2,216.50 kg in the third group. According to the average number of enterprises, the average total amount of mohair obtained is 1,317.63 kg. According to the breeders' agribusiness size groups, it has been observed that the number of animals sheared and the amount of mohair in their enterprises increase depending on the increase in the size of the enterprise. According to the ANOVA test results, the number of sheared animals, kid mohair, main commodity mohair, and the total amount of mohair obtained were found to be statistically significant in terms of agribusiness size groups.

The membership status of breeders in cooperatives by agribusiness size groups is given in Table 7.

Table 7. Membership status of breeders in cooperatives by agribusiness size groups
Tablo 7. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Kooperatiflere Üyelik Durumları

Membership Status			**Small animal enterprise size (unit)**			**Total**
			0–715	**716–1250**	**1251-+**	
Chamber of Agriculture	Member	N	13	15	17	45
		%	65	75	81	73,8
	Not member	N	7	5	4	16
		%	35	25	19	26,2
Agriculture Credit Cooperative	Member	N	10	10	14	34
		%	50	50	66,7	55,7
	Not member	N	10	10	7	27
		%	50	50	33,3	44,3
Mohair Union (Tiftikbirlik)	Member	N	18	20	18	56
		%	90	100	85,7	91,8
	Not member	N	2	0	3	5
		%	10	0	14,3	8,2
Breeding Sheep Goat Breeders Association	Member	N	20	20	21	61
		%	100	100	100	100

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

When the membership status of breeders to chambers of agriculture according to agribusiness size groups was examined, it was determined that 65% of the breeders in the first group, 75% of those in the second group, and 81.90% of those in the third group were members of the chambers of agriculture. In total, it can be stated that 73.80% of the breeders are members of the agricultural chamber and 26.20% are not.

When the agricultural loan membership status of breeders according to agribusiness size groups was examined, it was determined that 50% of the breeders in the first and second groups were members of the agricultural loan, and 66.70% of the breeders in the third group were members of the agricultural loan. In total, it can be stated that 55.70% of the breeders are members of agricultural credit and 44.60% are not.

When the distribution of breeders' membership status to the mohair union according to agribusiness size groups was examined, it was determined that 90% of the breeders in the first group, all of the breeders in the second group, and 85.70% of those in the third group were members of the mohair union. In total, it can be stated that 91.80% of the breeders are members of the mohair union, whereas 8.20% are not.

When the membership status of the breeders in the Ankara Provincial Breeding Sheep and Goat Breeders Association (ADKKYB) was examined according to their agribusiness size groups, it was determined that all of the breeders were members.

In his study examining across provinces, Özdemir (2009) found that 98.29% of the enterprises were members of an agricultural organization, and 78.49% of the enterprises that were members of the organization were members only of the mohair union.

Breeders' marketing channels for the mohair they obtain according to their agribusiness size groups are given in Table 8.

Table 8. Marketing Channels for Breeders' Mohair Produced by Agribusiness Size Groups
Tablo 8. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Elde Ettikleri Tiftiklerini Pazarlama Kanalları

Marketing Channels		Small animal enterprise size (unit)			Total
		0–715	716–1250	1251-+	
Middleman	N	3	2	0	5
	%	15.00	10.00	0.00	8.20
Mohair Union (Tiftikbirlik)	N	2	3	6	11
	%	10.00	15.00	2860	18.00
Direct	N	2	7	6	15
	%	5.00	35.00	28.60	24.50
Cooperative	N	11	6	7	24
	%	55.00	30.00	33.40	39.30
Trader	N	2	2	2	6
	%	10.00	10.00	9.50	9.80
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
		Chi-Square: 17,.87	df: 8	P:0.226	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

When the marketing channels of breeders' mohair obtained by agribusiness size groups were examined, it was determined that 55% of the breeders in the first group, 30% of the second group, and 33.40% of the third group marketed their products through cooperative channels. In total, 8.20% of the breeders market their mohair through intermediaries, 18% through the Tiftikbirlik channel, 24.50% through direct sales, 39.40% through cooperative channels, and 9.80% through merchants. can be expressed.

In his study across provinces, Özdemir (2009) revealed that 96% of agribusinesses market mohair to mohair unions, 3.43% sell it to intermediaries, and 0.57% market it directly themselves.

The distribution of breeders' mohair marketing satisfaction status according to agribusiness size groups is given in Table 9.

Table 9. Distribution of Breeders' Mohair Marketing Satisfaction Status by Agribusiness Size Group
Tablo 9. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Tiftik Pazarlama Memnuniyet Durumu Dağılımı

		Small animal enterprise size (unit)			**Total**
		0–715	**716–1250**	**1251-+**	
Satisfied	N	14	14	14	42
	%	70,00	70,00	61,90	68,80
Not Satisfied	N	6	6	7	19
	%	30,00	30,00	33,30	31,10
Total	N	20	20	21	61
	%	100,00	100,00	100,00	100,00
		Chi-Square: 2,088	**df: 2**	**P:0,720**	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

Table 9 shows that 70.00% of the breeders in the first and second groups and 61.90% of the breeders in the third group were satisfied with the mohair marketing channels. In total, it can be stated that 68.80% of the breeders were satisfied with the mohair marketing channels, and 44.60% were not satisfied with the mohair marketing channels. According to the chi-square analysis, the mohair marketing satisfaction status of breeders does not statistically differ in terms of agribusiness size groups.

Şahinli et al. (2018), in their study with Angora goat breeders in Ankara province, stated that 44.12% of the producers in the first group examined and 63.64% of the producers in the second group were satisfied with the marketing opportunities.

The methods by which breeders obtain information according to agribusiness size groups are given in Table 10.

Table 10. Methods of Breeders Obtaining Information About Livestock Activities
Tablo 10. Yetiştiricilerin Hayvancılık Faaliyetleriyle İlgili Bilgi Edinme Yolları

		District Directorate	**Agricultural Eng/Veterinary**	**Other Producers**	**Cooperatives and Unions**	**PTT Leader**	**University**	**TV**	**Internet**
Yes	N	25	6	20	44	61	3	23	19
	%	41.00	9.80	32.80	72.20	100.00	4.90	37.70	31.15
No	N	36	55	41	17	-	58	38	42
	%	59.00	90.20	67.20	27.90	-	95.10	62.30	68.85
Total	N	61	61	61	61	61	61	61	61
	%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

When the ways of the breeders participating in the research to obtain information about livestock activities are evaluated, it comes to the fore that 72.20% of them prefer to obtain information from cooperatives and unions and all of them from PTT (Project Tecnical Team) and its leader. Even though they benefit from resources such as district directorates, agricultural engineers, other producers, universities, TV, and the internet, they are at a relatively lower level than the cooperatives/unions and PTT leaders.

Özdemir (2009) stated in his study that 82.29% of the breeders obtained information from their traditional knowledge, 2.86% from the Provincial and District Directorate of Agriculture, 10.29% from the Provincial and District Directorate of Agriculture along with traditional knowledge, and 3.43% from research institutions. .

When the status of the examined breeders in benefiting from agricultural support is evaluated, all of the enterprises benefit from the broodstock sheep and goat support for sheep, additional support payment for broodstock Angora goats, mohair production support, and earring support. The extent to which the sheep farming support of the mentioned breeders meets the expectations according to their agribusiness size groups is given in Table 11.

Table 11. Status of Breeders' Small Livestock Supports Meeting Expectations by Agribusiness Size Groups
Tablo 11. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Küçükbaş Hayvancılık Desteklerinin Beklentiyi Karşılama Durumu

		Small animal enterprise size (unit)			Total
		0–715	**716–1250**	**1251-+**	
Not satisfy	N	18	14	17	49
	%	90.00	70.00	81.00	80.30
Partially satisfied	N	1	5	4	10
	%	5.00	25.00	19.00	16.40
Satisfied	N	1	1	0	2
	%	5.00	5.00	0,00	3,30
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
	Chi-Square: 4,127	**df: 4**	**P:0,389**		

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

When the expectations of the small livestock support given to the breeders according to their agribusiness size groups are examined, it can be stated that 90% of the breeders in the first group, 70% of the breeders in the second group, and 81.00% of the breeders in the third group do not meet the expectations of the support given. In total, it was determined that 80.30% of the breeders did not meet their expectations, 16.40% were close to meeting their expectations, and 3.30% met their expectations.

The majority of breeders who stated that the support provided for sheep and goats did not meet their expectations stated that the support should be increased according to inflation. According to the chi-square analysis, there is no statistical difference in whether the small livestock support provided by the breeders meets the expectations in terms of agribusiness size groups.

Şahinli et al. (2018), in their study with Angora goat breeders in Ankara, stated that 55.88% of the enterprises in the first group and 72.73% of the enterprises in the second group did not find the government support sufficient.

Credit usage status of breeders according to agribusiness size groups is given in Table 12.

Table 12. Credit usage status of breeders by agribusiness size groups
Tablo 12. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Kredi Kullanma Durumları

		Small animal enterprise size (unit))			Total
		0–715	**716–1250**	**1251-+**	
Yes	N	12	15	16	43
	%	60.00	75.00	76.20	70.50
No	N	8	5	5	18
	%	40.00	25.00	23,80	29.50
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
	Chi-square: 1,582	**df: 2**	**P:0,453**		

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

Table 12 shows that 60% of the breeders in the first group, 75.00% of the breeders in the second group, and 76.20% of the breeders in the third group use loans. In total, it can be

stated that 70.50% of the breeders use credit and 29.50% does not. According to the chi-square analysis, the loan usage status of breeders does not statistically differ in terms of agribusiness size groups.

In his study with Ankara goat breeders in the provinces of Ankara, Çankırı, Kırıkkale, Eskişehir, Bolu and Aksaray, Özdemir (2009) found that 33.14% used loans for breeding and 66.86% did not.

Breeders' evaluation of the project participation conditions according to agribusiness size groups is given in Table 13.

Table 13. Breeders' Evaluation of Project Participation Conditions by Agribusiness Size Groups
Tablo 13. Yetiştiricilerin İşletme Büyüklük Gruplarına Göre Projeye Katılım Şartlarını Değerlendirmesi

		Small animal enterprise size (unit)			**Total**
		0–715	**716–1250**	**1251-+**	
Easy	N	4	2	3	9
	%	20.00	10.00	14.30	14.80
Middle	N	10	9	12	31
	%	50..00	45.00	57.10	50.80
Difficult	N	6	9	6	21
	%	30..00	45.00	28.60	34.40
Total	N	20	20	21	61
	%	100.00	100.00	100.00	100.00
	Chi-square: 1,956		**df: 4**	**P:0,744**	

*, **,*** statistically significant at the 1%, 5% and 10% levels, respectively

Table 13 shows that 50% of the breeders in the first group, 45% of the breeders in the second group, and 57.10% of the breeders in the third group found the project participation conditions moderate. In total, it can be stated that 14.80% of the breeders found the conditions for participating in the project easy, 50.80% found the conditions for participating in the project medium, and 34.40% found the conditions for participating in the project difficult. According to the chi-square analysis, there is no statistical difference in the evaluation of the conditions for participating in the project in terms of agribusiness size groups.

The problems experienced in Angora goat breeding are given in Table 14.

Table 14. Problems Encountered in Angora Goat Breeding
Tablo 14. Ankara Keçisi Yetiştiriciliğinde Yaşanan Sorunlar

Problems	**Avarage Score**	**Problems**	**Avarege Score**
Low efficiency	4.01	Difficulty obtaining the feed	3.32
Skilled workforce	4.67	Water problem	3.88
Diseases and animal losses	4.39	Pasture problem	4.36
Insufficient infrastructure	3.62	Lack of organization	3.49
High feed prices	4.32	Marketing problems	3.67
Mohair prices	4.68	High credit interest rates	3.49
Breeding animal supply	3.01	Need for an experienced shepherd	4.85

While calculating the average score, the arithmetic average of the scores declared by the agribusiness on the 5-point Likert scale was calculated. 1: Unimportant, 2: Little important, 3: Moderately important, 4: Greatly important, 5: Absolutely important

It has been determined that problems such as not being able to find qualified labor for breeders, high feed prices, mohair prices, pasture problems, and not being able to find experienced shepherds are definitely important problems, while low productivity is a major problem. Inadequate infrastructure, water problems, lack of organization, marketing problems, and high loan interest rates are considered to be moderately important, whereas the supply of breeding animals and feed is considered to be of low importance.

4. Results

Raw mohair production worldwide is decreasing. The main reasons for the decrease in raw mohair production are policies toward animal husbandry, applied support payments, increase in input costs, decreases in the presence of Angora goats, cheaper synthetic raw materials being used instead of mohair, changes in consumers' preferences and tastes, and the reflections of this change on the textile industr. Reasons such as (Şahinli et al., 2018). Similarly, it can be said that the number of Angora goats has decreased in Türkiye. The reasons for this decrease are the neglect of the sector involving sheep and goats in public practices, the decrease in breeding enterprises due to migration from rural to urban areas, the young population wanting to work in cities, market conditions not being in favor of breeders, and low consumer demand for products obtained from goats. Reasons such as not being able to sufficiently benefit from pastures, the shepherd problem and high prices, and most importantly, serious increases in input costs (Ertuğrul et al., 2010; Kaymakçı and Engindeniz, 2010).

There are many other breeders who are not included in the breeding project raising Ankara (Angora) goats. They have become accustomed to cultivation on a smaller scale because it has been their agribusiness for many years. It is considered that the supports applied to sheep and especially Angora goats to date have a weak incentive and incentive feature for the production and purification of animal existence. Breeders who are not involved in the project need to be able to benefit from the advantages of the project, and broader and permanent livestock policies that include small-scale enterprises or breeders need to be implemented. Thus, by addressing all Angora goat breeders, positive results will be achieved in increasing mohair quality and productivity.

The achievements of this project are essential for both the country and breeders. Although agribusiness that will not continue to take part in the project will continue breeding, they may turn to breeding other breeds or types of animals that are more economically advantageous. For example, he may add another goat breed to his herd, or he may not give priority to young animals that produce quality mohair, but may give priority to animals that have a slightly higher butchery value but lower mohair quality. This will cause the quality of the mohair produced to decrease and the presence of mohair to decrease. Therefore, it is important that the continuity of the project includes all breeders. The problems that producers attach the most importance to are low productivity, lack of qualified labor, diseases and animal losses, pasture problems, high feed prices, low mohair prices, and the need for experienced shepherds. Lack of shepherds is a key problem in animal husbandry. Not being able to find trained shepherds also poses a danger to the health of the animals. Due to improper care and feeding, losses occur especially in animals under the control of foreign shepherds. Breeders tend to stop raising Ankara (Angora) goats at this point. In Turkiye, mohair from breeders is collected through unions and cooperatives. It is sold at auction during certain periods and released into the domestic market. There are no records of how much it is used in the domestic market. By planning the mohair production sector, planned production is required to meet the demands of the textile industry and to produce

mohair in quantity and quality in accordance with global market conditions. Thus, the superiority lost over the years in mohair production will be regained. Increasing the productivity of Ankara (Angora) goat breeding enterprises depends on the increase in the effectiveness and scope of support policies implemented to increase the income of the enterprises and raise their living standards. Having a support model that gives priority to agribusiness that generate their income only through breeding, that can use only family labor in their agribusinesses, and whose animal assets are less than 1000 heads, will be possible if the support practices continue regularly.

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