

## Çanakkale İli Yenice İlçesi Süt İşletmelerinin Yapısal Özellikleri Ve Sorunları<sup>&</sup>

Doğan Can ŞENKAN<sup>1</sup> , Ahmet Yusuf ŞENGÜL<sup>2\*</sup> 

<sup>1</sup>Bingöl Üniversitesi, Fen Bilimleri Enstitüsü, Zootekni ABD-Bingöl

<sup>2</sup>Bingöl Üniversitesi, Ziraat Fakültesi, Zootekni Bölümü- Bingöl

\*Sorumlu Yazar: [yusufsengul24@hotmail.com](mailto:yusufsengul24@hotmail.com)

Geliş Tarihi: 08.10.2024 Düzeltme Geliş Tarihi: 07.01.2025 Kabul Tarihi: 09.01.2025

### ÖZ

Bu çalışma, Çanakkale ili Yenice ilçesinde faaliyet gösteren süt sığırcılığı işletmelerinin mevcut durumunu ve işletmelerdeki bakım-besleme uygulamalarını belirlemek amacıyla yürütülmüştür. Çalışmanın ana materyalini, Çanakkale ili Yenice ilçesinde bulunan süt sığırcılığı işletmelerinde üreticilerle yapılan anketler oluşturmuştur. Anketler, toplam 783 adet işletmeden örnekleme yolu ile belirlenen 238 adet işletme üzerinde yapılmıştır. Elde edilen bulgulara göre, yetiştiricilerin yaşlarının 26-66 arasında değiştiği ve ortalamasının 49,5 olduğu, yetiştiricilik yapma süresinin ise 2-51 yıl arasında değiştiği ve ortalamasının 25,8 yıl olduğu belirlenmiştir. İncelenen işletmelerdeki sağmal inek sayısının 6 ile 24 baş arasında değiştiği ve ortalamasının 10,90 baş olduğu, toplam sığır sayısının ise 12 ile 28 baş arasında değiştiği ve ortalamasının ise 18,28 baş olduğu belirlenmiştir. İşletmelerde süt sığırcılığının genel olarak kendi üretimleri olan Siyah Alaca ırkıyla yapıldığı saptanmıştır. Sığır başına elde edilen günlük süt veriminin ortalamasının 17.77 lt olduğu belirlenmiştir. İncelenen işletmelerin %72,7'sinde kesif yemin yapılmadığı, %24,4'ünde kesif yemin işletmede ve %2,9'unun işletme dışında yapıldığı saptanmıştır. İşletmelerde hayvanların %87'sinin karışık, %13'ünün ise bireysel yemlendiği tesbit edilmiştir. Hayvanların meraya çıkarılma oranı %21,8 iken, meraya çıkarılmama oranı %78,2 olarak belirlenmiştir. İşletmelerin tamamına yakınında yemlemenin sabah ve akşam saatlerinde yapıldığı saptanmıştır. Sonuç olarak, incelenen işletmelerde yetiştiricilerin süt sığırlarının bakım ve beslenmeleri konularında bazı eksikliklerinin olduğu, bu eksikliklerin giderilmesinin gerekli olduğu anlaşılmıştır. Bu amaçla, özellikle birliklerin ve kooperatiflerin üreticilere vereceği eğitimlerin işletmelerdeki verimliliğinin artırılması açısından önemli katkıları olacaktır.

**Anahtar kelimeler:** : Çanakkale, Yenice, süt sığırcılığı işletmeleri, üretici, bakım-besleme, yemleme, süt üretimi

### Structural Properties and Problems of Dairy Cattle Farms in Çanakkale-Yenice

#### ABSTRACT

This study was conducted to determine the current situation and care-feeding practices in dairy farms in Çanakkale-Yenice. The main material of the study consisted of surveys conducted with producers in dairy farms in Yenice. The surveys were conducted on 238 businesses determined by sampling from a total of 783 businesses. The ages of the breeders vary between 26-66 years (average 49.5 years), and their years of cattle breeding vary between 2-51 years (average 25.8 years). In the examined dairy farms, the number of dairy cows was determined as 6-24 heads (average 10.90 heads), and the total number of cattle was 12-28 heads (average 18.28 heads). It has been determined that dairy cattle breeding in the farms is generally done with their own breeding Holsteins. The average milk yield was calculated as 17.77 liters per cattle per day Concentrated feed is not made in 72.7% of the farms, it is made in 24.4% and it is made outside the farm in 2.9%. 87% of the animals on farms are fed at the group level, and 13% are fed individually. While the rate of animals being taken to pasture was 21.8%, the rate of not being taken to pasture was determined as 78.2%. In almost all farms, animals are fed in the morning and evening. As a result, it was understood that the breeders in the farms examined had some deficiencies in the care and nutrition of dairy cattle and that these deficiencies needed to be eliminated. For this purpose, the

training provided to producers, especially by unions and cooperatives, will make significant contributions to increasing the productivity of the dairy farms.

**Key words:** Çanakkale, Yenice, dairy cattle farms, producers, care and nutrition, feeding, milk production

---

## INTRODUCTION

Dairy cattle farming activity has high importance for agricultural enterprises in terms of many socio-economic criteria. There are some studies that reveal the structural characteristics and feed usage level of dairy cattle in Türkiye (Semerci et al., 2015; Semerci, 2022, 2023; Semerci and Çelik, 2023). Because dairy farming activity brings many advantages for agricultural enterprises.

In Türkiye, dairy cattle farming, which was previously mostly done by family businesses, has been replaced by large farms in recent years with the support programs provided by the Ministry of Agriculture and Forestry and the Agriculture and Rural Development Support Institution (USK, 2019). However, despite the support provided, important problems related to dairy farming still continue. These problems include; inadequate care, management and feeding for high-yielding culture breeds, very low yields of raised native breeds, high calf losses, insufficient land for roughage production, milk produced below quality standards, low success in artificial insemination, low milk prices and high feed costs (Gültekin, 2014). In order to make the dairy cattle farming sector more profitable and sustainable, determining, examining and analyzing the existing problems and proposing solutions will be one of the important steps to be taken. Türkiye's raw milk production in 2023 was realized as 21.5 million tons depending on animal population and milk yield per animal. The amount of cow milk collected was 9.7 million tons for 2022. According to TÜİK data, the amount of drinking milk production in Türkiye was 1.5 million tons for 2022 (TEPGE, 2023). Since 2010, the number of cattle, production volume and productivity have increased significantly in Türkiye. Approximately 99% of the cattle in Türkiye consists of cattle, and a large portion of meat and milk production is provided by these animals (Anonymous, 2021). However, 70% of the approximately 1.2 million cattle farms in Türkiye have 10 or fewer animals (Anonymous, 2018). This situation shows that cattle farms are below the economic enterprise size and that some structural problems continue in the sector. Büyükcan and Tan (2020) reported that 25% of the milk producers in Çanakkale are located in Biga district, the annual milk yield of dairy cattle in the district is at the level of EU countries (4.9 tons), and the average number of animals in the farms included in their study is below 10 head. Therefore, it is evaluated that, from a medium-term perspective, national livestock policies will be shaped in terms of reducing the number of the farms under the economic enterprise size and increasing the enterprise scales. According to 2019 data, Çanakkale has a 1.37% share in Türkiye's cattle stock, and the districts that stand out in cattle breeding are Biga, Yenice and Çan. In the same year, Çanakkale province had a 2.4% share in Türkiye's cattle milk production. Çanakkale province ranks first in Türkiye in animal production and productivity. While 84% of the cattle stock in the province consists of culture, 8% of culture crossbreed and 8% of local breeds, the rate of culture breed cattle is 68% higher than the Turkish average. While the number of cultured cattle in Çanakkale province continued to increase between 2015 and 2020, the number of cultured hybrids decreased. The number of cattle is concentrated in two sub-regions in Çanakkale province. The first region includes the districts of Biga, Çan and Yenice, and constitutes 57% of the total animal population. The second region is the districts of Ezine, Bayramiç and Ayvacık, known for Ezine cheese, and represents 19% of the total animal population. The number of cattle is quite limited in the districts of Gökçeada, Bozcaada and Eceabat. While there are no native breed cattle in the districts of Bozcaada, Çan, Eceabat and Bayramiç, 54% of the province's native cattle are concentrated in the more mountainous and high altitude regions of Ayvacık and Yenice districts. A decrease in the number of cattle was observed in the districts of Eceabat, Gelibolu, Ayvacık and Bayramiç in the period of 2015-2020. Similarly, the decrease and stagnation in the number of animals in the Çan, Bayramiç and Ayvacık districts, where cattle farming is intensive, is striking. The difficulties experienced in cattle farming cause farmers to withdraw from animal husbandry or switch to small cattle farming. The correct determination of the technical and economic efficiency of the farms that constitute the basic stage of animal production constitutes the basic condition of sustainability. Increasing global competition and the need to reach sustainable markets make it important to correctly evaluate the performance of these farms.

This study aims to determine the current status of dairy cattle farms operating in the Yenice district of Çanakkale province, their incorrect, deficient and faulty practices and habits regarding care and feeding, and to identify current problems. The research focuses on the number of animals in dairy cattle farms operating in the district in question, their productivity levels, the production and use of roughage by the farms, the nutritional status of the animals, the types of feed used, and the feeding practices applied. Considering that feed costs can reach up to 70% of all costs in cattle farms, the extent to which feeds are used and the effect of the feeding

methods applied on profitability are of great importance. Because even the slightest increase in feed costs can directly affect the milk production cost and negatively affect the profitability of the farm. Therefore, it is especially important whether the farms meet their own roughage needs. Providing the roughage needs completely or partially from outside is a critical factor in terms of the profitability of the farms. This study, which was carried out in the Yenice district of Çanakkale province, can make significant contributions to a sustainable dairy cattle farm in the region.

## MATERIAL and METHODS

### Material

The main material of this study was the surveys conducted with producers in dairy cattle farms located in Yenice district of Çanakkale province. The surveys were conducted on 238 farms obtained by sampling from 783 farms located in Yenice district of Çanakkale province. A survey form containing 46 questions was used as a data collection tool in order to determine the feeding and breeding habits of producers in dairy cattle farming in Yenice district of Çanakkale province. In the study, survey forms were prepared for producers in order to obtain the necessary information about feeding practices, feed raw materials used, additives, roughage and concentrate feed levels in dairy cattle farms in Yenice district of Çanakkale province. Considering the scope of the study and the problems encountered in dairy cattle farming in Yenice district of Çanakkale province, care was taken in preparing the surveys. The majority of the questions in the survey consisted of closed-ended questions. In addition, various comments, opinions and thoughts of the producers were also taken into account during the survey. The number of surveys to be applied was calculated with the help of the formula below (Aksoy ve Yavuz, 2012).

### Methods

$$n = \frac{(N * t^2 * p * q)}{(d^2 * (N - 1) + t^2 * p * q)} \quad (1)$$

$$n = \frac{783 * (1,96)^2 * 0,5 * 0,5}{(0,05)^2 * (783 - 1) + (1,96)^2 * 0,5 * 0,5} = 238$$

n: number of individuals to be included in the sample.

N: number of individuals in the target population (783 dairy farms).

p: probability of occurrence of the event under investigation (0.50).

q: probability of occurrence of the event under investigation. (0.50).

t: standard normal distribution value (1.96).

d: sampling error (0.05).

### Statistical Analysis

The statistical methods used in data evaluation were selected in line with the objectives of the research. In this context, independent descriptive statistics such as frequency, percentage, mean and standard deviation, analysis methods such as ANOVA and Chi-Square test were used. The data collected from the dairy cattle farms were analyzed through SPSS 22 program and the obtained descriptive statistics and frequency tables were presented.

## RESULTS and DISCUSSION

### Socio-Economic Status of the Farm Owners

In the examined businesses, it was determined that 33.2% of the growers were between the ages of 46-55, 30.2% were over the age of 56, 29% were between the ages of 36-45, and 7.6% were between the ages of 25-35. It was determined that the ages of the growers ranged from 26 to 66, and the average was 49.50. The average age of the growers was reported as 42.2 for Erzincan province (Özyürek et al., 2014), 52.3% were between the ages of 31-40 for Nevşehir province (Sezer et al., 2020), 44.21 for Muş province (Bakır and Kibar, 2019b) and 47.33 for Van province (Terin et al., 2021). In a study conducted by Durak (2021) in Malatya, it was determined that the majority of dairy farmers were business owners between the ages of 36-45, and their rate was 42.6%. Among the business owners, the youngest producer was determined to be 25, and the oldest producer was determined to be 66. In a study conducted by Yıldız (2023) in Van, it was determined that 84.56% of the participants in the survey were between the ages of 15-50, and the rate of those who received secondary school education or below was 57.04%. It was determined that 52.1% of the breeders in the businesses were high school graduates, 24.4% were primary school graduates, 21.8% were secondary school graduates, 1.3% were literate, and 0.4% were university graduates. In a study conducted in Malatya, the rate of high school

graduates was reported as 57.3% (Durak, 2021). In studies conducted in Kars, Nevşehir, Rize, Muş, Ağrı, Iğdır, Edirne and Van provinces, it was determined that the majority of breeders were primary school graduates (Önal and Özder, 2008; Demir et al. 2013; Savaş and Yenice 2016; Bakan and Aydın, 2016; Şahin and Karadağ Gürsoy, 2016; Sezer et al. 2020; Bakır and Kibar, 2020; Terin et al. 2024). In a study conducted in the Thrace region by Koç and Uzmay (2019), it was reported that the majority of breeders were secondary school graduates. It can be said that the education level of dairy cattle operators in Yenice district of Çanakkale province is better than the operators in the previous study. It was determined that 52.9% of the breeders participating in the survey had been engaged in dairy cattle breeding for 15-30 years, 28.6% for more than 30 years and 18.5% for less than 15 years. It has been determined that the duration of dairy cattle breeding varies between 2 and 51 years and the average is 25.83 years. The breeding duration was reported as 17.5 years in Malatya by Aygül and Öztürk (2012), 71% in Rize as 11-20 years by Savaş and Yenice (2016), 25 years in Iğdır by Şahin and Karadağ Gürsoy (2016), 21.22 years in Muş by Bakır and Kibar (2019b), 25.3 years in Samsun by Eryılmaz et al. (2020), 23.06 years in İzmir by Torgut et al. (2019), 24 years in Ağrı by Bakan and Aydın (2016), 25.92 years in Van by Terin et al. (2022) and 22.2 years in Erzincan by Özyürek et al. (2014). It can be said that the findings of the study are similar to the findings of previous studies. According to the survey results, it was seen that 26.1% of the breeders received training on cattle breeding, while 73.9% did not. Durak (2021) reported in his study that 86.2% of the breeders did not receive any training on animal husbandry, while 13.8% received training on this subject. The status of breeders receiving training on dairy cattle was reported as 11% in Tekirdağ province by Soyak et al. (2007), 0% in Samsun by Eryılmaz et al. (2020), 14.29% in Sivas by Baş Hozman and Akçay (2016) 21.91% in Van (Terin et al. 2022), and 37.1% in Nevşehir by Sezer et al. (2020). It was concluded that the rate of receiving training was quite high compared to previous studies, but breeders generally did not receive cattle breeding training and participation in courses and training was low.

Table 1. Socio-demographic characteristics of dairy farm owners.

Age	Number	Rate (%)	Breeding duration	Number	Rate (%)
25-35	18	7,6	Less than 15 years	44	18,5
36-45	69	29	Between 15-30 years	126	52,9
46-55	79	33,2	More than 30 years	68	28,6
>56	72	30,2	Minimum	2	
Minimum	26		Maximum	51	
Maximum	66		Average	<b>25,83</b>	
Average	<b>49,50</b>				

Educational Status			Whether or not he/she received training in cattle farming		
	Number	Rate (%)		Number	Rate (%)
Literate	3	1,3	Yes	62	26,1
Primary School	58	24,4	No	176	73,9
Secondary School	52	21,8	<b>Total</b>	<b>238</b>	<b>100</b>
High School	124	52,1			
University	1	0,4			

#### Number of Animals in the Dairy Farms, Where the Animals are Supplied, Breeds Used

It was determined that the number of dairy cows in the examined farms varied between 6 and 24 heads and the average was 10.90 heads, while the total number of cattle varied between 12 and 28 heads and the average was 18.28 heads (Table 2). The rate of dairy farms with less than 15 dairy cows was determined as 88.6%, the rate of the farms with 15-20 dairy cows was determined as 10% and the rate of the farms with 20 or more dairy cows was determined as 1.4% (Table 3). The rate of dairy farms with less than 15 cows was determined as 15.1%, the rate of farms with 15-20 head was determined as 58.9% and the rate of farms with 20 or more head was determined as 26% (Table 4). In the study conducted by Bakır and Kibar (2019a) in Muş, the average number of animals per farm was determined as 37.54 heads, minimum 2 and maximum 303 heads (Bakır and Kibar, 2019b). In the study conducted by Bakan and Aydın (2016) in the farms in Ağrı province, the average number of cattle was calculated as 19.9 heads. The number of cattle per farm was determined as 23.4 heads in Kars by Erdoğan et al. (2004), 18 heads in Erzurum by Çoban et al. (2013) and 23.8 heads in Sivas by Hozman and Akçay

(2016). In the study conducted by Barut (2020) in Diyarbakır, it was determined that the largest number of animals belonged to farms with 1-5 heads (%40.10), 6-10 heads (%23.38) and 11-20 heads (%26.65). In the study conducted by Mat (2020) in Balıkesir, the average number of cows per farm was reported as 31 heads.

Table 2. Number of dairy cows and total cattle in the examined farms.

Variables	Number of dairy cows	Total number of cattle
Mean	10,90	18,28
Standard deviation	3,09	3,55
Minimum	6	12
Maximum	24	28

Table 3. Distribution of the number of dairy cows in the examined farms by groups.

Number of dairy cows	Number	Rate (%)
Less than 15 heads	211	88,6
15-20 heads	24	10
20 heads and above	3	1,4
<b>Total</b>	<b>238</b>	<b>100,0</b>

Table 4. Distribution of the total number of dairy cows in the examined farms by groups.

Total number of cows	Number	Rate (%)
Less than 15 heads	36	15,1
15-20 heads	140	58,9
20 heads and above	62	26
<b>Total</b>	<b>238</b>	<b>100,0</b>

In the examined farms, it was determined that 88.2% of the cattle were their own production, 5.5% were inherited from the family and purchased, and 0.8% were purchased + their own production (Table 5). It was concluded that there were no inherited cows in the farms with less than 15 cows, and these farms either produced or purchased the cows themselves. It was determined that farms with 20 or more cows had a high percentage of their own production cows.

Table 5. Places where cattle were supplied according to the total number of animals.

Total number of animals	Family legacy	Where the cows are supplied			Total
		Own production	Purchased	Purchased + own production	
Less than 15 heads	0	32	4	0	36
15-20 heads	12	119	7	2	140
20 heads and above	1	59	2	0	62
Number	13	210	13	2	238
<b>Total</b>	<b>5,5</b>	<b>88,2</b>	<b>5,5</b>	<b>0,8</b>	<b>100</b>
Rate (%)					

The rate of Holstein breed in farms was determined as 31.9%, Holstein crossbreeds as 49.1%, and other crossbreed genotypes (Simmental and Brown Swiss crossbreeds) as 19%. The reason why Holstein breed and crossbreeds are the most common in the province can be explained by the agricultural policies implemented, the genetic structure of the breed, the high milk yield, and the adaptation of the breed to the climate and geographical conditions of the region, as stated by Atmak (2017). In a study conducted by Atmak (2017), when the animals registered in the DSYB of Şanlıurfa province were listed in terms of breed, it was determined that Holstein breed had the highest rate with a share of 39.05%, followed by Holstein Crossbreed, Simmental Crossbreed, and Simmental breeds, respectively. Bakır and Han (2014) reported in their study that one of the reasons why the rate of culture breeds and crossbreeds in dairy farming is 40% and above is the pregnant heifer import applied. The distribution of breeds raised in farms in Muş province according to frequency values by Bakır and Kibar (2019b) was determined as local (41.7%), hybrid (75.3%) and cultured (35.9%). In the study conducted in Diyarbakır, Barut (2020) reported that 7.77% of the total female calves, female calves, heifers and cows (milking and dry) raised were local, 15.12% were cultured and 77.09% were hybrid animals. In their study, Koşum and Kaygısız (2019) pointed out that the majority of dairy cows in Türkiye were of the Holstein Friesian breed

with high milk yield and that the number of Simmental cattle breed was increasing due to its high adaptability. Sezer et al. (2020) In a study conducted in Nevşehir, when the breeds raised in 105 dairy farms were examined, it was determined that Holstein was raised together in 50.5% of the farms, and Holstein and Simmental were raised together in 36.2%. In a study conducted in Bursa by Karaca (2020), it was determined that as the number of animals in the farms increased, local breeds were replaced by cultured breeds and crossbreeds, and while the rate of local breeds was 6.3%, the rate of the farms raising only cultured breed cattle was 65%. It was concluded that pure and crossbred breeding of Holstein and Simmental breeds was prominent as cultured breeds. In a study conducted in Afyonkarahisar, it was determined that Holstein, Simmental and Brown Swiss breeds were present and the Simmental breed was the most commonly preferred (Yıldırım and Koçak 2019). In a study conducted in Çankırı, it was determined that Holstein and Simmental breeds were preferred by 69% (Yıldız 2013). In a study conducted by Bakan and Aydın (2016) in Ağrı, it was reported that the majority of the animal breeds raised were Brown Swiss (67.78%), followed by local breeds with 11.57%, Simmental with 8.75% and crossbred with 5.84%. In a study conducted in Muş province, it was reported that 7% of the animals in the farms were local, 15.5% were cultured and the others were crossbred (Bakır and Kibar 2019a). In a study conducted by Tugay and Bakır (2006) in Giresun, it was determined that 7% of the farms preferred the Simmental, 21.4% the Holstein, 32.4% the Brown Swiss and 39.1% the Jersey breed, and 25.2% of the animals owned were crossbred and 73.2% were cultured. According to these results, it can be concluded that the breed selection varies according to the climatic conditions and geographical structure of the region.

#### Daily Milk Production in Farms, Daily Milk Yield per Animal and Place of Marketing of Milk

While the daily milk quantity in the examined farms was 193.7 lt on average, this value was calculated as 179.8 lt in the farms with less than 15 milking cows, 288.0 lt in the farms with 15-20 cows and 416.6 lt in the farms with 20 or more cows. The average milk quantity obtained per cattle was calculated as 17.23 lt in farms with less than 15 cows, 16.76 lt in farms with 15-20 cows and 17.85 lt in farms with 20 or more cows. The general average milk quantity obtained per cattle was calculated as 17.77 lt in all the farms (Table 6).

Table 6. Daily milk amount produced in farms and average milk yield per animal.

Number of dairy cows/Variables	Less than 15 heads	15-20 heads	20 heads and above	Total/General
Amount of milk produced daily	179,8±3,2 <sup>a</sup>	288.0±10,9 <sup>b</sup>	416,6±72,6 <sup>c</sup>	193,7±4,1
Daily milk amount per animal	17,23±3,2	16,76±5,4	17,85±24,2	17,77±3

<sup>a,b,c</sup>: Differences between means shown with different letters in the same row are significant ( $P \leq 0.05$ ).

Durak (2021) reported in his study that 34.2% of the producers received 11-15 liters of milk per cow per day. In second place were the farms that obtained 6-10 liters of milk per day (33.3%). The rate of the farms that produced 16-20 liters of milk per animal per day was determined as 26.4%. The rate of farms that received 5 liters or less of milk per day (2.0%) and the rate of the farms that obtained more than 20 liters of milk (4.1%) are quite low. It can be said that the differences in milk yields per animal of the farms are due to the difference in the breeds used. In a study conducted by Savaş and Yenice (2016) in Rize province, it was stated that 80.5% of the farms had a milk yield of 10 liters or less per animal, while 7.4% had less than 20 liters. In a study conducted by Bakır and Kibar (2019b) in the province of Muş, it was reported that dairy cattle breeders obtained an average of 10.3 liters of milk per cattle per day, and 50.7% of this amount was between 6-10 kilograms. In a study examining the daily milk yield per animal in the farms in the province of Yalova, Bakır and Han (2014) reported that the rate of the farms with a milk amount of 10 kg and below was 33.8%, those with 11-20 kg were 57.9%, and those with 21 kg and above were 8.3%. In the farms examined, the rate of milk being sold to cooperatives was determined as 95.8%, the rate of milk being sold to food markets as 2.5%, and the rate of milk being sold to unions as 1.7%. In the study conducted by Durak (2021), it was determined that 53.7% of the farms sold the milk they produced to intermediaries. The rate of producers who market their milk themselves + give it to intermediaries was determined as 27.2%, and the rate of those who give it to food businesses + give it to intermediaries was determined as 16.7%. The remaining few were determined to give their milk to delicatessens, markets (2.0%) and milk factories (0.4%). In a study conducted in Ağrı, it was determined that 15.1% of the farms gave their milk to milk collectors, 2.8% to dairies and 82.1% were evaluated in other ways (Bakan and Aydın 2016). In the study conducted by Bakır and Kibar (2019a), it was determined that producers in Muş province sold 70.5% of the milk they produced not as milk but by processing it into cheese, yogurt and butter.

**Feed Supply and Feeding Related Practices in the Investigated farms**

In the dairy farms examined, the rate of supplying concentrated feed from the factory was 2.5%, the rate of supplying from the factory+cooperative was 1.3%, the rate of supplying from the cooperative only was 61.3% and the rate of supplying from the feed dealer was 34.9% (Table 7).

Table 7. Feed supply and feeding practices of dairy farms.

Where concentrated feed is supplied	Feeds and feeding practices		
	Rate (%)	Daily amount of feed given to a dairy cow	Rate (%)
Cooperative	61,3	≤10 kg	72,2
Feed dealer	34,9	≥11 kg	27,8
Factory	2,5	<b>The criterion for determining the amount of feed given</b>	
Factory + Cooperative	1,3	According to milk yield	38,7
<b>Place where concentrated feeds is made</b>		Sack calculation	29,8
Concentrated feed not make	72,7	Bucket or can calculation	17,7
On the farm	24,4	Habit	13,0
Outside the farm	2,9	Habit + milk yield	0,8
<b>Where concentrated feed raw materials are supplied</b>		<b>Provision of roughage requirement</b>	
Concentrated feed not make	72,7	Own production + buying	87,8
Produces it on its own	10,5	Own production	7,6
Soil Products Office (TMO)	16,8	Buying	4,6

It was determined that 72.7% of the farms did not produce concentrated feed, while 24.4% of the concentrated feed was produced in the enterprise and 2.9% outside the enterprise. It was determined that 16.8% of the raw materials required for concentrated feed were supplied by the Soil Products Office, and 10.5% were produced by the enterprise itself. In the surveys, the amount of feed given to a milking cow was determined as 10 kg and below by 72.2%, and 11 kg and above by 27.8%. It was observed that 38.7% of the breeders took milk yield into consideration when determining the amount of feed given to the animals, 29.8% made a sack calculation, 17.7% made a bucket or can calculation, 13% habitually, and 0.8% fed by taking habit + milk yield into account. In the study conducted by Durak (2021), it was concluded that 48.4% of the farms surveyed took the productivity of the animals into consideration when giving concentrated feed to their animals, while 44.3% did so randomly. In a study conducted in Sivas province, it was stated that 60.15% of the farms did not feed according to productivity (Baş Hozman and Akçay 2016). In a study conducted in Rize province, it was stated that the majority of the farms fed based on their own knowledge and experience (Savaş and Yenice 2016). Eryılmaz et al (2020) reported that all animals were given the same amount of feed, and Sezer et al (2020) reported that 42% of the feeding in dairy farms in Nevşehir province was done by eye and 38.1% by experience. Soyak et al (2007) stated that 65% of the farm owners gave more concentrated feed to the animals that gave more milk and less concentrated feed to the animals that gave less milk, while 35% gave the same amount of concentrated feed to all animals. Güğercin et al (2017) reported that the amount of feed given per animal in dairy cattle farms in Adana province was 5-7 kg for calves, 5-10 kg for calves and 10-15 kg for cows. Considering that feeding according to yield is both more economical and more suitable for animal health, it is important to spread this practice in the farms. It was determined that 87.8% of the roughage needs of the farms were provided by own production + purchasing, 7.6% by own production and 4.6% by purchasing (Table 8). In a study conducted in Malatya, the rate of producers giving an average of 4-6 kg of concentrate feed per animal per day was determined as 52.9%, the rate of those giving a concentrate feed in the range of 7-10 kg was determined as 42.4% and the rate of those giving a concentrate feed in the range of 0-3 kg was determined as 4.9%. It was determined that 22.0% of the producers gave their animals 5 kg of feed per day, 19.9% 8 kg and 17.9% 6 kg (Durak, 2021). Denli et al (2014) reported the concentrate feed rates of dairy farms in Diyarbakır as 43% barley+wheat, 15% barley and bran+barley mixture, 13% wheat, 11% factory feed and 3% other concentrate feeds. In a study comparing dairy cattle farms in Burdur province, Ata and Yılmaz (2015) reported the average concentrate feed of traditional and improved farms as 8.04 kg and 9.38 kg, respectively. Bakır (2002) stated that 56.4% of private farms in Van province gave 1-4 kg, 35.5% gave 5-8 kg, and 13% gave 8.1 kg and more concentrate feed. Arslan and Tufan (2010) emphasized that incorrect feeding practices can cause various metabolic diseases such as acidosis, ketosis, hypocalcemia, and fatty liver in cattle. In a study conducted in Malatya, it was determined that producers generally do not produce the concentrate feed they use themselves and usually buy it from outside. It was

determined that this feed supply is usually carried out through Agricultural Credit Cooperatives, feed dealers, and milk intermediaries. It was determined that 31.7% of the producers procure the concentrate feed they need from cooperatives and feed dealers (Durak, 2021). In studies conducted in Rize and Yalova, it was determined that all producers purchased their concentrate feeds from abroad (Bakır and Han 2014; Savaş and Yenice 2016).

On the other hand, only 10% of the farmers in the Eastern Mediterranean region produce their own concentrate feed (Boz 2013), while 13% of the farms in Diyarbakır produce their own concentrate feed and only 6% of the farms can produce enough to meet their own needs (Denli et al. 2014). While the rate of farms producing concentrate feed is 25.6%, the rate of farms producing enough to meet their own needs is determined as 11.4%. For a profitable dairy farming, it is important for farms to produce their own roughage needs and thus try to reduce feed costs. In addition, it is also of great importance for farms to be able to produce the concentrate feed they need or to develop their capacity to increase their current production. Diler et al. (2016) reported that 63% of the farms in Erzurum province purchase roughage, followed by 17% from their own farms and 11% from rented land. Daş et al. (2014) stated that the vast majority of farms in Bingöl province (88.7%), and Kaygısız and Tümer (2009) stated that a large portion (61%) supplied roughage from outside. In contrast, Demir et al. (2013) reported that cattle breeders in Kars province largely supplied roughage from their own farms. In the Eyyubiye district of Şanlıurfa province, it was determined that while forage crops were cultivated in 40.2% of the farms within the scope of the study, it was not cultivated in 59.8%. It was determined that the roughage needs of cattle breeding farms with sufficient land were met by their own farms (Doğanay and Yanar 2023). It was determined that the cultivation of roughage varieties such as wheat straw, corn, pea, oat, meadow grass, alfalfa and vetch was intensively carried out in the examined farms. The rate of not cultivating roughage was determined as 1.7%. In a study conducted by Durak (2021) in Malatya, the most common roughage produced by producers is wheat straw. 23.6% of the farms produce only wheat straw. In addition, many farms produce other roughages such as dry alfalfa, vetch, corn and oats in addition to wheat straw. When these farms are taken into account, the rate of producers producing wheat straw reaches 61.8%. In the same study; when the roughage produced by the farms surveyed is examined, it was determined that 20.3% of the farms planted dry alfalfa and wheat straw, 13% corn and dry alfalfa, 12.2% wheat straw and vetch, and 11% dry alfalfa. It was concluded that 13% of the farms did not produce roughage, and the most important reason for this was that they did not have enough land. In a study conducted in Iğdır province, it was determined that producers produced straw, alfalfa, silage corn and sainfoin as roughage (Şahin and Karadağ Gürsoy 2016). In the study conducted by Sezer et al. (2020), it was determined that 83.8% of cattle farms in Nevşehir province produced silage, 33.3% produced oats, 36.2% produced vetch and 96.2% produced straw. In their study conducted in Yalova, Bakır and Han (2014) reported that the most commonly used roughage mixture in farms was meadow grass + straw.

When the distribution of purchased roughage types in the examined farms was examined, it was determined that the farms mostly purchased wheat straw and corn silage. It was determined that the products that were not cultivated in the farms and purchased from outside were barley and beet pulp. The rate of farms that did not purchase roughage from outside was determined as 2.1%. In their study, Denli et al. (2014) revealed that 71% of the feeding practice of farms in Diyarbakır was straw. Aygül and Özkütük (2012), in a study they conducted in dairy cattle farms in the Central, Battalgazi and Doğanşehir districts of Malatya province, stated that 6 kg of straw and an average of 0.759 kg of corn silage were given to the animals daily. Köseman and Şeker (2016) reported that 95.1% of the cattle farms in Malatya province fed their animals alfalfa. In a study conducted by Durak (2021) in Malatya, corn silage and dry alfalfa are the leading roughages supplied by farms from outside, with a rate of 35.8%. The rate of farms purchasing corn silage is quite high and this rate reaches 83.7%. 19.5% of the farms participating in the survey prefer only corn silage, 15.0% prefer wheat straw and corn silage, 12.2% prefer only wheat straw, and 12.2% prefer a combination of corn silage, dry alfalfa and wheat straw. The vast majority of enterprise owners within the scope of the survey stated that they do not produce silage, with a rate of 82.9%. The rate of those producing silage was determined as 17.1%. When compared to preservation methods other than the artificial drying method, it was stated that preserving feeds as silage prevents the loss of nutrients (Şahin and Zaman, 2010). According to some studies, 21.4% of the farms in Yalova province by Bakır and Han (2014), 10% of the farms in Diyarbakır by Denli et al. (2014), and 83.8% of the farms in Nevşehir province by Sezer et al. (2020) produce silage. However, it was determined that silage production was insufficient in some of the farms in Yenice district of Çanakkale province. In this context, it is extremely important to encourage and promote silage production in farms. In the study conducted by Bakır and Han (2014) in Yalova, it was determined that the mixture of meadow grass + straw was the most used roughage in farms and that the farms generally met their roughage needs by producing them in their own farms or purchasing them from outside. It was reported that straw was included in all combinations as the basic feed ingredient in farms as roughage, and the mixture of meadow grass + straw was used the most (42.5%) as a roughage combination in farms, followed by the mixture of meadow grass + straw + vetch (16.7%). In the study conducted by Diler et al. (2016) in the Hınıs



district of Erzurum province, it was determined that wheat or barley straw (71%) was used as the main feed source, followed by dry alfalfa hay (14%) and dry meadow hay (11%). It was concluded that silage, which is an important source of roughage, was used at a very low level (0.25%) in the district. It was determined that 90.8% of the roughage purchased from outside was purchased from sellers in the market, and 7.1% from producers who grow roughage. Since there is no land to produce the roughage that farms need, purchasing roughage is seen as an important problem of dairy farming in Türkiye (Gültekin 2014; Sezer et al. 2020).

#### Amount of Feed Given per Animal in the Dairy Farms

The values of the amount of silage, dry alfalfa and straw given per animal in the examined farms are given in Table 8. While the average daily amount of silage given to animals in the farms was 16 kg, this value was calculated as 14.8 kg in farms with less than 15 cattle, 15.7 kg in farms with 15-20 cattle and 17.5 kg in farms with 20 or more cattle. It was concluded that the amount of silage given varied according to the total number of cattle and that farms with 20 or more cattle gave more silage to cattle compared to other farms. While the amount of dry alfalfa given to cattle was determined to be quite low, this value was determined as 0.3 kg per animal per day on average in the farms, 0.1 kg in farms with less than 15 animals, 0.3 kg in farms with 15-20 animals and 0.6 kg in farms with 20 or more animals. It was concluded that farms with 20 or more cattle gave more dry alfalfa feed to their cattle than farms with less than 15 cattle. While an average of 4.2 kg/head of hay was given to cattle in the examined farms, this value was determined as 4.6 kg in farms with less than 15 cattle, 4.3 kg in farms with 15-20 cattle and 3.7 kg in farms with 20 or more cattle.

Table 8. Values for the daily average amount of silage, dry alfalfa and straw given per animal in the examined farms.

Amount of feed given/Total number of cattle		Average Number of Animals	Average Feed Amount	Std. Deviation	Std. Error
Silage (kg/head)	Less than 15 heads	14,23	14,8 <sup>a</sup>	3,8	0,6
	15-20 heads	18,02	15,7 <sup>a</sup>	3,0	0,2
	20 heads and above	23,06	17,5 <sup>b</sup>	3,1	0,4
	<b>Total</b>	18,28	16,0	3,3	0,2
Dry alfalfa (kg/head)	Less than 15 heads	14,23	0,1 <sup>a</sup>	0,5	0,0
	15-20 heads	18,02	0,3 <sup>ab</sup>	0,9	0,0
	20 heads and above	23,06	0,6 <sup>b</sup>	1,0	0,1
	<b>Total</b>	18,28	0,3	0,9	0,0
Straw (kg/head)	Less than 15 heads	14,23	4,6 <sup>c</sup>	0,8	0,1
	15-20 heads	18,02	4,3 <sup>b</sup>	0,8	0,0
	20 heads and above	23,06	3,7 <sup>a</sup>	0,9	0,1
	<b>Total</b>	18,28	4,2	0,8	0,0

<sup>a, b, c</sup> : Differences between means with different letters in the same column are significant..

It was determined that the difference between the average values of the amount of straw given to the animals was statistically significant ( $P < 0.05$ ), and that the farms with less than 15 cattle had the highest value, while the farms with 20 or more cattle had the lowest value. It was observed that the amount of straw given decreased as the number of animals increased. In a study conducted by Bakır and Han (2014) in Yalova, significant differences were found between the rates of concentrated feed given to animals in the farms. The highest amount of feed given in the enterprise was in the range of 4-6 kg with a rate of 46.2%. In a study conducted in Malatya, differences were also significant between the farms in terms of the amount of concentrated feed given to the animals. While the rate of producers giving an average of 4-6 kg of concentrated feed per animal per day was 52.9%, the rate of those giving in the range of 7-10 kg was 42.4% and the rate of those giving in the range of 0-3 kg was 4.9% (Durak 2021). In the study conducted by Ata and Yılmaz (2015), the average concentrate feed of traditional and improved farms in Burdur province dairy cattle farms was reported as 8.04 kg and 9.38 kg, respectively. In the study conducted by Bakır (2002), it was reported that 56.4% of private farms in Van province gave 1-4 kg, 35.5% gave 5-8 kg, and 13% gave 8.1 kg and more concentrate feed.

#### The Feeding Method of Animals, Their Pasture Status and Whether or Not They Have a Rough/Concentrated Feed Storage in the Dairy Farms

In the farms surveyed, it was determined that 87% of the animals were fed mixed and 13% individually. While the rate of animals being put out to pasture was 21.8% in the farms, the rate of not being put out to

pasture was 78.2% (Table 9). It was determined that roughage and concentrated feed storage was available in 82.4% of the farms and not in 17.6%. The pasture utilization rate was determined as 40.7% in a study conducted in Malatya (Durak, 2021). In a previous study, it was concluded that the storage conditions of the feeds were as important as the production of the feeds. In the same study, 52.4% of the participants stated that they stored the feeds in the warehouse, 35.9% in a covered area outside, and 11.7% in an open area outside (Demir et al. 2013). In the study conducted by Diler et al. (2016), it was determined that 64% of the factory feeds in Hınıs district were stored under cover outside, 28% were stored inside and 5% were stored outside with the top open. Similarly, in the study conducted by Daş et al. (2014), it was determined that 88% of the business owners in Bingöl stored the feeds in question outside the barn. In the study conducted by Doğanay and Yanar (2023) in the Eyyubiye district of Şanlıurfa province, it was determined that in some businesses, grains were ground weekly or monthly to form concentrated feed mixtures and stored in warehouses.

Table 9. The feeding style of the animals, their grazing on pastures, and the availability of feed stores in the farms examined.

Variables	Number	Rate (%)
<b>Feeding methods</b>		
Mixed	207	87,0
Individual	31	13,0
<b>Total</b>	<b>238</b>	<b>100,0</b>
<b>Pasture grazing</b>		
No	186	78,2
Yes	52	21,8
<b>Total</b>	<b>238</b>	<b>100,0</b>
<b>Having a roughage/concentrate feed storage</b>		
Yes	196	82,4
No	42	17,6
<b>Total</b>	<b>238</b>	<b>100,0</b>

#### Traits of Barns, Waterers and Feeders Owned by Dairy Farms

In the examined farms, it was determined that the barn type was 46.2% closed, 46.2% semi-open and 7.6% open. It was determined that the barns were 401 m<sup>2</sup> and larger than 401 m<sup>2</sup> in 64.3% of the farms, between 201 m<sup>2</sup> and 400 m<sup>2</sup> in 27.8% and smaller than 200 m<sup>2</sup> and 200 m<sup>2</sup> in 7.9%. The rate of using concrete waterers in the farms was determined as 10.5%, the rate of using concrete troughs as 53.8%, the rate of using automatic waterers as 10.5% and the rate of using other waterer types as 25.2%. The rate of using concrete feeders was determined as 42% in farms, the rate of using plastic feeders as 1.2%, the rate of using plastic troughs as 2.1%, the rate of using barrels as 1.6% and the rate of using feed alleys as 52.9%. In a study conducted by Durak (2021) in Malatya, it was determined that trough type feeders were largely used in the farms surveyed, especially in closed barns. It was determined that 72.8% of the producers used trough feeders. The rate of farms using feed alleys was calculated as 24.8%, and the rate of farms using both feeders was calculated as 2.4%. It was determined that the producers used trough type waterers at a high rate (62.2%). In a study conducted by Kılıç et al. (2020) in Kütahya, it was determined that the majority of the feeders were concrete and a small portion were wooden. In a study conducted by Bakır (2002), it was determined that feeders made of reinforced concrete, wood or sheet metal were adjacent to the wall in all barns and that there were no feed alleys in the barns. Turan (2019) stated in his study that 73.5% of the farmers who participated in the survey used concrete feeders in their farms, while 12.9% preferred metal feeders, 8.8% preferred plastic feeders and 4.8% preferred wooden feeders..

#### Total Land Owned by Farms and Size of Land Where Forage is Produced

The average value of the total land size in the farms examined was determined as 39.50 da, and the average value of the land where roughage is produced was determined as 30.68 da. The share of the land where the farms produce roughage in their total land was determined as 77.6%.

The rate of farms with land of 30 da and below was determined as 39%, the rate of farms with land of 31-60 da was determined as 52.1% and the rate of farms with land of 61 da and above was determined as 8.9%. The rate of farms with land of 25 da and below where roughage is produced was determined as 45.9%, the rate of farms with land of 26-50 where roughage is produced was determined as 46.4% and the rate of farms with land of 51 da and above where roughage is produced was determined as 7.7%.

Table 10. Values related to total land size and land size where forage is produced in the examined farms.

Land size	Number	Rate (%)
<b>Total land size (da)</b>		
≤30	93	39,0
31-60	124	52,1
≥61	21	8,90
Average	39,50 (%100)	
<b>Total</b>	<b>238</b>	<b>100.0</b>
<b>Land used for producing roughage (da)</b>		
≤25	109	45,9
26-50	110	46,4
≥51	18	7,7
Average	30,68 (%77,6)	
<b>Total</b>	<b>237</b>	<b>100</b>

### Calf Replacer Feed Usage Status, Feed Usage Duration and Feeding Number in Farms

It was determined that 77.3% of the farms surveyed used calf replacer feed, while 22.7% did not. It was determined that the feeding period was 120 days or less in 42.8% of the farms, between 121-200 days in 47.9%, and more than 201 days in 9.3%. It was determined that 93.2% of the farms fed twice, 4.2% fed once, and 2.6% fed 3 times (Table 11). It was determined that feeding was done in the morning and evening hours in almost all of the farms examined. In the study conducted by Durak (2021), it was determined that animals were generally fed twice a day (82.5%) in the farms, and the rate of feeding 3 or 1 times a day (17.5%) was very low. In the study conducted by Sezer et al (2020), the feeding program of the farms was determined as two meals a day in 78.1%, 3 meals a day in 19% and single meal in 2.9%.

Table 11. Calf replacer feed usage status, feed usage period and feeding number values in the examined farms.

Calf replacer feed usage status	Number	Rate (%)	Applications		
			Number of daily feedings	Number	Rate (%)
Yes	184	77,3	1 time	10	4,2
No	54	22,7	2 times	221	93,2
<b>Total</b>	<b>238</b>	<b>100.0</b>	3 times	6	2,6
<b>Feed usage period (days)</b>					
≤120	102	42,8			
121-200	114	47,9	<b>Total</b>	<b>237</b>	<b>100.0</b>
≥201	22	9,3			
<b>Total</b>	<b>238</b>	<b>100.0</b>			

In a study conducted in Edirne, it was determined that 64.2% of the farms were fed twice a day, and 31.6% were fed three times a day (Önal and Özder 2008). In a study conducted by Aygül and Özkütük (2012) in dairy cattle farms in the Central, Battalgazi and Doğanşehir districts of Malatya province, it was reported that feeding was done three times a day in 86.4% of the farms. In a study conducted by Yıldız and Deniz (2021) in Muş, it was concluded that the majority of breeders fed their animals twice a day (64.97%). In a study conducted in Van, it was reported that animals were fed more often twice a day (58.87%) (Yıldız 2023). In a study conducted in the Eyyübiye district of Şanlıurfa, it was determined that 75.6% of the cattle raised were fed twice a day, 23.7% were fed 3 times in 3 days, and 0.7% were fed 4 times a day (Doğanay and Yanar 2023). In a study conducted by Akkuş (2009) in Konya, it was determined that 74.79% of the farms were fed twice a day. In a study conducted by Özsağlıcak and Yanar (2021) in cattle farms in the central district of Erzincan, it was determined that 49.1% were fed twice a day, 47.6% were fed three times, and 3.3% were fed more than 3 times a day. In a study conducted by Çapadağ (2017) in Erzurum, it was reported that 70.6% of the farms were fed twice a day, and the rate of farms feeding three times was 27.7%. When the previous studies and the findings of this study are evaluated in general, it can be said that twice a day feeding is common throughout Türkiye, followed by 3 times a day feeding, and in this respect, a similar situation is also the case in Yenice district of Çanakkale province.

### Status of Some Other Applications in Businesses

It was determined that 26.1% of the roughage was given separately and 73.9% was mixed in the farms. While the rate of using vitamins and minerals while making concentrated feed was determined to be quite low

(3.4%), the rate of not using vitamins and minerals while making concentrated feed was determined to be quite high (96.6%). It was determined that 31.5% of the pregnant animals were fed separately and 68.5% were fed mixed in the farms examined.

It was determined that licking stones were not used in 59.2% of the farms and licking stones were used in 40.8%. In a study conducted by Sezer et al (2020), the rate of using licking stones was determined as 86.7%. Önal and Özder (2008) determined the rate of using licking stones as 89.5% in farms affiliated with the Edirne province breeding cattle breeders' union.

Silage is produced in 93.7% of the examined enterprises, and silage is not produced in 6.3%.

When the presence and size of silage storage or pits in the farms are examined, the rate of presence of silage storage or pits is determined as 0.8% and the rate of absence is determined as 99.2%. It was determined that only 2 of the farms examined had silage storage of 384 m<sup>2</sup> and 650 m<sup>2</sup>.

42% of the barn building material in the farms examined is concrete, 29.4% is concrete-iron and 17.2% is iron. In a study, stone is used as a material in the barn walls of 55.3% of the cattle enterprises in Erzurum, concrete is used in the barn floors of 43.8%, and sheet metal is used as a roofing material in 48.1% (Güler et al. (2017). In a study conducted in Kütahya, it was determined that concrete (92%) was mostly used as the floor structure material in barns (Kılıç et al. 2020).

The workforce consists of 2 people in 42% of the farms, 3 people in 49.2% and 4 people in 8.8%. In a study conducted by Özer and Tümer (2021) on dairy farming farms in Mersin, Adana, Osmaniye, and Hatay provinces, it was reported that the average number of family members in the farms was 3.6 people and 3.01 of them were engaged in dairy farming. When the status of farms benefiting from feed support was examined, it was seen that 16.4% benefited from feed support and 83.6% did not.

## CONCLUSION and SUGGESTIONS

When the socio-economic status of the breeders in the examined farms is examined, it is observed that their ages vary between 26-66 and the average age is 49.50, 98.3% of the enterprise owners are high school, secondary school and primary school graduates, 52.9% have been dairy farming for 15-30 years, 28.6% for more than 30 years and 18.5% for less than 15 years and this period is 25.83 years on average, only 26.1% of the breeders have received training in cattle farming and a significant portion have not received any training on the subject.

The average value of the total land size in the farms was determined as 39.50 da and the average value of the land where roughage is produced was determined as 30.68 da. The share of the land where the farms produce roughage in their total land was determined as 77.6%.

The number of dairy cows owned by the enterprises is between 6-24 heads (average 10.90 heads), and the total number of cattle is between 12-28 heads (average 18.28 heads). It is noteworthy that the rate of farms with less than 15 dairy cows was very high (88.6%). In terms of the total number of cows, the rate of farms with 15-20 head of animals was found to be higher (58.9%). It was observed that the farms produced their own cattle to a large extent (88.2%).

The cattle breeds raised on the surveyed farms were largely pure Holstein or Holstein crossbreeds. This rate was calculated as 81%. Apart from these breeds, there were also a small number of Simmental, Brown Swiss and crossbreeds of these breeds.

A significant part of the enterprises (77.3%) use calf substitute feed. It was determined that the average daily milk production per cow in the farms was 17.77 lt, and less than 10 kg of concentrated feed and 16 kg of silage were given to the cow on average daily. Concentrate feed and roughage were generally mixed and given to the animals (87%). It was observed that only 38.7% of the breeders took milk yield into consideration when determining the daily feed amount to be given to the animals. It is noteworthy that the daily dry alfalfa rate given per animal in the farms was quite low (0.3 kg per day). It was determined that silage was made in the majority of the farms (93.7%). It was determined that 72.7% of the farms did not produce concentrated feed and that 96.3% of the concentrated feed they needed was purchased from cooperatives and feed dealers. The majority of the farms produce some of their own roughage needs and purchase some from outside. The rate of farms that meet their own roughage needs completely is 7.6%. The roughage grown in the farms largely consists of wheat

straw, corn, fodder pea, oat, meadow grass, alfalfa and vetch. It is understood that the roughage mostly purchased from outside is wheat straw and corn silage.

The rate of taking animals to pasture is quite low in the farms surveyed, only 21.8% of the farms declared that they take their animals to pasture. It was observed that the number of daily feedings in the farms is generally 2 times (morning and evening). The rate of breeders using licking stones in their farms was determined as 40.8%. The barn types of the examined enterprises are 46.2% closed barn, 46.2% semi-open barn and 7.6% open barn. 64.3% of the barns owned by farms are between 401 m<sup>2</sup> and larger than 401 m<sup>2</sup>, 27.8% are between 201 m<sup>2</sup> and 400 m<sup>2</sup>, and 7.9% are between 200 m<sup>2</sup> and less than 200 m<sup>2</sup>.

95.8% of the farms stated that they sold the milk they obtained to cooperatives and 16.4% benefited from feed support. It is seen that the benefit from feed support is quite low. As a result, some of the problems detected in the farms on the subject and some issues that can be suggested are listed below;


- It is understood that the training of the breeders in the farms is insufficient. The training and courses that the breeder unions and cooperatives will provide to the farmers on subjects such as roughage production, ration preparation and feeding of dairy cattle will make significant contributions in terms of cheaper production of feed raw materials, more effective use of feed resources and increasing the efficiency of the farm. Agricultural publication and communication activities, which are of great importance in reaching farmers, should be carried out more effectively, adequately and continuously.
- It has been observed that silage production in farms is not sufficient and some farms do not make silage. Most farms do not have silage pits or storage. Some farms purchasing significant amounts of corn silage from outside may be one of the factors reducing profitability. Silage production, which is considered the cheapest roughage, should be expanded and each enterprise should be provided with its own silage needs.
- Many farms have a quality roughage problem, and some farms purchase significant amounts of wheat straw from outside. The use of straw as roughage is very common. Dry alfalfa production and use is extremely limited. The roughage fed to animals largely consists of corn silage. Dry alfalfa production and use in higher amounts as roughage should be encouraged.
- A significant number of farms do not have roughage or concentrated feed storage. This situation poses a significant problem in the long-term storage of produced or purchased feed. Current conditions can cause feed raw materials and feed to deteriorate or mold in a short time.
- Mixed feeding is largely done in farms. Feeding without considering the productivity levels, growth and pregnancy periods of animals is one of the issues that reduces efficiency. It may be recommended that producers switch to individual feeding.
- One of the important problems is that the daily feed amount given to animals in farms is determined largely based on habits. Milk yield should be taken into consideration first in determining the daily feed amount. Other issues to be considered are live weight, growth period and pregnancy.
- Another important problem determined in farms is the very low use of licking stones. Thanks to the rich vitamin and mineral support in the licking stone content, it has important benefits in terms of meeting the needs of animals and preventing problems such as fertilization and not showing heat, soil eating, meat and milk losses. The use of licking stones in farms must definitely be increased.
- It is observed that the rates of breeders benefiting from feed support are very low. This situation is a significant loss in terms of the profitability of the enterprise. Producers should be informed and made aware of this issue.


**Conflict of Interest Statement:** The authors of the articles declare that they have no conflict of interest.

**Summary of Researchers' Contribution Declaration:** Authors declare that they have contributed equally to the article.

**&:** This study was produced from Doğan Can ŞENKAN's master's thesis.

#### AUTHOR ORCID NUMBERS

Doğan Can ŞENKAN  <http://orcid.org/0009-0004-9287-5169>

Ahmet Yusuf ŞENGÜL  <http://orcid.org/0000-0002-7155-5914>

## REFERENCES

- Akkuş, Z., 2009. Konya ilindeki süt sığırcılığı işletmelerinin yapısal özellikleri. Selçuk Üniversitesi, Fen Bilimleri Enstitüsü, Yüksek Lisans Tezi, Konya, 37s.
- Aksoy, A., Yavuz, F., 2012. Çiftçilerin küçükbaş hayvan yetiştiriciliğini bırakma nedenlerinin analizi: Doğu Anadolu Bölgesi örneği. *Anadolu Tarım Bilim. Derg.*, 2012, 27(2):76- 79.
- Anonymous, 2018. Tarım ve Gıdada Rekabetçi Üretim. Özel İhtisas Komisyonu Raporu. On Birinci Kalkınma Planı. Kalkınma Bakanlığı. Ankara.
- Anonymous, 2021. Tarım İstatistikleri, TÜİK. [www.tuik.gov.tr](http://www.tuik.gov.tr). Erişim Tarihi: 16.06.2021.
- Ata, N., Yılmaz, H., 2015. Türkiye’de uygulanan hayvansal üretimi destekleme politikalarının süt sığırcılığı işletmelerine yansımaları: Burdur ili örneği. *Süleyman Demirel Üniversitesi Ziraat Fakültesi Dergisi* 10 (1):44-54.
- Atmak, A. 2017. Şanlıurfa ilinde süt sığırcılığı yapan işletmelerin yapısı sorun ve çözüm önerileri. Harran Üniversitesi Fen Bilimleri Enstitüsü Yüksek Lisans Tezi. Zootekni Anabilim Dalı Şanlıurfa s.46.
- Aygül, H., Özkütük, K., 2012. Malatya ili süt sığırcılığı ve sığır besiciliğinin yapısı. *Adana Veteriner Kontrol Enstitüsü Müdürlüğü Dergisi* 2: 7-11.
- Çapadağ, M. (2017). Erzurum ili Yakutiye ilçesi büyükbaş hayvancılık işletmelerinin yapısal özellikleri (Yüksek Lisans Tezi, Fen Bilimleri Enstitüsü).
- Çoban, O., Lacin, E., Sabuncuoglu, N., & Genc, M. (2013). Production and health parameters in cattle herds: a survey from eastern Turkey. *JAPS: Journal of Animal & Plant Sciences*, 23(6).
- Bakan, Ö., Aydın, R., 2016. Ağrı ili süt sığırcılığı işletmelerinin sosyo-ekonomik özellikleri. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi* 47(2): 113-122.
- Bakır, G., 2002. Van ilindeki özel süt sığırcılığı işletmelerinde tercih edilen kültür ırkları. *Yüzüncü Yıl Üniversitesi Tarım Bilimleri Dergisi* 12(2): 11-20.
- Bakır, G., Han, F., 2014. Yalova ilindeki süt sığırcılığı işletmelerinin yapısal özelliklerini etkileyen faktörler: yem ve besleme alışkanlıkları. *Türkiye Tarımsal Araştırmalar Dergisi* 1(1): 55-62.
- Bakır, G., Kibar, M., 2019a. Muş ilinde bulunan süt sığırcılığı işletmelerinin bazı yapısal özelliklerinin Crostabb analiziyle belirlenmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi* 22(4): 609-619.
- Bakır, G., Kibar, M., 2019b. Muş ilinde özel süt sığırcılığı işletmelerinde süt verim özelliklerinin belirlenmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi* 22(4): 620-630.
- Bakır, G., Kibar, M., 2020. Muş ili süt sığırcılığı işletmelerinin barınak özelliklerinin belirlenmesi. *Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi* 23(4): 1085-1095.
- Barut, M. (2020). Diyarbakır İlinde Süt Sığırcılığı Yapan İşletmelerin Mevcut Durumu (Doktora tezi).
- Baş Hozman, S., Akçay, H., 2016. Sivas ili damızlık sığır yetiştiricileri birliğine üye süt sığırcılığı işletmelerinin bazı teknik ve ekonomik özellikleri. *Turkish Journal of Agricultural Economics* 22(1), 57-65.
- Boz, İ. 2013. Doğu Akdeniz Bölgesi'nde süt sığırcılığı yapan işletmelerin yapısı, sorunları ve çözüm önerileri. *KSÜ Doğa Bilimleri Dergisi* 16(1): 24-32.
- Büyükcan, B., Tan S., 2020. Çanakkale ili Biga ilçesinde süt üreticilerinin hayvancılık politikalarına bakış açılarının incelenmesi. *Atatürk Üniv. Zir. Fak. Der.*, 51 (3): 258-266.
- Daş, A., İnci, H., Karakaya, E., Şengül, A.Y., 2014. Bingöl ili damızlık sığır yetiştiricileri birliğine bağlı sığırcılık işletmelerinin mevcut durumu. *Türk Tarım ve Doğa Bilimleri Dergisi*, 1(3): 421-429.
- Demir, P., Aksu Elmalı, D., Işık, S., Tazegül, R., Ayvazoğlu, C., 2013. Kars ili süt sığırcılık işletmelerinde yem kullanımı ve hayvan besleme alışkanlıklarının ekonomik önemi. *Atatürk Üniversitesi Veteriner Bilimleri Dergisi* 8(3): 229-236.
- Denli, M., Tutkun, M., Sessiz, A., 2014. Diyarbakır ili süt sığırcılığı işletmelerindeki besleme uygulamaları. *Hayvansal Üretim* 55(2): 22-26.
- Diler, A., Koçyiğit, R., Yanar, M., Aydın, R., Güler, O., Avcı, M., 2016. Erzurum ili Hınıs ilçesi sığırcılık işletmelerinde sığır besleme uygulamaları üzerine bir araştırma. *Anadolu Tarım Bilimleri Dergisi*, 31(1): 149-156.
- Doğanay, S., Yanar, M. (2023). Şanlıurfa ili Eyyubiyi ilçesi sığırcılık işletmelerinde sığır besleme alışkanlıkları ile işletme büyüklüğü arasındaki ilişkiler. *Anadolu Ege Tarımsal Araştırma Enstitüsü Dergisi*, 33(1), 122-133.
- Durak, A. 2021. Malatya il merkezi ve ilçelerinde süt sığırcılığı yapan işletmelerde kullanılan yem çeşitleri ve uygulanan yemleme şekilleri. *Bingöl Üniversitesi Fen Bilimleri Enstitüsü Yüksek Lisans Tezi Zootekni Anabilim Dalı*, s. 52. Bingöl.
- Erdoğan, H. M., Çitil, M., Güneş, V., Saatci, M. (2004). Dairy cattle farming in Kars district, Turkey: I. Characteristics and production. *Turkish Journal of Veterinary & Animal Sciences*, 28(4), 735-743.
- Eryılmaz Aydın, Gamze., Kılıç, O., Boz, İ., Kaynakçı, C., 2020. Süt sığırcılığı yapan işletmelerin tarımsal yeniliklerin benimsenmesi ve bilgi kaynakları yönünden değerlendirilmesi: Samsun ili Bafra ve Canik ilçeleri örneği. *Iğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi* 10(2): 1361-1369.

- Güğercin, Ö., Koç, D.L., Büyüктаş, K., Baytorun, N., Polat, B., Polat, Ö.D., 2017. Adana ilinde bulunan bazı süt sığırcılığı işletmelerindeki hayvan barınaklarının mevcut durumlarının belirlenmesi. *Çukurova Tarım ve Gıda Bilimleri Dergisi*, 32(1): 19-28.
- Güler, O., Aydın, R., Diler, A., Yanar, M., Koçyiğit, R., Maraşlı, A., 2017. Sığırcılık işletmelerinin barınak özellikleri üzerine bir araştırma: Erzurum ili Narman ilçesi örneği. *Yüzüncü Yıl Üniversitesi Tarım Bilimleri Dergisi*, 27(3), 396 - 405.
- Gültekin, C., 2014. Trakya Bölgesinde büyükbaş hayvancılık işletmelerinin üretim-pazarlama sorunları ve çözüm önerileri. *Trakya Üniv. Sos. Bil. Enst., Yüksek Lisans Tezi* s. 119, Edirne.
- Karaca, M. (2020). Hendek ilçesi süt sığırcılığı işletmelerinde buzağılarda yaşama gücü ile ilgili yönetsel uygulamalar (Yüksek Lisans Tezi, Bursa Uludağ University, Türkiye).
- Kaygısız, A., Tümer, R., 2009. Kahramanmaraş ili süt sığırcılığı işletmelerinin yapısal özellikleri: 2. Barınak özellikleri. *Kahramanmaraş Sütçü İmam Üniversitesi Doğa Bilimleri Dergisi*, 12(1): 40-47.
- Kılıç, İ., Özışsel, B., Yaylı, B., 2020. Kütahya’da faaliyet gösteren süt sığırcılığı işletmelerinin yapısal ve teknik özellikleri. *Uluslararası Tarım ve Yaban Hayatı Bilimleri Dergisi* 6(2): 275-286.
- Koç, G., Uzmay, A., 2019. Trakya bölgesi üreticilerinin süt sığırcılığı faaliyetinden vazgeçme olasılığını etkileyen faktörler. *Tarım Ekonomisi Dergisi*, 25(1): 41-52.
- Koşum, S., Kaygısız, A. (2019). Malatya İlindeki Siyah Alaca, Simental ve Esmer Irkı Sığırların Hasar Kapsamında Sigortadan Hasar Alma Tazminatları Bakımından Karşılaştırılması. *Harran Tarım ve Gıda Bilimleri Dergisi*, 23(4), 422-431.
- Köseman, A., Şeker, İ., 2016. Malatya ilinde sığırcılık işletmelerinin mevcut durumu: I. yapısal özellikler. *Fırat Üniversitesi Sağlık Bilimleri Veteriner Dergisi* 30(1): 5-12.
- Mat, B., 2020. Balıkesir ilinde süt sığırcılığı yapan işletmelerin teknik ve sosyo ekonomik analizi ile rekabet güçlerine etki eden faktörlerin araştırılması. *Ankara Üniversitesi Sağlık Bil. Enst. Hayvan Sağlığı Ekonomisi ve İşletmeciliği Anabilim Dalı. Doktora Tezi*, s.146, Ankara.
- Önal, A.R., Özder, M., 2008. Edirne ili damızlık sığır yetiştiricileri birliğine üye işletmelerin yapısal özellikleri. *Namık Kemal Üniversitesi Tekirdağ Ziraat Fakültesi Dergisi*, 5(2): 197-203.
- Özer, B., Tümer, E. İ. (2021). Süt sığırcılığı işletmelerinin yapısal özellikleri. *Çukurova Tarım ve Gıda Bilimleri Dergisi*, 36(2), 187-200.
- Özsağlıcak, S., Yanar, M., 2021. Feed usage and cattle feeding practices in cattle farms in the Eastern Anatolia Region: The case of central County of Erzincan Province, *Journal of Animal Science and Products*. 4 (2):136-152.
- Özyürek, S., Koçyiğit, R., Tüzemen, N., 2014. Erzincan İlinde süt sığırcılığı yapan işletmelerin yapısal özellikleri: Çayırlı İlçesi örneği. *Tekirdağ Ziraat Fakültesi Dergisi* 11(3) 19-27.
- Savaş, S., Yenice, G., 2016. Rize ilinde yapılan süt sığırcılığının mevcut durumunun araştırılması. *Atatürk Üniversitesi Veteriner Bilimleri Dergisi* 11(1) 74-83.
- Semerci, A., Parlakay, O., Çelik, A. 2014. Gross margin analysis in dairy cattle: a case study of Hatay Province, Turkey. *Custos e @gronegocio on line*, 10 (4): 154-170
- Semerci, A., Parlakay, O., Çelik, A. 2015. Süt Sığırcılığı Yapan İşletmelerin Ekonomik Analizi: Hatay İli Örneği. *Tekirdağ Ziraat Fakültesi Dergisi*, 12 (3): 8-17
- Semerci, A. 2022. Determination of Feed Consumption and Feed Conversion Ratio in Dairy Cattle Farms: A Case Study of Hatay Province. *Turkish Journal of Agriculture - Food Science and Technology*, 10(7): 1214-1223.
- Semerci, A. 2023. Determining the economic efficiency level of feed consumption in cow milk production. *Custos e @gronegocio on line*, 19 (1): 183-200
- Semerci, A., Çelik, A.D. 2023. Süt Sığırcılığı Faaliyetinde İşletme Büyüklüğünün Süt Verim Miktarı, Üretim Değeri Ve Karlılık Düzeyi Üzerine Etkisi: Türkiye Örneği. *International Journal On Mathematic, Engineering And Natural Sciences*. 7 (2): 110-124.
- Sezer, Y., Baytok, E., Akçay, A., 2020. Nevşehir ili süt sığırcılığı işletmelerinin yapısı ve hayvan besleme uygulamaları yönünden değerlendirilmesi. *Erciyes Üniversitesi Veteriner Fakültesi Dergisi* 17(3): 235-241.
- Soyak, A., Soysal, M.İ., Gürcan, E.K., 2007. Tekirdağ ili süt sığırcılığı işletmelerinin yapısal özellikleri ve bu işletmelerdeki siyah alaca süt sığırlarının çeşitli morfolojik özellikleri üzerine bir araştırma. *Tekirdağ Ziraat Fakültesi Dergisi* 4(3) 297-305.
- Şahin, İ.F., Zaman, M., 2010. Hayvancılıkta önemli bir yem kaynağı: Silaj. *Doğu Coğrafya Dergisi* 15(23): 1-18.
- Şahin, K., Karadağ Gürsoy, A., 2016. Iğdır İli süt sığırcılığı işletmelerinin sosyo-ekonomik yapısı. *Nevşehir Bilim ve Teknoloji Dergisi* 5: 118-129.
- TEPGE, 2023. Tarımsal Ekonomi ve Politika Geliştirme Enstitüsü. Süt ve Süt Ürünleri Tahmin Raporu. Erişim: Aralık, 2024

- Terin, M., Ceylan, M., Çiftçi, K., Yıldırım, İ. 2021. Damızlık Sığır Yetiştiricileri Birliğine Üye Olan ve Olmayan Süt Sığır Sığır Sığır İşletmelerinde Yeniliklerin Benimsenme Durumu: Van İli Örneği. *Türk Tarım ve Doğa Bilimleri Dergisi*, 8(3): 585–593.
- Terin, M., Ceylan, M., Çiftçi, K., Yıldırım, İ. 2024. Van İlindeki Süt Sığır Sığır İşletmelerinin Sosyo Demografik ve İşletmecilik Özelliklerinin Karşılaştırılması. *KSÜ Tarım ve Doğa Derg*, 27 (1), 228-237.
- Terin, M., Ceylan, M., Çiftçi, K., Yıldırım, İ. 2022. Damızlık Sığır Yetiştiricileri Birliğine Üye Olan ve Olmayan Süt Sığır Sığır İşletmelerinin Hayvancılık Desteklerinden Faydalanma Durumlarının Analizi. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi*, 53(1), 42-50
- Torgut, E., Annayev, S., Örmeci, Kart, M.Ç., Türkekul, B., 2019. Süt sığır sığır yapan işletmelerin genel özelliklerinin belirlenmesi: İzmir ili Ödemiş ve Tire ilçeleri örneği. *Turkish Journal of Agricultural Economics* 25(1) 87-95.
- Tugay, A., Bakır, G. (2006). Giresun yöresindeki özel süt sığır sığır işletmelerinin ırk tercihleri ve barınakların yapısal durumu. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi*, 37(1), 39-47.
- Turan, M. (2019). Diyarbakır manda yetiştiriciliğinin mevcut durumu, sorun ve çözüm önerilerinin belirlenmesi (Yüksek Lisans Tezi, Fen Bilimleri Enstitüsü).
- USK, (Ulusal Süt Konseyi), 2019. Ulusal Süt Kayıtları. Erişim: Aralık, 2024.
- Yıldız, S., Deniz, S., 2021. Muş ili damızlık sığır/manda yetiştiricileri birliklerine üye işletmelerin yem temini ve hayvan besleme alışkanlıkları. *Iğdır Üniversitesi FBED*, 11 (4), 3280-3291.
- Yıldırım, K., Koçak, S. (2019). Afyonkarahisar damızlık süt sığır işletmelerinde buzağı bakımı ve yaşama gücünün değerlendirilmesi. *Kocatepe Veterinary Journal*, 12(3), 310-316.
- Yıldız, B. (2013). Çankırı ili süt sığır barınaklarının yapısal özellikleri ve yeni barınak modellerinin geliştirilmesi. Yüksek Lisans Tezi.
- Yıldız, S., 2023. Feed supply and animal nutrition habits of Van province, cattle breeding facilities. *YYÜ Van Vet J*, 34 (2), 146-154. DOI: <https://doi.org/10.36483/vanvetj.1284539>.