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GENDER ANALYSIS OF FAMILY LABOUR USE IN TRADITIONAL HAIR GOAT HUSBANDRY

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ABSTRACT

The main objective of this study was to determine the current family labour use patterns of farm households in hair goat farming systems using gender analysis. The study focused on investigating male and female labour use within the family in traditional hair goat farming activities by hair goat farming calendar. A survey was conducted using a face to face questionnaire with 92 hair goat farmers from 26 villages in Central, Atabey, Keciborlu, Egirdir and Sutculer districts of the Isparta province where there is intensive hair goat farming. The farms were chosen by stratified random sampling method. The average household size was 4.75 members with the number of male (2.48) and female (2.27) respectively; in other words 52.18 per cent male and 47.82 per cent female. It was also found that mean family labour use 14.70 h/daily, total average time spent by female and male in goat farming activities was 6.47 (55.99 per cent) and 8.23 (44.01 per cent) hour per day, respectively. Hair goat farming activities such as grazing, kid selling, barn disinfection, cheese selling, vaccination, bathing for mites, shearing, internal and external parasitical disinfection, are male dominated activities, whereas activities like milking and barn cleaning are female's domain and the rest of the activities were carried out both male and female.

Key words: Family Labour use, gender analysis, hair goat farming, Turkey.

INTRODUCTION

Worldwide goats and other small ruminants are among the most popular and beneficial livestock for those with very limited resources. International studies indicate that goat farming is important on both an economic and social basis (Vries, 2008; Alam, 2000; Kumar and Deoghare, 2000). The global domestic goat population has been estimated as 862 million. The countries having the highest percentage of goats are China (17.33 per cent), India (14.59 per cent), Pakistan (6.58 per cent), Bangladesh (6.54 per cent) and Nigeria (6.24 per cent), respectively. While the rate of global population of goats in Turkey was 4.04 per cent in 1980, this rate declined to 0.56 per cent in 2010. There are approximately 5.1 million goats in Turkey, 97 per cent of which are hair goats (FAO, 2011).

Small scale goat production is of significant benefit to families all over the world living in a wide variety of climates and conditions (Vries, 2008). Hair goat farming is generally an extensive form of production, conducted by small-scale farm, and is the main source of income among the low-income population of approximately 3 million people living in forests and mountainous areas in Turkey (Dellal and Dellal, 2005).

Hair goat farming is also important on a social, economic, cultural and traditional basis in Turkey (Yılmaz, Bardakcıoglu, Taskın and Karaca, 2010). Unregulated and extensive use of pasture areas, bushes and moors for hair goat farming may damage floral ecosystems. However, appropriately regulated goat grazing is known to have positive effects on soil erosion and bio-diversity (El-Aich and Waterhouse, 1999).

"Gender" is a concept used in social science analysis to look at roles and activities of men and women. The focus of gender analysis is not on biological differences between men and women but rather on their experiences as members of society. Theoretical and methodological work in gender analysis in agriculture has been expanding (Feldstein, Flora and Poats, 1989; Overholt, Anderson, Cloud and Austin; Moser and Levy, 1986).

Rola, Dayo, Hernandez, Labios and Garcia, (1996) stated that female labour is an important resource and that technology and extension should also pay particular attention to their unique needs improve their productivity.

Women have been making prominent and important contributions to agriculture right from creation and they actually constitute the bulk of the world's food producers. A united Nation's estimate puts women's domestic food production at 80 per cent in Africa, 60 per cent in Asia and the Pacific and 40 per cent in Latin America (FAO, 1998).

Helping the poor and especially women to successfully raise goats can have a very significant impact on their income, social status and even on the local environment (Vries, 2008).

According to a large volume of research that was carried out in developing countries women play a major role in small ruminant production. The foremost tasks of

women in small ruminant production are milking, cleaning small ruminant barns, cutting and carrying grasses, grazing and mixing fodder. Women contribute a significant percentage of the labour to small ruminant production (Budak, Darcan and Kantar, 2005).

Hair goat farming is very important agricultural activity in West Mediterranean region of Turkey and especially in the mountain and forest villages around the city of Isparta. Therefore, the main objective of this study was to determine the current family labour use patterns of farm households in hair goat farming systems using gender analysis. The study analyses consist of investigating male and female labour use within the family in traditional hair goat farming activities by hair goat farming calendar.

MATERIALS AND METHODS

The data used in the study were obtained from the questionnaires administered at goat farms in Isparta province, Turkey. In addition, the study also utilized relevant statistics, and the data from similar studies carried out by individuals and institutions. The data were collected during the year 2007. Based on the data obtained from technical personnel working at Isparta Provincial Agricultural Administration, and from the records of the goat farming sector, 26 villages in Central Isparta, Atabey, Keciborlu, Egirdir and Sutculer districts, where goat farming is carried out, were selected as study areas.

Goat farms in those villages that met research criteria constituted the population size. Neyman method of stratified random sampling method was conducted to select number of goat farms for questionnaire (Yamane, 2001). Sampling size was determined by using equation 1.

$$n = \frac{\left(\sum N_h S_h\right)^2}{N^2 * D^2 + \sum N_h {S_h}^2} \qquad (1)$$

Nomenclature:
n: sampling size
N_h; number of farms in h^{th} group
S_h; standard deviation of h^{th} group
S_h^2; variance of h^{th} group
N; population size

D^2; is $(d/z)^2$ where d is deviation (5%) from mean, z is standard normal distribution value (1.96) that corresponds to 95 % probability.

Using above Equation 1, sampling size that would represent population was found to be 92. Farms that questionnaire conducted were randomly chosen. The survey also recorded labour allocation for various activities for all family members. Analysis included the use of central tendency like the mean, the absolute and relative distributions. The findings are presented as tables.

RESULTS AND DISCUSSION

Farmers and farms characteristics: Average scores of general characteristics of farms in hair goat husbandry in Turkey are presented in Table 1. The average age of the manager within the farm is 50.51 years. Dellal et al., (2010) reported that the ages of the managers of the examined farm in Antalya and South-eastern Anatolia Region were 51.60 and 46.10 years, respectively. Another study reported manager age to be 38.9 years (Budak et al., 2005). These ages in middle period can be considered to be an advantage for the enterprise management. The average education level of managers is 5.18 years. The average experience duration of goat farming is 25.27 years, and average family size of the managers is 4.75 people. The population of the families working in goat farming activities is 2.77 people. In the research area, the average size of herds was 250.75 head, which consisted of 122.4 doe, 6.85 billy goat, 35.75 yearling kids and 85.75 kids. The average size of the arable lands in the examined farm is 19.44 decares. A previous study determined the average arable land size to be 27 decares, and the average number of small ruminants to be 40.4 (Budak et al., 2005). It was found that, on an average, female spent 6.47 h of a total 14.70 h working day for hair goat husbandry activities.

Family population and labour use by age groups: Family population and labour use by age groups are given in Table 2. Household size and life-cycle stages of family members affect the general labour allocation strategies that families can follow. Family size and age-sex composition have direct effects on labour inputs for the farmer (Handayani, Ralph, Brown and Nolan, 1993).

The average household size was 4.75 members with the number of 2.48 male and 2.27 female respectively; in other words 52.18 per cent male and 47.82 per cent female. 55.61 per cent of the population farmers' family was 15-49 age groups.

It was also found that mean family labour use 14.70 h/daily, total average time spent by female and male in goat farming activities was 6.47 (55.99 per cent) and 8.23 (44.01 per cent) hour per day, respectively. In other studies, it was found that female spent 2.8h of a total 12.6h (Budak et al., 2005) and 3.5 h of a total 11.5 h (Michailidis, 2007).

It was found that labour use rate was the highest in the 15-49 age groups (65.38 per cent). 56.00 per cent of male labour use in this age group, while the use of female labour use rate was 44.00 per cent. While the use of family labour share was 7.03 per cent of the age group 7-14, 0-6 age group encountered the use of labour (Figure 1). It was found that girls and boys generally began

herding at age seven or so with their mothers' and father's companionship.

Table 1. Average scores of general characteristics of farms in hair goat husbandry.

Indicators	Mean	Standard deviation
Farmer's age (years)	50.51	12.83
Farmer's education (years)	5.18	2.08
Goat husbandry experience (years)	25.27	14.99
Goat (head)	250.75	221.12
Arable land (decare)*	19.44	26.10
Family population (person)	4.75	2.24
Male (number)	2.48	1.45
Female (number)	2.27	1.27
Family population working on goat husbandry (persons)	2.77	2.11
Family population working on goat husbandry (male)	1.57	1.34
Family population working on goat husbandry (female)	1.20	1.06
Total family working hours (hour/daily)	14.70	7.22
Total female working hours (hour/daily)	6.47	3.97
Total male working hours (hour/daily	8.23	4.72

A decare is 1000 square meters; 10 decares is one hectare.

Table 2. Family population and labour use by age groups.

	family population by age groups (person)						family labour use by age groups(hour/daily)					
Age	Male		Female		Total		Male		Female		Total	
Groups	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-6	0.12	38.02	0.20	61.98	0.32	6.65	-	-	-	-	-	0.00
7-14	0.32	53.70	0.27	46.30	0.59	12.36	0.36	34.74	0.67	65.26	1.03	7.03
15-49	1.40	53.09	1.24	46.91	2.64	55.61	5.38	56.00	4.23	44.00	9.61	65.38
50-64	0.38	50.72	0.37	49.28	0.75	15.78	1.66	57.95	1.21	42.05	2.87	19.53
65+	0.26	57.14	0.20	42.86	0.46	9.61	0.83	69.72	0.36	30.28	1.18	8.06
Total/mean	2.48	52.18	2.27	47.82	4.75	100.00	8.23	55.99	6.47	44.01	14.70	100.00

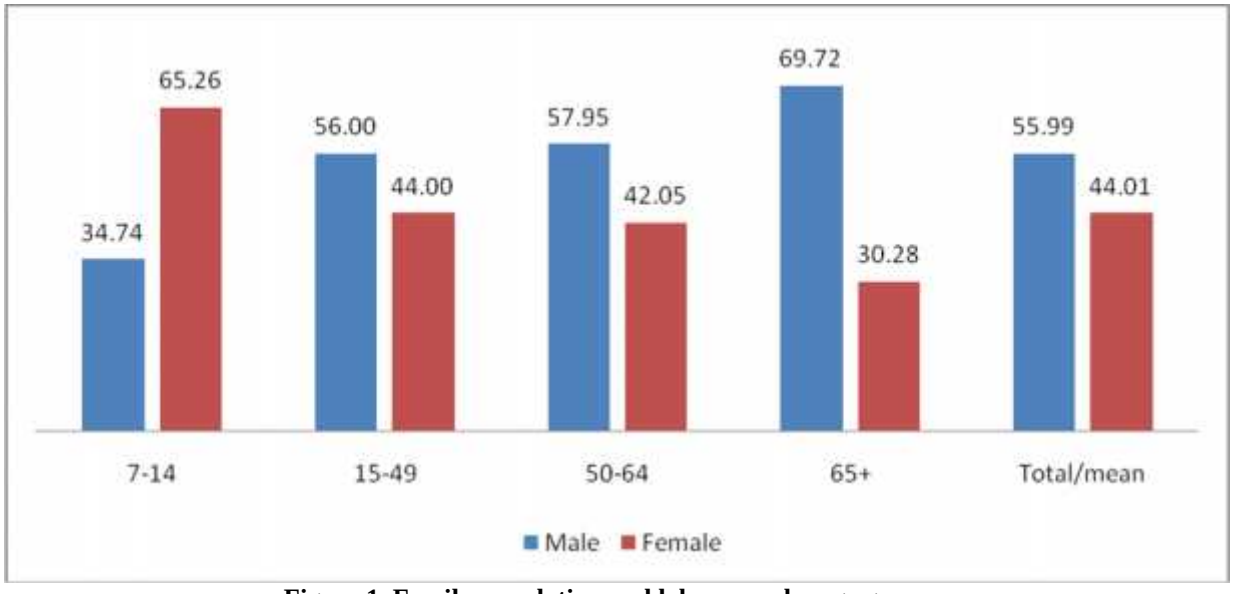

Figure 1. Family population and labour use by age groups.

Traditional Hair Goat Farming Calendar: Traditional hair goat farming is conducted in two systems in Turkey: settled and migratory cultural structures (settled/transhumance). Within the mobility of winter quarters – summer pastures, people migrate to the pastures in summer. Calendar and traditional hair goat farming practices in Turkey are given in Table 3.

The examined farms, goats pasture for about 9 months in meadows. During reproduction periods and winters when grasses are not sufficient, goats are both fed and pastured in stubble for about 3 months. Food resources of farm founded in mountainous areas and forested lands include roughage sources such as meadows within and around the forests; and moor-scrublands and meadows and plateaus outside the forests. The distances between these farm and their food sources are quite different, which affect the variety of food sources and their utilization levels. A previous study determined that 47 per cent, 49 per cent and 4 per cent of the farm use meadows within and around the forests, moors and scrublands, and moors, scrublands and meadows within and around the forests, respectively (Dellal et al., 2010).

Goats are milked in the period between May and October. Cheese is made between June and October. The examined farms primarily use goat milk in cheese production. The cheese is consumed within the family and sold at local markets. Goat meat is used in three different ways: slaughtering for the families, goat and kid fattening for local butchers and markets, and sacrificial animal fattening. Goat meat is consumed mostly in the villages in and around the forests.

In hair goat farming, shearing is done at least once a year, and barn cleaning, internal and external parasitic disinfection, and goat bath for mites are done twice a year. Vaccinations against diseases are done 4 times a year.

Table 3. Traditionally Hair Goat Farming Calendar

Activity	Duration/Year	J	F	M	A	M	J	J	A	S	O	N	D
Take to pasture	9 months			X	X	X	X	X	X	X	X	X	
Take to stubble	3 months	X	X										X
Feeding	3 months	X	X										X
Milking	5–6 months					X	X	X	X	X	X		
Cheese making	5 months						X	X	X	X	X		
Cheese selling	5 months						X	X	X	X	X		
Shearing	1 time								X				
Goat and kid selling	3-4 times					X	X	X	X				
Barn cleaning	2 times	X											X
Internal and external parasitical disinfection	2 times				X						X		
Barn disinfection	2 times						X		X				
Bathing for mites	2 times				X						X		
Vaccination	4 times				X	X				X	X		

Distribution of family labour force by activity and gender: Distribution of family labour force by activity and gender in traditional hair goat husbandry are detailed in Table 4. Hair goat farming activities included; take to pasture, take to stubble, feeding, milking, cheese making, cheese selling, shearing, goat and kid selling, barn cleaning, internal and external parasitical disinfection, barn disinfection, bathing for mites, vaccination.

In contrast to other livestock activities, labour requirement for traditional hair goat husbandry are met entirely with family labour. In small families, all members tend to share the chores on a rotating basis. Labour allocation in farming mainly originated from the family members.

In many settings, social and cultural norms underpin what is often a fairly rigid gender division of labour, where some tasks are strictly viewed as “men’s work” and others as “women’s work” (Cagatay, 1998; World Bank, 2001).

Ratios of total labour demand met by male and female in hair goat farming were 55.99 per cent, and 44.01 per cent, respectively.

Labour use ratios for every activities in goat farming was 30.26 per cent for take to pasture, 14.22 per cent for take to stubble, 12.15 per cent for feeding, 9.59 per cent for shearing, 6.46 per cent for cheese making, 4.61 per cent for milking and 22.71 per cent other activities.

Table 4 shows that hair goat farming activities such as grazing, kid selling, barn disinfection, cheese selling, vaccination, bathing for mites, shearing, internal and external parasitical disinfection, are male dominated activities, whereas activities like milking and barn cleaning are female's domain and the rest of the activities were carried out both female and male.

Male labour use ratios for every activities were 100.00 per cent for goat and kid selling, 75.34 per cent for barn disinfection, 75.22 per cent for cheese selling, 75.00 per cent for vaccination, 74.71 per cent for bathing

for mites, 69.57 per cent for take to pasture, 64.89 per cent for take to stubble, 64.36 per cent for shearing, 56.76 per cent for internal and external parasitical disinfection (Figure 2).

Female labour use ratios for every activity were 100.00 per cent for barn cleaning, 94.89 per cent for cheese making, 77.84 per cent for milking and 66.09 per cent for feeding.

Goat and kid selling were made by only male. But, barn cleaning was made by only female. Stubble and pasture activities were generally conducted by male. Hand milking was generally performed by female. The female were also responsible for milk processing such as cheese making etc. Male were responsible for activities like shearing, barn disinfection, bathing for mites, vaccination, cheese selling and goat and kid selling. Similar results were found in the countries such as Honduras and Bolivia (Sinn, Ketzis and Chen, 1999); Turkey (Budak et al., 2005); Greece (Michailidis, 2007). There are many constraints in terms of gender in family labor use in goat farming. These constraints are of many kinds i.e. low education, migration, social, cultural and gender biases, lack of technical facilities, male dominance, traditional belief system and resistance from family members. These constraints are resulted the less women participation in goat farming activities.

Table 4. Distribution of family labour force by activity and gender.

Activity	Labour Use (percent)		
	Male	Female	Total
Take to pasture	69.57	30.43	30.26
Take to stubble	64.89	35.11	14.22
Feeding	33.91	66.09	12.15
Milking	22.16	77.84	4.61
Cheese making	5.11	94.89	6.46
Cheese selling	75.22	24.78	4.16
Shearing	64.36	35.64	9.59
Goat and kid selling	100.00	0.00	2.28
Barn cleaning	0.00	100.00	3.70
Internal and external parasitical disinfection	56.76	43.24	4.21
Barn disinfection	75.34	24.66	2.77
Bathing for mites	74.71	25.29	3.30
Vaccination	75.00	25.00	2.28
Total	55.99	44.01	100.00

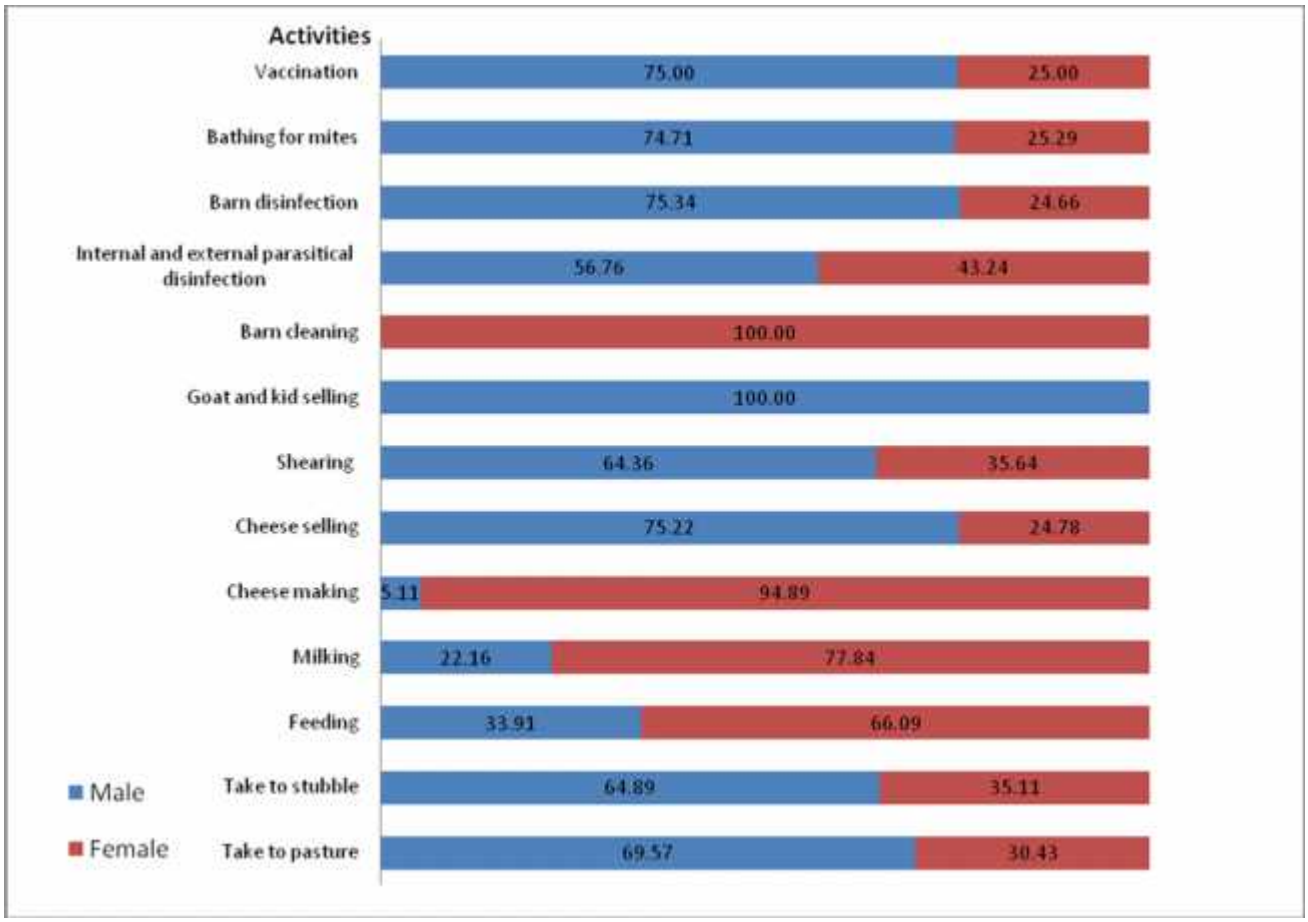

Figure 2. Distribution of family labour force by activity and gender

Conclusion: The study findings likewise suggest that both males and females attend in hair goat farming. Therefore, their work is substitutable in this respect. Above all, the study by using gender analysis has shown that female labour contributions are significant in hair goat farming activities. Hence any agricultural research or extension effort should take into account female work.

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