

Research Article

Socio-Economic Structure, Production Practices, Observations and Suggestions in Nomadic Sheep Production in Ordu province located in Black-Sea Region of Türkiye

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ABSTRACT

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Products obtained from farm animals meet the need for animal protein, which has an important place in human nutrition. In recent years, the demand for the products of small ruminants has been increasing. Products obtained from small ruminants are important in meeting the nutritional needs of the world population. Especially in light of the effect of global warming, small ruminants production has become even more important. Especially considering the production conditions of small ruminants, the nutritional needs of animals are met by grazing in the existing highlands. This study was conducted in Ordu province, located in the Black Sea Region of Türkiye. The Black Sea region, with its coasts and springs, is a region where breeders engage in nomadic animal husbandry. In the study, it was determined that 86.6% of the nomadic sheep breeders are producing Karayaka breed sheep while 13.4% are breeding Karayaka crossbreds. In the study, 47.9% of the breeders who participated in the survey live in the village and 45.1% live in the district. Percent 94.4 of the breeders were male and 5.6% were female. It was determined that 32.4% of the breeders were between the ages of 41-50 and 40.8% were primary school graduates. The rate of those who contribute to their livelihood through husbandry is 57.2%. The rate of those who want to continue small ruminant farming in the future is 82.9%. Additionally, it was determined that the majority of breeders attach importance to record keeping and animal health protection practices. In the enterprises where the study was conducted, difficulties were encountered in supplying feed and finding shepherds, and high feed prices and labor costs were stated as the most common problems. In nomadic sheep breeding, grazing and climate parameters in pastures and plateaus have a significant impact on the nutrition of the animals. Therefore, facilitating the transportation of sheep to pastures and plateaus and the sustainability of these areas will positively affect nomadic sheep breeding.

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INTRODUCTION

Small ruminant production is an economically important value in our country and in the world, and its place in human nutrition is quite high in terms of the yields obtained. Small ruminants, which can adapt to different environmental conditions, can travel for a long time in the pasture, make good use of inefficient areas that cannot be used for crop production and unused agricultural lands despite adverse climatic conditions, and can also provide many animal products. Due to these advantages, small ruminant production is widely practiced all over the world. There are 2,396,134,564 heads of small ruminants in the world. In Türkiye, the total number of small ruminants is 57,519,204 heads, and 45,177,690 heads of this number are sheep (FAO, 2023). Sheep production is importance in Ordu province located in the Black Sea Region. Due to its mountainous, rugged terrain, climate and socio-economic structure, the Black Sea region has a suitable structure for small ruminant production in animal husbandry activities, as well as an important source of income for the people of the region (Tozlu Çelik, 2016). The topographic structure and climatic conditions of our country are very favorable for various animal husbandry activities. In addition, features such as high mountainous areas, changes in elevation in a short distance, and different climatic values create two different grazing areas as winter pasture and spring pasture throughout the year (Hadimli et al., 2010; Alkan, 2020).

Nomadic small ruminant husbandry is an animal production activity that takes place in places with rich plant diversity in areas that are not suitable for crop production, especially in high, mountainous areas (Kutlu, 1987). Nomadic animal husbandry is an activity that is shaped and changed according to the climatic conditions, geographical potential and social conditions (Leach, 2001; Yılmaz et al., 2014; Yazıcı, 2016a; Yazıcı, 2016b), and displacement in nomadic animal husbandry depending on the climate is also compatible with the natural life of the animal (Sayılır, 2012). Nomadic animal husbandry can be practiced in every region of Türkiye. This situation reflects the richness of nomadic ovine husbandry activity in our country (Kutlu, 1987). The main purpose of nomadic animal husbandry, which is frequently seen in the world, is to provide optimum environmental conditions for animals by taking animals to high altitude springs and pastures, especially in hot summer months, to reduce the effect of heat stress, as well as to ensure profitability by providing cheap and high quality roughage for feeding animals (Daşçı and Çomaklı, 2006; Herzog and Seidl, 2018; Yazıcı, 2016a; Savaş et al., 2019a).

In addition to supporting families engaged in nomadic animal husbandry, which is a traditional lifestyle and a culture that needs to be preserved within animal husbandry activities, it is necessary to improve their current conditions and to propose solutions to their problems (Uzun and Köse, 2012; Aygün and Sezgin, 2009). In addition to being a source of livelihood, nomadic sheep production has a great role in contributing to the national economy and in the sustainability of small ruminant husbandry (Yılmaz et al., 2020). In Türkiye, in sheep farming activity, which has a very important position, the sustainability of sheep farming activity is of importance in economic, social and environmental dimensions (Yücel, 2022). Although sheep have many productivity aspects, the region where they will be bred along with the yield aspect, environmental conditions, market opportunities and grower conditions are also issues that should be taken into consideration. (Selvi, 2021). Although production practices vary regionally in our country, nomadic animal husbandry is widely seen in small ruminant production. However, in addition to the decrease in pastures in our country, summer pastures, migration routes, winter pasture supply, transportation problems, and problems encountered in the evaluation of the products obtained, some problems arise not only for the people who make a living with nomadic sheep farming, but also for family members (Yılmaz et al., 2014; Yılmaz et al., 2020; Yılmaz and Coşgun, 2017; Savaş et al., 2019a). To ensure the sustainability of pastures and plateaus for nomadic livestock production and to make good use of them, special attention should be paid to the grazing pattern and grazing period in these areas. Although the time of ascent and descent to the plateaus varies for each settlement in Türkiye, the elevation of the plateau and the climatic characteristics of that year are also among the determining factors (Özalp and Sütü, 2011; Palta and Genç Lermi, 2018). All these developments make nomadic animal husbandry difficult and make it a less preferred animal husbandry practice. In addition to hazelnut production as an agricultural activity in Ordu province, sheep production is also widely practiced. In certain periods of the year, the sheep are raised in the pens on the coast and taken to the highlands with the warming of the weather. The



aim of this study is to determine the socio-economic structure, production practices and problems encountered by the breeders in nomadic sheep farming enterprises and to offer suggestions to address these problems.

MATERIAL AND METHOD

The material of the study consisted of survey data obtained from 71 enterprises engaged in nomadic sheep production in Ordu province. In this study, data were collected from sheep breeders by face-to-face survey study using simple random sampling method. The evaluation of the obtained data was analyzed with the SPSS (26.0 Version) statistical program Analyze, Descriptive Statistics, and Frequencies. The results obtained from the data obtained within the scope of the research are presented through percentage and frequency values.

In similar survey studies, it was reported that at least 3% (Yamane, 2010) or 10% (Sümbüloğlu and Sümbüloğlu, 2000) of the population would be sufficient to determine the sample size. In this study, the number of sample enterprises to be surveyed was calculated using the following formula within 10% sampling error and 95% reliability limits (Alkan and Türkmen, 2020; Alkan and Türkmen, 2021; Çiçek and Erkan, 1996; Satar et al., 2022).

$$n = N \cdot t^2 \cdot p \cdot q / d^2 \cdot (N-1) + t^2 \cdot p \cdot q$$

n: sample size

N: Population size (1000)

t: t ruler value at 95% confidence interval (1.96)

p: 0.5 (50% incidence)

q: 0.5 (50% incidence)

d: Sampling error (0.10)

RESULTS AND DISCUSSION

General Characteristics of Enterprises and Herd Management

In the study, 47.9% of the breeders who participated in the survey live in the village, 45.1% in the town and 7% in the city center. It was determined that 86.6% of the nomadic sheep breeders are producing Karayaka breed sheep while 13.4% are breeding Karayaka crossbreds. Percent 94.4 of the breeders were male and 5.6% were female. When evaluated according to age ranges, 32.4% of the breeders are 41-50 years old and this age group constitutes the majority (Table 1). Percent 87.3 of the breeders were married and 39.5% were high school-university graduates, 40.8% were primary school graduates and 19.7% were secondary school graduates. The number of families with 3-7 or more households constitutes the majority (93%). The proportion of single farmers is 70.4%. Percent 90.2 of the breeders reported that the ownership of their enterprises belonged to them. In terms of the possibility of establishing livestock enterprises, it was determined that 85.9% of the breeders established their enterprises with their own means. It was observed that those who used their own means and loans for financing needs were few (Table 1). In the study conducted by Satar et al. (2022), the rate of credit utilization (24.0%) is higher than this study. Hazelnut production is widespread in the location where this study was conducted. Economic income is provided from both crop and sheep production.

In the study, it was determined that the majority of the breeders were between 41-50 years old. This finding is similar to the average age of the breeders (49 years old) reported by Karadaş (2018) and (48.2 years old) reported by Özsayın and Everest (2019). These studies show that people engaged in sheep production are mostly over 40 years old. Sheep farming, as a business line, should be considered within the scope of health insurance. In this way, young people can be directed to animal husbandry. Directing young people towards small ruminant production is very important for the continuity of animal husbandry activity. Under the effects of global

warming, food resources have become an important issue that needs to be emphasized more and more. In the study, the number of primary school graduates (40.8%) is lower than that reported by Karadaş (2018) (64.7%). In recent years, the tendency of high school and university graduates towards sheep production is important for the sustainability of small ruminant breeders. The value found for the household (3-7 or more people) in the study is similar to that reported by Özsayın and Everest (2019) (4.2).

Table 1. Socio-economic status of nomadic sheep breeders

Residence	n	%	Number of households	n	%
Province centre	5	7.0	1-2	5	7.0
Town	32	45.1	3-7 and above	66	93.0
Village	34	47.9	Education status		
Age			Primary school graduate	29	40.8
19-30	9	12.7	Secondary school graduate	14	19.7
31-40	16	22.5	High school-University graduate	28	39.5
41-50	23	32.4	Ownership status		
51-60	14	19.7	Individual	64	90.2
61 and above	9	12.7	Tenant-partner	7	9.8
Gender			Establishment of a business		
Woman	4	5.6	Own means	61	85.9
Male	67	94.4	Own means-use of credit	10	14.1
Profession			Marital status		
Farmer	50	70.4	Single	9	12.7
Farmer - Other occupations	21	29.6	Married	62	87.3

When the reason why breeders engage in animal husbandry is examined, 51.4% contribute to their livelihood. It was determined that 15.7% of them do not have any income and earn their living only by husbandry. In all of the farms where the study was carried out, husbandry is carried out as winter and spring pasture. In this respect, in Ordu province, grazing is carried out under hazelnuts in winter and production is carried out by migrating to pastures and highlands in summer. The availability of grazing areas for small ruminant animals affects sustainability. Temperature and humidity can cause stress in sheep. In this respect, nomadic production has made it compulsory to migrate from coastal areas where heat and humidity are felt intensely to the highlands.

The rate of those who have been engaged in sheep production for 11-30 years was 49.2%. This rate is higher than those who have been doing sheep farming for 0-10 years (25.4%) and 30-40 years and above (25.4%) (Table 2). Those who gave the answer of additional income as the reason for sheep production were 57.2% and their own needs were found to be 27.1%. It was determined that most of the sheep breeders were engaged in sheep production for additional income.

The rate of those who answered yes to the desire to do animal husbandry in the future was 82.9% (Table 2). This finding is consistent with the finding reported by Satar et al. (2022) (61.1%). In this respect, it is seen that the willingness to continue animal husbandry in the following years is high. The rate of record-keeping on sheep farms is 82.6%. This finding is similar to that reported by Özsayın and Everest (2019). High record-keeping is very important in terms of production studies in sheep production and the sustainability of enterprises. It is seen that 94.2% of the information on animal husbandry was obtained from the internet, TV and district agriculture and forestry directorates. Those who are engaged in other animal husbandry activities other than sheep production are 32.3%. The rate of those who are only engaged in sheep production and animal husbandry activities is 67.7%.

Enterprises with a herd size of 100-200 heads constitute the majority with 54.3%. Among the enterprises, 12.8% of the enterprises with 200-500 head and more sheep were found. The rate of those who reported an increase in the number of sheep in recent years is 71.4%. 65.7% of the breeders use shepherds and the rate of those who use permanent shepherds is 50.8%. The rate of those who are members of livestock producer organizations is 77.5%. The fact that this rate is high shows that breeders attach importance to benefiting from livestock support. In our study, it was determined that the number of members of agricultural producer organizations was high.

This finding is similar to the finding of Özsayın and Everest (2019) and Yılmaz et al. (2020) that breeders are members of different cooperatives and producer organizations. It is possible for sheep breeders to benefit from agricultural supports by being aware of agricultural supports through their membership in breeders' associations.

On the farms where the study was conducted, the experience of the breeders in this business is mostly between 11-30 years. This finding is similar to the 27 years of sheep production experience reported by Karadaş (2018) and the average of 24 years reported by Özsayın and Everest (2019). According to the findings obtained in the study, it shows that in addition to the intensive hazelnut cultivation in Ordu province, sheep production is also important. In addition to hazelnut production, sheep production plays an important role in the livelihood of the breeders.

Table 2. General characteristics of nomadic sheep enterprises

Reason for keeping livestock	n	%	Purpose of production	n	%
Contribution to livelihood	36	51.4	Own need	19	27.1
No other income	11	15.7	Butchery-victim	4	5.7
Habit	23	32.9	Breeding	7	10.0
Professional experience (year)			Additional income	40	57.2
0-10	18	25.4	Future livestock production status		
11-30	35	49.2	Yes	58	82.9
30-40 and above	18	25.4	No	12	17.1
Other animal husbandry activity			Record keeping		
Yes	21	32.3	Yes	57	82.6
No	44	67.7	No	12	17.4
The way of obtaining information on animal husbandry			Herd size		
Self-family	4	5.8	0-100 head	23	32.9
Internet- TV-district directorates	65	94.2	100-200 heads	38	54.3
Membership to producer organisation			200-500 heads and above	9	12.8
Member	55	77.5	Shepherd situation		
No membership	16	22.5	Yes	46	65.7
Increase in the number of sheep in recent years			No	24	34.3
Yes	50	71.4	Shepherd usage time		
No	20	28.6	Seasonal	18	28.6
			Permanent	32	50.8
			Family and seasonal	13	20.6

Percent 62.4% of the enterprises supply breeding males from their own flocks (Table 3). Breeding females were supplied by 81.2% of the breeders from their own flock. In the enterprises, the ratio of those who prefer 15 months of age for breeding females was determined as 67.2%, and the ratio of those who prefer 15 months of age for breeding males was determined as 57.4%. The findings obtained in this study are similar to those reported by Yılmaz et al. (2020).

In the study, it was determined that mating was intensive in July (46.9%) and August (21.9%). Mating was 17.1% in May-June, 12.5% in September-October and 1.6% throughout the year. The rate of those who answered that mating lasted 60 days was 56.5%, the rate of those who continued mating throughout the year was 31.9% and the rate of those who continued mating for 30-45 days was 11.6%. It was determined that lambs were mostly born in November-December-January (49.2%) and January-February-March (47.5%). The proportion of breeders who reported that lambing continued throughout the year was 3.3%. Lambs are born in the first months of the year, which enables them to grow until they leave for the plateau. Lambs are sold after they come from the plateau. Lamb sales are an important source of income.

It was determined that lamb births lasted two months (33.3%) and three months (31.7%). While the rate of those who did not separate the lambs from the mother as weaning period was 36.2%, lambs were weaned in two months (15.9%), three months (17.4%) and 6 months (30.5%). Butchering sales are realized as lambs (55.1%). Table 3 shows that the most important income of sheep breeders in the enterprises where the study was

conducted was obtained from lamb + breeding and sacrificial sales with a rate of 78.3%. The breeding periods of females are mostly 5 years (47.1%) and 6 years (35.3%). The breeding periods of rams were mostly 2-3 years (57.4%) and 4 years (27.9%). The rate of pasture utilization was 85.3% and the pasture composition was mostly (68.1%) good. The grazing status of different species in the pasture was 84.1%. It was observed that sheep, goats and cattle (75.4%) used the same pasture.

Table 3. Herd management practices

Breeding (male)	n	%	Lamb weaning (month)	n	%
Own flock	43	62.4	2	11	15.9
Animal market-neighbouring businesses	26	37.6	3	12	17.4
Breeding (female)			6	21	30.5
Own flock	56	81.2	Doesn't discriminate	25	36.2
Animal market-neighbouring businesses	4	5.8	Butchery sale		
All of them	9	13.0	Lamb	38	55.1
Breeding age female (months)			1-2 years and over	31	44.9
12	6	9.4	Most important income		
15	43	67.2	Breeding sale	8	11.6
18	6	9.4	Lamb-breeding and sacrifice	54	78.3
24	9	14.0	Sacrifice	7	10.1
Breeding age male (months)			Breeding use period female (years)		
12	16	26.3	5	32	47.1
15	35	57.4	6	24	35.3
18 and over	10	15.3	7	12	17.6
Pasture water source			Duration of use in breeding male (years)		
Mains water	6	8.7	2-3	39	57.4
Spring water	63	91.3	4	19	27.9
Pasture composition			Over 5	12	14.7
Good	47	68.1	Different types of grazing in the pasture		
Bad	4	5.8	Yes	58	84.1
Medium	18	26.1	No	11	15.9
Pasture utilisation status			Grazing species on pasture		
Yes	58	85.3	Sheep-goat-cattle	49	75.4
No	10	14.7	Sheep-goat	16	24.6

Feeding and Feed Supply Status of Enterprises

As seen in Table 4, it was determined that the maximum pasture grazing time of animals was 4 months (39.0%), the minimum was 1-2 months (43.6%) and the maximum stay time in the barn was 6 months (38.9%). During the stay in the barn, winter grazing is carried out in hazelnut gardens at sea level. In this respect, grasses under hazelnut are utilized as a feed source in winter. The rate of those who gave hay as roughage was 91.4% and the rate of those who gave vetch as roughage was 82.9%. Percent 98.6 of the breeders do not produce concentrate feed. Breeders who provide supplementary feeding are 69.6%. The proportion of those who make supplementary feeding in both periods, including the birth period and mating period (50.7%) is high. It is seen that the majority of sheep farms (82.4%) use lick stones for their animals.

In Table 4, the rate of those who declared that there is a pasture in the village was 73.9%, the rate of those who go to the pasture was 97.1% and the rate of those who reported that they have been going to the pasture for many years was 98.6%. The time for going out to pasture is intensively in April (53.2%), going out to pasture in May (80.8%), transitioning from plateau to pasture in October (50.9%), and transitioning from pasture to hazelnut gardens in December (61.1%). Savas et al. (2019b) found that in the study conducted in Iğdır province, the number of people going to pasture in April was higher (86.8%). In our study, it was found that more people went to pasture in April (53.2%). With this finding, Savaş et al. (2019b) are similar to what was reported. The maximum duration of stay in pasture and plateau was 6 months (59.7%) and the maximum duration of stay in

settlement was 6 months (60.3%). It was found that the mode of travel to the plateau was preferred on foot (44.8%). The rate of those who apply both vehicles and walking is 40.3%.

Table 4. Practices for feeding and feed supply

Feeding place upland duration (month)	n	%	Feeding place pasture duration (month)	n	%
2-3	7	11.9	1-2	28	45.2
4	23	39.0	3-5	9	14.5
5	17	28.8	6	14	22.6
6-7	12	20.3	7-8	11	17.7
Feeding place barn (month)			Time to go out to pasture		
2-3	10	18.6	March	9	14.5
4	6	11.1	April	33	53.2
5	11	20.3	May	20	32.3
6	21	38.9	Time to go to the plateau		
7	6	11.1	May	42	80.8
Does the village have a plateau			June	7	13.5
Yes	51	73.9	July	3	5.7
No	18	26.1	Transition month from plateau to pasture		
The way to the plateau			September	8	14.0
Vehicle	10	14.9	October	29	50.9
Walking	30	44.8	November	20	35.1
Vehicle-walk	27	40.3	Transition month from pasture to garden		
Duration of stay in pasture (month)			November	7	13.0
2-4	2	3.0	December	33	61.1
5	19	28.3	January	14	25.9
6	40	59.7	Additional feeding		
7-10	6	9.0	Yes	48	69.6
Duration of stay in the settlement (months)			No	21	30.4
2-4	5	7.4	Additional feeding status		
5	3	4.4	Mating	13	18.8
6	41	60.3	Birth period	7	10.2
7-8	19	27.9	Both periods	35	50.7
Use of hay for roughage			Not doing	14	20.3
Yes	64	91.4	Use of a lick stone		
No	6	8.6	Yes	56	82.4
Use of vetch for forage			No	12	17.6
Yes	58	82.9			
No	12	17.1			

Health Protection Practices of Enterprises

In the study, it was determined that 93.6% of the breeders did not milk the sheep. Breeders attach importance to the feeding of lambs. Therefore, sheep are not milked. The milk yield of Karayaka sheep is 30-45 kg, and the lactation period is 100-140 days (Akçapınar, 2000). In Turkey, most sheep herds are kept in small flocks, and milk is generally obtained from sheep by the manual milking method (Ünal et al., 2008). In the nomadic sheep farms where the study was carried out, milk evaluation was not carried out due to the lack of a sufficient labor force and the marketing of the products obtained. by the manual milking method (Ünal et al., 2008). In the nomadic sheep farms where the study was carried out, milk evaluation was not carried out due to the lack of a sufficient labor force and the marketing of the products obtained. On all the sheep farms, it was reported that health checks were carried out by the veterinarian. When there is a problem in the flock, the veterinarian called (69.1%). Early intervention is important to prevent the spread of diseases on livestock farms. It is seen that breeders are sensitive about health practices. It is seen that 86.8% of the breeders comply with the vaccination calendar and prefer to have the vaccine done by veterinarians (34.3%). In addition, the rate of those who make their own vaccines is 29.9%. 96.6% of the breeders reported that sheep were vaccinated in accordance with the vaccination calendar. The findings obtained as a result of the study in terms of vaccination practices are similar to the finding of Savaş et al. (2019a) that attention is paid to vaccination practices in nomadic livestock farms in

Iğdir province. The most common period of animal losses is spring (49.3%). It can be said that calf losses are high in this period. Especially the continuation of diarrhoea in the calf increases the calf losses. It is recommended to vaccinate against feeding-induced diarrhoea and jaundice, especially during the transition period from pen to pasture grazing (Savaş et al. 2019a).

As seen in Table 5, the rate of those who reported that there was no disease in their flocks in the sheep farms where the study was conducted is 78.3%. All of the breeders carry out parasite control. It is seen that parasite control is mostly done in the spring-autumn months (91.4%). Breeders reported that they prefer drug-injection application (56.5%) in parasite control. The rate of those who apply disinfection to sheep farms is 97.1%. It was reported that disinfection applications were performed every month during the year (89.7%). On sheep farms, 39.1% of the breeders stated that they performed manure cleaning twice a year.

Table 5. Health protection practices in the herd

Disease status	n	%	The person to be called for health problems in the herd	n	%
Incidence	15	21.7	Veterinarian	52	76.4
Absence	54	78.3	Provincial directorates-breeder associations-veterinarians	16	23.6
Parasite control method			Compliance with the vaccination schedule		
Medicine	22	31.9	Yes	59	86.8
Injection Moulding	8	11.6	No	9	13.2
Medicine-injections	39	56.5	Vaccination person		
Fertiliser cleaning			Veterinarian	23	34.3
1	23	33.4	Our own	20	29.9
2	27	39.1	Provincial-district directorates	9	13.4
3	15	21.7	All of them	15	22.4
4	4	5.8	Time of animal losses		
Disinfection			Spring	34	49.3
Yes, once a year	7	10.3	Winter	15	21.7
Yes, every month	61	89.7	In both periods	20	29.0
Agricultural supports utilised			Month of parasite control		
Government subsidies	10	18.1	Four seasons	6	8.6
Bank loan support	6	11.0	Spring-Autumn	63	91.4
State and bank loan support	39	70.9			

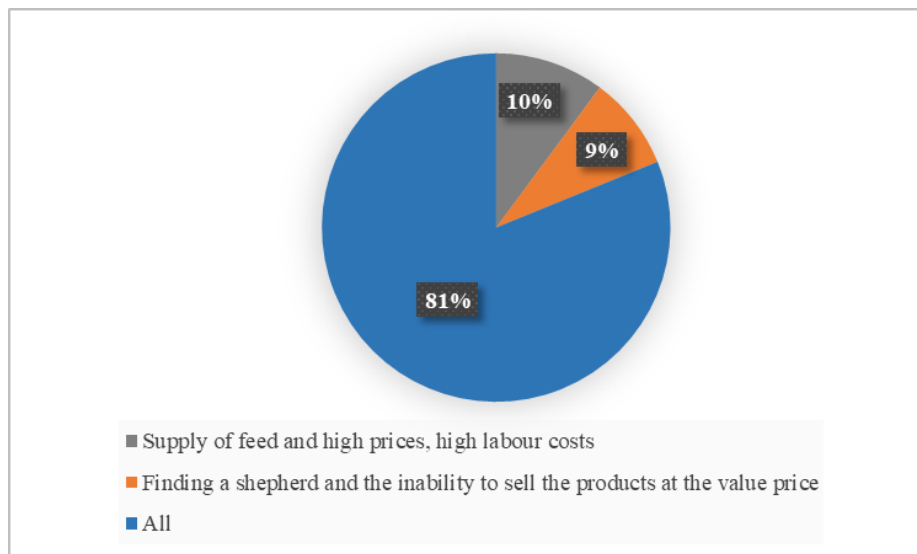


Figure 1. Problems encountered in animal husbandry

Percent 81 of the breeders reported that they experienced more than one problem (Figure 1.). These problems can be listed as difficulties in the supply of feed and high prices, high labour costs, the problem of finding a shepherd and the inability to sell the products at their value. The rate of those who receive government support and bank credit support from agricultural supports is 70.9%. Among the production problems identified in the study, feed supply and high feed prices are similar to the problems reported by Karadaş (2018) in Hakkari and Savaş et al. (2019a) in Iğdir province and Ceyhan et al. (2020) in their study.

CONCLUSION

As a result of the study, it was determined that nomadic sheep breeders keep records and pay attention to disinfection practices. It was determined that the most common problems experienced by the breeders were the difficulty in obtaining feed and finding a shepherd, high feed prices and lab costs, and the inability to market the products at value prices. It was determined that milking was not practiced on the sheep farms where the study was conducted. All of the milk is used for raising lambs. Sheep milk is a very valuable product. Training and support activities should be carried out to bring this product into the economy. The geographical structure and climate of the Black Sea region are suitable for small ruminants production. It is important for the sustainability of animal husbandry to inform the breeders, provide practical training, and consider sheep production and other animal husbandry activities as a line of business within the scope of health insurance coverage. As a result of the study, it was determined that the breeders were aged 40 and above. More work should be done to direct young people towards animal husbandry. In the study, the number of members of agricultural support organizations is high. However, it would be useful to ensure that the breeders are informed about agricultural support organizations in general.

It should be taken into consideration that many environmental factors have an impact on nomadic sheep production. For the breeders to continue sheep production, it is important to facilitate transportation procedures and find a shepherd. As a result of the study, it can be said that nomadic sheep production continues with traditional methods. The problems of nomadic sheep breeders can be reduced with agricultural supports, health protection methods, early disease diagnosis and pasture grazing order and training.

CONFLICT OF INTEREST

The authors declare no conflict of interest in the study.

AUTHORS CONTRIBUTION

All authors contributed equally.

ETHICAL STATEMENT

During the writing process of the study titled "**Socio-Economic Structure, Production Practices, Observations and Suggestions in Nomadic Sheep Production in Ordu province located in Black-Sea Region of Türkiye**", scientific rules, ethical and citation rules were followed; No falsification has been made on the collected data and this study has not been sent to any other academic media for evaluation. Permission to conduct the study was obtained with the decision of the Ordu University Social Sciences and Humanities Research Ethics Committee dated March 2, 2023 and numbered 2023-35

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