

DETERMINATION OF ECONOMIC AND STRUCTURAL FACTORS AFFECTING ANGORA GOAT BREEDING: THE CASE OF ANKARA

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Abstract

The objective of this paper is to determine the changes on some performance of the Mohair (Ankara) goats farming system during 2017-2018. In this study, we examine production of the goats farms of Ankara province. Economic analysis is implemented by using data from 45 Turkish mohair goat farmers. The gross production value of the establishments is increased for the business groups according to the business groups, ranging from 495,148.74 Turkish Liras (TL) to 731,154.09 TL. According to the average of the establishments, the goat breeding activity is 58.28%, the vegetable production is 40.64% and the sheep breeding activity is 1.08%. In group 1, the share of the mohair in the value of animal production was 13.03%, while it was 14.37% in group 2. According to the establishment groups, the variable costs for vegetable production varying between 15,346.91 TL and 46,411.88 TL, while this value is 38,818.22 TL for the average of the establishments. According to the establishment groups, the variable costs in animal production vary between 91,127.86 TL and 263,160.36 TL. While the total gross profit per establishment in the examined establishments is between 398,915.15 TL and 560,170.95 TL. There was an employee problem with 30.00%, with feed prices with 26.67% and mohair prices with 25.00%, respectively, in the first group. 18.18% of the establishments in the first group and 12.50% of the establishments in the second group have been educated on herd management. Within the scope of the research, it was determined which supports were used by the establishments and it was determined that earrings and mohair support were used the most according to the results of the research. Within the scope of the research, 61.76% of the establishments in the 1st groups use agricultural loans and this rate is 81.82% in the 2nd group establishments.

Key words: angora goat, mohair, Turkey

INTRODUCTION

Angora is a crucial raw material of textile sector. Angora or mohair production is regarded as an industry fibre product. Angora goat was brought to the different countries around the World and reproduced there. It is known as a kind of goat that Turks took with them during their migration from Central Asia to Anatolia. Angora goats get their nourishment from shrubs and bushes effectively, as well as pastures. They are not good at climbing, they like foliage, they do not pose a threat for trees in contrast to hair goats [5]. Angora goat had been raised in Central Anatolia region until 1838, but then it was taken to the countries, such as; The US, France, South Africa and Australia and raised in these countries, as well [20]. They produced small flocks at the beginning yet later on they became the leaders of angora production in the World. Pure race of angora goat generally has a small

size and it is a petite animal. Their heads and foreheads are in good order. Both males and females have horns and beards. Height at withers in angora goats is approximately 55 cm, body length is averagely 56 cm. The main purpose for farming angora goats is to obtain white mohair. This white mohair has a high fibre quality and is dyed easily with every colour. That's why it is needed by textile industry [2]. Angora goat is densely raised in Central Anatolia. The most important yield of angora goat is mohair. Throughout the World, South Africa and The US has started taking place in this market. Especially with the activation of artificial fibre, the attending behaviour toward mohair has decreased and mohair production has diminished seriously. Growers of angora goat showed tendency to make use of goat's meat due to the decrease in importance of mohair, and they interbred the mohair with various types in that period. Turkey, from time to time, gravitates to foreign

market in order to meet the increasing meat demand of domestic market. At this point, those goats which can easily adapt to several conditions, will be able to meet the increasing red meat demand. Especially depending on the changing world conditions, decision makers must take the rivalry and supremacy clauses into consideration by observing the world's current situation while making decisions on agriculture. In view of rising young population, goat farming will have a vital mission in decreasing the unemployment. It is undoubtful that by means of agricultural support which is equal to that of World countries, more agricultural enterprises will show interest. According to the ministry of agriculture legislation in 2016, 4 month old and older calf and young buffalo calf (81 cities) 350 TL/Head, herd book (81 cities) 500 TL/Head and progeny testing 50 TL/Head (additional) is supported, sheep-goat support 25 TL/Head and angora breeding 22 TL/Head is dedicated. Nowadays, moving away from the opinion that goats destroy and do serious harm to forest lands, the second sentence of 6,831 numbered Forest Law's 19th dom's first sub-article has been changed herein below: 'Only if it is appropriate for public interest and in the forest lands determined by forest administration, grazing may be allowed within the scope of procedures and principles [15]. Goat's meat has lower cholesterol, high protein and iron. Because goat's milk is more easily-digestible than cow's milk, it is an important nutrition for babies and also it is an effective nutritional source for those who is allergic to cow's milk. Goat skin has an economic value. Goat is preferred, depending upon social customs, especially for sacrificing an animal, wedding ceremonies and marking one's death. Goats which can feed in unsuitable, poor areas and has a special adaptation skill to dry conditions, minimize people's nutrition cost. The number of angora goats, milked animals, milk production (ton), sheared animals and wool angora production value have been analysed. While the number of angora goats was 346,000 heads in 2001, it was given as 207,765 heads in 2016. Whereas the milk yield was 21.35 tons/head in 2001, it was shared as 35.71 tons/head in 2016. It is obvious that the

demand for goat products has been rising in parallel with healthy eating development in the world. The reason why goat milk is preferred especially in ice-cream industry is its being preferred by consumers for its taste. Since goat milk contains 13% lower lactose than cow milk and also it is the closest milk to breast milk, it covers a considerable space in people's nourishment. Moreover, its being easily-digestible and similar to breast milk makes it important for babies. 1,000 facilities were opened in Ceylanpınar business in 2013 to meet breeding goat demand and after buying 1,000 Aleppo animals for breeding, goat farming was started. Also, in order to preserve Turkey germplasm, angora goat farming is being maintained in Anadolu Tarım İşletmesi (Eskişehir). The production rates that leading countries in mohair production had between 2000 and 2010 were examined. According to this, 5,900 tons of angora wool production in the World are made in South Africa, The US, Turkey, Argentina, Lesotho, Australia and New Zealand. The rest 1,000 tons are made by other world countries. Countries' mohair production increase/decrease rates in 2010 respectively are; 46.51% decrease in South Africa, 150% increase in The US, 75% increase in Turkey, 133.33% increase in Argentina, 50% increase in Lesotho, 33.33% decrease in Australia and 75% decrease in New Zealand, in comparison to 2000. The reasons for the decrease in mohair production in countries that have significant influences in World mohair production are animal husbandry policies, support payments, increasing input costs, decreases in the presence of angora goats, the use of cheap synthetic raw materials instead of mohair, reflections of changes in consumer tastes and preferences to the textile sector [1], in order to examine the herd of Yerköy Livestock Institute, examined the characteristics of slaughtering and carcass characteristics on 9 head male shepherds with high representative power. [2] examined the current situation of the angora goat farming and mohair production in Turkey. [3] emphasized the properties and uses of mohair. [4] discussed the current state of world goat population and production. [6] is interested in the analysis of the production

system of Turkish Ankara goat farms. The aim of this study is to determine both current economic situation and the main characteristics of Angora goat farms. For this study 100 goat farms were determined in Polatlı, Güdül, Ayaş, Beypazarı and Nallıhan in Ankara [9] made evaluations of the development of goat breeding and the situation of goat breeding in Turkey. [10] made economic analysis of the Angora goat production in Ankara. In addition, in terms of evaluation groups, 1 kg mohair cost was calculated and the factors effecting the cost were tried to be determined. Besides, the problems of mohair production in the enterprises were investigated and suggestions for the solution were developed. [11] conducted surveys with 20 enterprises in 9 villages and made evaluations in order to determine the structural characteristics of dairy goats in Çanakkale region. [12], after giving a brief summary of angora goat, emphasized a general perspective of world goat breeding. Historical development of the South African goat was given, and then the current situation of the African goat was described. [13] demonstrated the effect on the survival and growth performance of angora goat x coloured mohair goat F1 crossbreeds. [14] made economic analysis of dairy farms in Kahramanmaraş province that produce milk and breed goats. [16] investigated the history and origin of angora goat and mohair industry, in the second chapter, emphasized the biology of mohair growing, properties, evaluation, usage, preparation and marketing of mohair. [17] assessed the current state of the goat in the world and the goat meat industry in the United States and also provided the framework for future situations. [18] discussed the presence and status of angora goat as a symbol of Turkey. [19] gave general information about angora goat and mohair based productions. [22] pointed the angora goats raised in Turkey and mohair production. The aim of this study is to examine the status of angora goat breeding in Ankara, to determine the size of herd in angora goat breeding and the level of competition related to sheep breeding and to investigate the effects of feed prices on production and yield. In the barren conditions of Central Anatolia, where the world's top

quality mohair is grown, ways of restoring this activity are sought. In this context, it is one of the aims of this study to identify the economic problems that limit the angora goat production and to present the solutions.

MATERIALS AND METHODS

Materials

An important part of the material used in the study was the data obtained from surveys from the agricultural enterprises engaged in angora goat breeding in Ankara. Data for 2016 and 2017 production period were collected from agricultural holdings by questionnaire.

Methods

The methods applied in the research are given below.

Method of Sample Selection

In order to determine the population of agricultural enterprises engaged in angora goat, preliminary interviews were conducted with the authorities of relevant public institutions\organizations. In the preliminary study conducted within the scope of research, the districts that could represent the province in terms of their characteristics were determined purposefully. While selecting the sample districts and villages, attention was paid to the natural factors, agricultural technique and angora goat breeding to represent the research area in terms of economic situation. The angora goat breeding farms were determined for the research. After determining the research cluster, the enterprises to be surveyed were determined by random sampling method.

Ayaş, Beypazarı and Güdül have been identified as the 3 districts that will best represent the districts in the sample and 45 enterprises have been identified as a result of the data obtained. The farms were divided into 2 layers in terms of their size. Layer limits were determined as 25-150 and 151-276 angora goats (Table 1). According to the Neyman allocation method, the number of enterprises in strata was calculated.

Table 1. Number of farms

Stratified	Width of Strata	Sampling
1. group	25-150	34
2. group	151-276	11
Total		45

Source: The Author's calculation.

Allocated for strata,

$$n_h = \frac{N_h S_h}{\sum N_h S_h} * n \quad (1)$$

Sampling size is used by,

$$n = \frac{(\sum N_h S_h)^2}{N^2 * D^2 + \sum N_h S_h^2} \quad (2)$$

where:

n stands for number of examples;

N_h: number of operations in layer h;

S_h: h is the standard deviation of the first layer;

S_h²: variance of layer h;

N: number of farms in the population;

D²: (d/z)².

This indicates that a sample with a diameter n is distributed in proportion to N_hS_h. This means that more sample units will be taken from a large layer and a heterogeneous layer [21].

Method applied in the survey stage

The questionnaire forms were also filled in by the researcher through face to face interviews by taking the goal of research, its scope and characteristics of agricultural enterprises into consideration.

Method used in economic analysis of the enterprises examined

In the analysis and evaluation phase of the form results, agricultural enterprises were handled

with integrity and SPSS statistical program was used in the analysis process. Coefficients were used to convert to male labor unit (MLU) [7]. Animal presence is expressed in BBHB [8].

RESULTS AND DISCUSSIONS

In this phase, the population structure, land assets and saving status of the agricultural holdings and annual activity results are discussed.

Annual activity results of enterprises

Gross production value

Gross production value consists of plant production value, animal production value and productive inventory value increase [8]. Although the gross production value of the enterprises varies between 495,148.74 TL and 731,154.09 TL for business groups, it is increasing according to business groups. Gross production value is 552,838.93 TL according to the average of enterprises. According to the enterprise groups, 4.24% and 58.04% of the total gross production value is composed of vegetable gross production value and 41.96% and 95.76% constitutes animal gross production value. While the share of plant production value is 40.64% in the total gross production value, the share of animal production value is 59.36%. (Table 2).

Table 2. Gross production value in enterprises (TL)

Group	Plant production value		Animal production value		Total gross production value		Gross production value for decar
	TL	%	TL	%	TL	%	
1	287,369.26	58.04	207,779.47	41.96	495,148.74	100.00	2,213.10
2	30,971.36	4.24	700,182.73	95.76	731,154.09	100.00	6,254.04
Mean	224,694.22	40.64	328,144.71	59.36	552,838.93	100.00	2,797.45

Source: The Author's calculation.

Plant production value varies between 30,971.36 TL and 287,369.26 TL while animal production value varies between 207,779.47 TL and 700,182.73 TL. Plant production value is 224,697.22 TL and animal production value is 328,144.71 TL on average. Animal production value in enterprises is seen more than crop production value (Table 2). Plant, sheep and goat breeding activities in the

enterprises examined and gross production value (TL) is given in Table 3. According to the average of enterprises, goat breeding activity has a share of 58.28%, vegetable production has 40.64% and sheep activity has 1.08% from gross production value. Goat activity constitutes a significant proportion of all other activities (Table 3).

Table 3. Gross Production Values Related to Plant Production, Sheep Breeding and Goat breeding (TL)

Groups	Plant production value		Sheep Breeding		Goat breeding		Total gross production value
	TL	%	TL	%	TL	%	TL
1	287,369.26	58.04	4,403.79	0.89	203,375.68	41.07	495,148.74
2	30,971.36	4.24	10,795.00	1.48	689,387.73	94.29	731,154.09
Mean	224,694.22	40.64	5,966.09	1.08	322,178.62	58.28	552,838.93

Source: The Author's calculation.

Animal production value is obtained from sheep breeding and goat breeding in the enterprises that were investigated. Animal production value varies between 207,779.47 TL and 700,182.73 TL in the enterprises. In the average of enterprises, this value is 328,144.71 TL. 97.88% of the total animal production value in the group 1 within the animal production value in the enterprises is obtained from goat breeding and 2.12% from sheep

breeding, in group 2 98.46% from goat breeding and 1.54% from sheep breeding (Table 3).

While the share of mohair in animal production value in group 1 is 13.03%, this ratio is 14.37% in group 2.

This rate is 13.73% according to the average of enterprises. Productive asset value increase (PAVI) is 86.97% in group 1, 85.63% in group 2 and 86.27% in enterprises (Table 4).

Table 4. Distribution of Animal Production Value

Variables	1		2		Mean	
	TL	%	TL	%	TL	%
1.Sheep breeding	4,403.79	2.12	10,795.00	1.54	5,966.09	1.82
Meat, Milk and others	4,403.79	100.00	10,795.00	100.00	5,966.09	100.00
PDKA	0.00	0.00	0.00	0.00	0.00	0.00
2.Goat breeding	203,375.68	97.88	689,387.73	98.46	322,178.62	98.18
Mohair	26,497.74	13.03	99,055.91	14.37	44,234.18	13.73
PDKA	176,877.94	86.97	590,331.82	85.63	277,944.44	86.27
Total	207,779.47	100.00	700,182.73	100.00	328,144.71	100.00

Source: The Author's calculation.

The importance of animal production and especially goat breeding in the gross

production value of the investigated enterprises is high.

Table 5. Distribution of variable cost in plant production

Groups	1	2	Mean	Mean (%)
Seed cost (TL)	20,614.71	4,496.36	16,674.67	42.96
Fertilizer cost (TL)	5,360.76	3,259.09	4,847.02	12.49
Pesticide cost (TL)	1,782.65	886.36	1,563.56	4.03
Seed clarification	14.71	0.00	11.11	0.03
Water cost	0.00	0.00		0.00
Variable machine cost (fuel- oil)	11,323.53	4,754.55	9,717.78	25.03
Temporary employment	0.00	0.00	0.00	0.00
Works with money (TL)	7,139.06	1,950.55	5,870.76	15.12
Others (TL)	176.47	0.00	133.33	0.34
Total (TL)	46,411.88	15,346.91	38,818.22	100.00

Source: The Author's calculation.

Operating costs

The total amount of costs incurred by the operator so as to obtain the gross revenue excluding the interest of active capital invested in the enterprise is called operating expenses.

Costs are examined in 2 groups as fixed and variable costs [7].

Changing costs in plant production

While the changing costs in plant production according to the farm groups are 15,346.91 TL

and 46,411.88 TL, this value is 38,818.22 TL for the average of enterprises. According to the average of the enterprises, 42.96% of the changing costs in plant production is seed price, 25.03% is the machine cost (fuel, oil), 15.13% is the work done with money, 12.49% is fertilizer, 4.03% is the pesticide, 0.34% is other and 0.09% is seed cleaning costs. In the examined enterprises, the highest share was obtained from seed costs while the lowest share was obtained from seed cleaning costs (Table 5).

Variable costs in animal production

According to the enterprises groups, the changes in animal production vary between 91,127.86 TL and 263,160.36 TL. This value is 133,180.25 TL according to the average of enterprises. According to the average of

surveyed enterprises, the highest share of labor costs was in the first place with 32.98%, barley-wheat meal with 23.35%, fattening or milk feed with 20,25%, veterinary costs and other expenses with 6.26%. The share of labor costs by enterprises varies between 30.91% and 35.00% and shows an increasing proportion by group. Because, according to the farm groups, the number of animals is increasing and the need for labor increases in parallel. Labor costs are increasing compared to enterprises groups. Because the importance and use of family labor and foreign labor increases as enterprises groups grow (Table 6). [23], in his study in Adana, found the labor costs as 26.40%. [18] stated that 68.3% of the total variable costs are feed costs.

Table 6. Variable cost in animal production

Variables	Groups					
	1		2		Mean	
	TL	%	TL	%	TL	%
Fattening or Milk feed	17,347.89	19.04	56,727.27	21.56	26,973.96	20.25
Bran	779.41	0.86	2,227.27	0.85	1,133.33	0.85
Barley-wheat meal	21,757.35	23.88	59,950.00	22.78	31,093.33	23.35
Fodder	2,647.06	2.90	5,681.82	2.16	3,388.89	2.54
Hay	1,208.82	1.33	1,636.36	0.62	1,313.33	0.99
Water	602.94	0.66	0.00	0.00	455.56	0.34
Salt	840.35	0.92	1,409.09	0.54	979.38	0.74
Labor cost	28,170.59	30.91	92,109.09	35.00	43,800.00	32.89
Veterinary	6,756.76	7.41	13,231.82	5.03	8,339.56	6.26
Vaccine	4,364.32	4.79	9,450.00	3.59	5,607.49	4.21
Disinfection	123.53	0.14	0.00	0.00	93.33	0.07
Lightening	29.41	0.03	0.00	0.00	22.22	0.02
Shearling	3,155.06	3.46	5,029.09	1.91	3,613.16	2.71
Cost of marketing	0.00	0.00	1,090.91	0.41	266.67	0.20
Cost of meadow	758.82	0.83	5,909.09	2.25	2,017.78	1.52
Insurance	0.00	0.00	454.55	0.17	111.11	0.08
Earring	2,583.53	2.84	8,250.00	3.13	3,968.67	2.98
Total	91,127.86	100.00	263,160.36	100.00	133,180.25	100.00

Source: The Author's calculation.

Gross profit

It is one of the most important criteria for the success of a enterprises organization [7], While the total gross profit per enterprises is between 398,915.15 TL and 560,170.95 TL, this value is 438,333.24 TL according to the average of enterprises. In total gross profit, the gross profit of plant production ranges between 2.79% and

60.40%. Gross profit followed a decreasing course according to enterprises groups. While the share of animal production gross profit in the total gross profit varies between 39.60% and 97.21% in the groups, the average share of enterprises is 57.29%. While the average gross profit of crop production is 42.41%, the gross profit of animal production is 57.59% (Table 7).

Table 7. Distribution of Gross Profit

Groups	Gross Profit in Plant Production		Gross Profit in Animal Production		Total Gross Profit	
	TL	%	TL	%	TL	%
1	240,957.38	60.40	157,957.77	39.60	398,915.15	100.00
2	15,624.45	2.79	544,546.50	97.21	560,170.95	100.00
Mean	185,876.00	42.41	252,457.24	57.59	438,333.24	100.00

Source: The Author's calculation.

While the total gross profit per enterprise is between 398,915.15 TL and 560,170.95 TL, this value is 438,333.24 TL according to the average of enterprises. According to the

average of enterprises, the share of sheep breeding gross profit in the total gross profit is 0.55%, while the share of goat farming gross profit is 57.05% (Table 8).

Table 8. Distribution of Gross Profit

Groups	Gross Profit in Plant Production		Gross Profit in Sheep Breeding		Gross Profit in Goat Breeding		Total Gross Profit	
	TL	%	TL	%	TL	%	TL	%
1	240,957.38	60.40	3,152.09	0.79	154,805.68	38.81	398,915.15	100.00
2	15,624.45	2.79	42.59	0.01	544,503.91	97.20	560,170.95	2.80
Mean	185,876.00	42.41	2,391.99	0.55	250,065.24	57.05	438,333.24	42.95

Source: The Author's calculation.

Reasons for the increase or decrease in the number of goats

The reasons for increase or decrease in the number of goats in investigated enterprises are given in Table 9. According to this distribution, among the reasons for decrease in number of goats, the highest rates respectively are labor

problems with 30.00%, feed prices with 26.67% and mohair prices with 25.00% in the first group while the rates in the second group respectively are feed prices with 25.00%, mohair prices with 20.00% and water problem with 15.00% and pasture problem follows (Table 9).

Table 9. The reasons for increase or decrease in the number of goats

Problems	Groups				Total
	1	%	2	%	
Getting animal for breeding	1	1.67	1	5.00	2
Feed prices	16	26.67	5	25.00	21
Mohair prices	15	25.00	4	20.00	19
Labor problems	18	30.00	2	10.00	20
Water problems	1	1.67	3	15.00	4
Excess debts	1	1.67	1	5.00	2
Yeanling product	2	3.33	0	0.00	2
Death of animals	1	1.67	1	5.00	2
Support quantity	1	1.67	0	0.00	1
High lamb prices	1	1.67	0	0.00	1
Pasture problem	3	5.00	3	15.00	6
Total	60	100	20	100	80

Source: The Author's calculation.

Use of foreign labor

It was stated that while 76.47% of the enterprises in the first group and 72.73% of the enterprises in the second group use the foreign labor force, 23.53% of the enterprises in the first group and 27.27% of the enterprises in the second group do not use foreign labor.

State supports

According to the results, it was seen that earring and mohair support were mostly used. While 41.46% of the enterprises in the first group received earring support, 41.46% received the mohair support. This rate was respectively 46.15% and 42.31% in the second group. While most of the enterprises in the first

and second group do not find the support sufficient, especially 72.73% of the enterprises in the second group do not find the support sufficient.

Agricultural credit utilization status of enterprises

It was determined from the results of the research that enterprises, using agricultural loans, use loans from more than one bank. While 43.90% of the farmers in the first group use loans from Ziraat Bank, 24.39% of them used loans from Agricultural Credit Cooperatives. In the second group, these ratios are respectively 38.89% and 33.33%. Within the scope of research, 61.76% of the enterprises in the first group used agricultural loans while this rate is 81.82% in the second group.

Satisfaction with marketing opportunities of enterprises

44.12% of enterprises in the first group are satisfied with marketing opportunities while 63.64% of them in the second group are satisfied. While 35.00% of the producers in the first group market their products through mohair, 25.5% market through cooperatives and 25.00% directly market them. In the second group, 41.67% of the producers market their products directly while the rate of marketers through cooperatives is 25.00%. According to the results, 62.22% of the enterprises in the first group can't sell their products at the desired price whereas this ratio is 63.64% in the second group.

Animal diseases

Nearly half of the enterprises in the first and second group declared that they do not find the protective measures related to animal diseases sufficient.

Main factors in the decline of goat breeding in enterprises

More than one factor was found to cause the decline of goat rearing activities in the farms. 24.24% of the enterprises in the first group indicated the shepherd problem as a reason and 24.24% showed that goat activities decreased due to the pasture problem while 29.41% of the producers in the second group indicated low mohair prices as the main factor. Other important problems are shepherd supply, feed prices, animal theft.

Reasons of decrease in mohair yield in enterprises

30.43% of the farms in the first group indicated the pasture, 23.19% showed nutritional problems, 20.29% of them took the animal health as a reason for decrease in mohair yield. In the second group these rates were respectively determined as 30.43%, 26.09% and 21.74%.

Generalization of goat breeding

Whether the generalization of goat breeding is positive or not was examined and 79.41% of the enterprises in the first group and 63.64% of the enterprises in the second group think that unemployment will be reduced and migration from village to city can be prevented by spreading goat breeding.

Import of animal products

64.71% of the enterprises in the first group and 54.55% of the enterprises in the second group think that the importation of animal products may decrease the goat rearing activity.

State expectations about the goat enterprises activities

Within the scope of research, the expectations of enterprises from the government about goat activity; 22.95% of the enterprises in the first group and 21.05% of the enterprises in the second group stated that supports should be improved. Besides, finding solution for the pasture problem, (13.11% in the first group; 15.79% in the second group) and increasing the mohair purchase prices (11.48% in the first group; 15.79% in the second group) is expected.

Willingness to continue goat activity

While 91.18% of the enterprises in the first group are considering continuing the goat business, 90.91% are thinking about continuing in the second group.

Production of too fine wool and mohair

According to the production of too fine wool and mohair, 82.35% of the enterprises in the first group and 54.55% of the enterprises in the second group are producing wool and mohair.

Where mohair processing is evaluated

While 44.13% of the enterprises in the first group to Tiftikbirlik, 38.24% to cooperative, 14.71% directly and 2.94% of them evaluated via intermediary; 36.36% of the enterprises in the second group with Tiftikbirlik, 27.27%

with cooperative, 27.27% directly and 9.09% of them evaluated via intermediary.

Thoughts on mohair support purchases

50% of the enterprises in the first group says supports should be higher, 32.35% doesn't want to settle for the price determined by the mohair union, 8.82% are content with the supports, 5.88% find the prices quite good even without supports and 2.94% declare that project support criteria must be decreased, whereas 54.55% of the enterprises in the second group are happy with the supports, 36.36% says supports must be higher, 9.09% of them state that project support criteria must be decreased.

Considerations in purchases made by Tiftikbirlik

Here are the following points taken into consideration in the purchases made by Tiftikbirlik: while 36.62% of the enterprises in the first group state the color and 28.17% say cleanliness are taken into consideration, this rate is respectively 47.62% and 23.81% in the second group.

CONCLUSIONS

As a result, in this research, the districts covered are the places where angora goat farming is intense and the profitability increases especially as the enterprises grow. Considering the strong sides of Ayaş, Beypazarı and Güdül, such as; education, population and proximity to Ankara, thanks to the contribution of angora goat farming, production pattern might be diversified according to needs and market, and employment, agricultural income of the region can be increased. Also by increasing the efficiency and quality of mohair, it seems inevitable for Turkey to be a brand. This advantage should not be ignored in the region with natural conditions suitable for high quality mohair.

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REFERENCES

- [1]Akman, N., Ertuğrul, M., Tatayoğlu, A., Kor, A., Yavuzer, Ü., 1991, Slaughter and Carcass Characteristics of Angora Goat. *Journal of Lalahan Hay. Res. Ins.* 31 (3-4): 39-47.
- [2]Arıkan, M.S., Aral, Y., 2013, Current Situation, Problems and Solutions in the Breeding of Angora Goat and Mohair Production. *Journal of Erciyes University Faculty of Veterinary Medicine.* 10 (3): 201-213.
- [3]Atav, R., 2013, Tiftik (Ankara Keçisi) Liflerinin Terbiye İşlemlerine Genel Bir Bakış An Overview of the Treatment of Angora (Angora Goat) Fibers). *Electronic J. of Vocational Colleges.*
- [4]Aziz, M.A., 2010, Present status of the world goat populations and their productivity. 45 (2). October 2010, pp. 42, Lohmann Information.
- [5]Cevger, Y., 2002, Türkiye'de tiftik üretimi ve ekonomik önemi. II. Ankara keçisini Geliştirme ve Yaşatma Paneli ve Festivali (Mohair production and economic importance in Turkey. II. Ankara Goat Development and Survival Panel and Festival) Ankara.
- [6]Daşkıran, S., Çankaya, N., Darcan, K., Güneş, E., 2010, A case study for production system analysis of Turkish angora goat farms. *Bulg. J. Agric. Sci.* 16: 512-520.
- [7]Erkuş, A., Bülbül, M., Kıral, T., Açı, A.F., Demirci, R., 1995, Tarım Ekonomisi (Farming economy). Ankara University, Agriculture Faculty Publishing. Ankara.
- [8]Erkuş, A., Özçelik, A., Gürdoğan, T., Turan, A., 1990, Siyah alaca sığırlarının besisinde optimal besi süresinin tespiti. Çiftçi ve köy dünyası, (Determination of optimal fattening time in the fattening of black calico cattle. Farmer and village world), 67: 72-73.
- [9]Günlü, A., Alaşahan, S., 2010, Evaluations on the Future of Goat Breeding in Turkey. *Journal of the Turkish Veterinary Medical Society.* 81 (2): 15-20.
- [10]Kıral, T., Özçelik, A., Fidan, H., Yılmaz, D., 1996, Economic analysis of mohair production in Ankara Farmers. THK Press, Ankara.
- [11]Koyuncu, E., Pala, A., Savaş, T., Konyalı, A., Ataşoğlu, C., Daş, G., Ersoy, İ.E., Uğur, F., Yurtman, İ.Y., Yurt, H.H., 2006, Technical Analysis of the Enterprises Registered with the Çanakkale Sheep and Goat Association. *Animal Production.* 47 (1): 21-27.
- [12]NAMC, 2005, Report on the investigation into the potential for the south African goat industry. National Agricultural Marketing Council (NAMC). South Africa.
- [13]Odabaşoğlu, F., Küçük, F., Yılmaz, M., 2007, Investigation of Survival Rate and Growth Performances in Coloured Mohair Goat and Angora Goat x Coloured Mohair Goat F1 Kids. *Van Veterinary Journal.* 18 (1):29-36.
- [14]Paksoy, M., Özçelik, A., 2008, Economic Analysis of Goat Rearing Farms for Milk Production in Kahramanmaraş Province. *Journal of Agricultural Sciences.* 14 (4): 420-427.
- [15]Official Gazette, 2018, <http://www.mevzuat.gov.tr/MevzuatMetin/1.3.6831.pdf> Accessed on 23 November, 2018.

- [16]Shelton, M., 1993, Angora goat and mohair. Texas A&M University. Texas agricultural experiment station. San Angelo, Texas.
- [17]Solaiman, S.G., 2007, Assessment of the meat goat industry and future outlook for U. S. small farms. Tuskegee University. Tuskegee.
- [18]Şahin, A., Yıldırım, İ., 2002, A Research on the Types of Evaluation of Livestock Production in Sheep Farms. A case -Study of Van Province. V. Agriculture Economy Congress (International), 18-20 September 2002. Erzurum.
- [19]Tamura, E., 2003, Ankara keçisi ve Ankara tiftik dokumacılığı (Tüklenen bir zenginliğin ve çöken bir sanayinin tarihsel öyküsünden kesitler).Ankara Ticaret Odası. Ankara (Ankara goat and Ankara mohair weaving (sections from the historical story of a depleted wealth and a collapsing industry). Ankara Chamber of Commerce. Ankara).
- [20]Taşlıgil, N., Şahin, G., 2010, Geographical Distribution of Goat Breeding in Turkey. National Goat Breeding Congress. 83-86. Çanakkale.
- [21]Yamane, T., 2001, Basic Sampling Methods. Literatür Press. İstanbul.
- [22]Yiğit, G., 2011, Angora goat and mohair production in Turkey. Arch. of App. Sci. Res., 3 (3): 145-153.
- [23]Yurdakul, O., 1978, Adana merkez ilçesi tarım işletmelerinde süt sığırcılığının ekonomik yapısı ve ilçede süt pazarlaması ile tüketimi. Doçentlik tezi (basılmamış). Çukurova Üniversitesi Ziraat Fakültesi, Adana (Economic structure of dairy cattle farming in Adana central district, and marketing and consumption of milk in the district. Associate Professor thesis (unpublished). Çukurova University Faculty of Agriculture, Adana).