BAHRİ DAĞDAŞ
Hayvancılık Araştırma Dergisi

ARAŞTIRMA MAKALESİ

Structural Characteristics of Cattle Farm Enterprises in Selim District of Kars Province: Farm Management Practices

Sadrettin YÜKSEL[1], **Oguzhan TARHAN**[1]

[1]Department of Animal Science, Faculty of Agriculture, Atatürk University, Erzurum, Türkiye

***Sorumlu Yazar:**
syuksel@atauni.edu.tr

Yayın Bilgisi:
Geliş Tarihi: 18.08.2025
Kabul Tarihi: 02.10.2025

Anahtar kelimeler: Sığırcılık işletmeleri, Çiftlik yönetimi, Selim İlçesi, Hayvan sağlığı, Meme temizliği

Keywords: Animal Health, Cattle enterprises, Farm management, Selim District, Udder cleaning

Abstract

This study aimed to identify current challenges in farm management and cattle breeding practices on cattle farms located in Selim district of Kars Province. For this purpose, a face-to-face survey was conducted with 350 cattle farm owners randomly selected from among 3925 farms in the district. Study results showed that the milking was performed by mobile milking machines in 52.3% of the cattle farms in the district. Furthermore, the majority of the farmers (60.2%) cleaned the milking machines after each milking., while 29.6% of the enterprises were determined to perform machine cleaning once a day. It was found that pre-milking udder cleaning is not performed in 15.0% of the enterprises, while 85.0% of the respondents stated that they perform udder cleaning before milking. Moreover, the vast majority of enterprises in the district (98.3%) stored the milk in plastic containers. It was also found that calvings in enterprises were mostly in winter (70.6%), followed by spring (14.6%) and autumn (13.7%), and the rate of enterprises keeping records of animals was 18.9%. This study found that 45.7% of enterprises dried off their cows three months before calving, 39.1% dried off them two months before calving. The most common diseases in dairy farms in the district are toe and nail problems (33.3%), dystocia (25.9%), mastitis (14.6%), diarrhea (4.6%) and coughing (0.6%). According to the research findings, in order to ensure hygienic milk production in the district, it is necessary to increase the number of communal cooling tanks in villages, promote the use of machine milking, conduct more frequent checks of dairy cows for mastitis, and have local units of the Ministry of Agriculture and Forestry play a more active role in addressing the deficiencies observed in farm management practices.

Kars İli Selim İlçesi Sığırcılık İşletmelerinin Yapısal Özellikleri: Çiftlik Yönetim Uygulamaları

Özet

Bu çalışma Kars ili Selim ilçesinde bulunan sığır yetiştiriciliği yapan işletmelerde çiftlik yönetimi ve sığır yetiştiriciliği uygulamalarındaki mevcut sorunları belirlemek amacıyla yürütülmüştür. Bu amaçla ilçede bulunan 3925 işletme arasından rastgele seçilen 350 sığırcılık işletmesi sahibi ile yüz yüze anket yapılmıştır. Çalışma sonuçlarına göre ilçedeki sığır işletmelerinin %52.3'ünde sağımın mobil sağım makineleri ile yapıldığı görülmüştür. Ayrıca çiftçilerin büyük çoğunluğu (%60.2) her sağımdan sonra sağım makinelerini temizlerken, işletmelerin %29.6'sının günde bir kez makine temizliği yaptığı belirlenmiştir. İşletmelerin %15.0'sinde sağım öncesi meme temizliği yapılmadığı, ankete katılanların %85.0'inin ise sağımdan önce meme temizliği yaptığını belirtmiştir. Ayrıca ilçedeki işletmelerin büyük çoğunluğu (%98.3) sütü plastik kaplarda saklamaktadır.

İşletmelerde doğumların çoğunlukla kış (%70.6) aylarında gerçekleştiği, bunu ilkbahar (%14.6) ve sonbahar (%13.7) aylarının takip ettiği, hayvan kaydı tutan işletme oranının ise %18.9 olduğu belirlenmiştir. İşletmelerin %45.7'sinin ineklerini doğumdan üç ay önce, %39.1'inin ise doğumdan iki ay önce kuruya çıkardığı saptanmıştır.İlçedeki süt işletmelerinde en sık görülen hastalıkların ise ayak ve tırnak problemleri (%33.3), güç doğum (%25.9), mastitis (%14.6), ishal (%4.6) ve öksürük (%0.6) olduğu bildirilmiştir. Araştırma bulgularına göre ilçede hijyenik süt üretimi için köylerde ortak kullanıma açık soğutma tanklarının artırılması, makineli sağım uygulamasının yaygınlaştırılması, sağmal ineklerin mastitis açısından daha sık kontrol edilmesi ve çiftlik yönetimi uygulamaları noktasında görülen aksaklıkların giderilmesi için Tarım ve Orman Bakanlığı'na bağlı yerel birimlerin daha aktif rol alması gerekmektedir.

Introduction

Animal production is one of the most important branches of the agricultural sector. Livestock enterprises play a vital role in producing essential animal-based food products such as meat, milk, and eggs, which are fundamental to human nutrition. Moreover, the livestock sector holds strategic importance by supplying raw materials to various industries and contributing significantly to employment generation (Said, 2021). However, despite the rapid growth of the global population, insufficient levels of animal production have raised growing concerns (Frona et al., 2019).

Efforts to maximise productivity per animal by making the most efficient use of existing livestock are ongoing (Özhan et al., 2015). Increasing yields, particularly in cattle farms, achieving economic profitability, and ensuring the sustainability of animal husbandry largely depend on effective herd management and breeding practices (Tüzemen et al., 2013). For dairy cattle enterprises to remain profitable, each cow must give birth regularly, ideally once per year. Successful farm management requires close monitoring of cows and heifers, timely insemination during estrus, appropriate dry-off procedures, and meticulous record-keeping of critical events such as calvings, mortalities, milk yield, and health status.

The Northeast Anatolia Region (TRA) comprises two sub-regions: TRA1 (Erzurum, Erzincan, Bayburt) and TRA2 (Ağrı, Iğdır, Kars, Ardahan). Geographically, the region is characterised by a mountainous and hilly terrain, featuring extensive meadows and pastures. Due to the underdeveloped industrial sector, a significant portion of the population depends on livestock farming for their livelihood (Diler et al., 2022). Animal husbandry in the Eastern Anatolia Region is predominantly carried out using traditional methods, with limited use of modern inputs and technology (Kaylan et al., 2019). Therefore, assessing the current status of livestock activities in the region and identifying associated challenges and potential opportunities is crucial for developing sustainable production models.

The structural characteristics of livestock farming in the Eastern Anatolia Region, along with farm management strategies and socioeconomic factors, have been the focus of various studies (Kaylan et al., 2019; Yanar et al., 2022; Özdemir et al., 2023; Aydın et al., 2023; Koçyiğit et al., 2023). According to data from the Turkish Statistical Institute (TÜİK, 2024), the total number of cattle in Türkiye (excluding buffalo) is 16 421 256 Kars Province accounts for 615 279 of these cattle, representing approximately 3.7% of the national cattle population. Within Kars, the Selim district has a total of 107 140 cattle, making up 17.4% of the province's total cattle population. This figure highlights the significant role of Selim in the region's livestock sector.

This study was conducted to identify the current issues related to farm management and cattle breeding practices in cattle farms located in the Selim district of Kars Province, and to propose solutions

for the implementation of a sustainable production model.

Materials and Methods

To obtain the data for this study, a face-to-face survey was conducted with 350 randomly selected cattle farm owners from a total of 3 925 cattle enterprises, including both dairy and beef farms, located in the Selim District of Kars Province. The surveys were administered during the period from March to May, 2024. The surveys were administered by researchers in the villages where the farms are situated. The collected data were organised and stored using Microsoft Office Excel before statistical analysis. Numerical and proportional values were derived through frequency analysis as part of descriptive statistics using the SPSS 20.0 software (SPSS, 2004). Charts and graphs were created and analysed based on these numerical and proportional values.

In determining the sample size, the method commonly used in situations where the population is finite, the variance is unknown, and qualitative variables are present was employed (Arıkan, 2007). The study was approved by the Ethics Committee of the Faculty of Agriculture at Atatürk University (Decision Date: 02.09.2024).

$$n= (N.t^2 .p.q) / [(N-1).D^2+t^2 .p.q]$$

Where;

n= sample size,

N= Size of the finite population (3925),

D= Accepted or desired sampling error (5%),

t= Table value (1.96),

p= Rate to be calculated (0.5),

q= 1-p.

Results and Discussion

Characteristics of Milking Management

The results of this study indicate that in 52.3% of cattle farms in the Selim district, milking is performed using mobile milking machines. In contrast, 46.9% of respondents reported that milking is conducted by hand, while only 0.9% stated that they have milking parlours in their enterprises (Table 2). When compared with findings from other regions, the percentage of enterprises using mobile milking machines was reported as 57.5% in Ağrı Province (Bakan, 2014), 93.0% in Tekirdağ (Soyak et al., 2007), 95.2% in Ankara, 94.4% in Aksaray (Tatar, 2007), 69.0% in the Tekkeköy district of Samsun (Kaygısız and Özkan, 2021), and 88.0% in Uşak Province (Demirhan and Yenilmez, 2019).

As reflected in the findings of the present study, a considerably high proportion of cattle farms in Selim district still depend on hand milking, highlighting a low level of mechanisation in milking practices across the region.

Frequency of Milking Machine Cleaning

The results regarding the frequency of milking machine cleaning revealed that the majority of farmers (60.2%) in the Selim district clean their milking machines after each milking session. Additionally, 29.6% of enterprises reported cleaning once a day, 7.0% once every two days, 2.7% once a week, and 0.5% only once a month. These findings suggest that, overall, enterprises in the Selim district of Kars Province exhibit a satisfactory level of hygiene awareness concerning the cleaning of milking machines (Table 1). Similarly, Özsağlıcak and Yanar (2022b) reported that 95.5% of enterprise owners in the central district of Erzincan Province cleaned their milking machines after every milking, while 2.5% did so once a day and 2.0% every other day. In another study, Doğanay and Yanar (2023) found that 8.7%, 8.7%, 58.7%, and 24.0% of

enterprises cleaned their machines once a day, every two days, once a week, and once a month, respectively. In contrast, Demir et al. (2014) reported that only 31.4% of cattle farms in the central district of Kars cleaned milking machines after each milking. These comparisons highlight that while the Selim district demonstrates superior hygiene practices compared to some other regions, there is still a need for improvement, particularly in ensuring that all enterprises adopt post-milking cleaning as a standard practice.

Table 1: The data regarding milking management practices

Milking method	**Frequency**	**Percentage (%)**
Hand milking	164	46.9
Mobile milking machine	183	52.3
Milking parlor	3	0.9
Total	**350**	**100.0**
The frequency of milking machine cleaning	**Frequency**	**Percentage (%)**
After each milking	112	60.2
Once a day	55	29.6
Two times a day	13	7.0
Once a week	5	2.7
Once a month	1	0.5
Total	**186**	**100.0**
Data regarding the regular cleaning of udders before each milking	**Frequency**	**Percentage (%)**
Yes	297	85
No	53	15
Total	**350**	**100**
Data regarding the storage location of milk after milking	**Frequency**	**Percentage (%)**
In plastic canisters	344	98.3
In the cooling tank	2	0.6
In the village's communal milk cooling tank	1	0.3
No response	3	0.9
Total	**350**	**100.0**

Udder Cleaning Status

It was found that pre-milking udder cleaning is not performed in 15.0% of the enterprises, while 85.0% of respondents stated that they clean the udders before milking (Table 1). In dairy cattle enterprises, cleaning the udders and milking equipment prior to milking is critically important for producing high-quality and hygienic milk. Promoting such practices, ensuring compliance among farmers, and increasing awareness and sensitivity on this matter are essential for the sustainability of the livestock sector in the district. In a similar study, Satılmış and Kul (2024) reported that 57.0% of enterprises in Amasya Province performed udder cleaning before milking. Another

study found that 85.0% of cattle enterprises in the Hınıs district of Erzurum Province carried out udder cleaning before milking. In the Eyyübiye district of Şanlıurfa Province, 66.4% of cattle enterprise owners reported performing udder cleaning before milking, while 33.6% did not (Doğanay and Yanar, 2023). Further studies from various regions of Türkiye reported the following percentages of udder cleaning before milking: 96.0% in Tekirdağ (Soyak et al., 2007), 98.4% in Aksaray and 96.5% in Ankara (Tatar, 2007), 78.0% in Kahramanmaraş (Kaygısız et al., 2008), and 95.72% in Erzurum enterprises established under the DAP project (Eltas, 2018). The findings of the present study indicate a higher level of udder cleaning awareness compared to the results reported by Satılmış and Kul (2024) and Doğanay and Yanar (2023), suggesting relatively greater sensitivity to hygiene practices among cattle enterprises in Selim district.

Storage of Milk

It was observed that the vast majority of enterprises in the district (98.3%) stored milk in plastic canisters (Table 1). Similar results have also been reported for the central district of Ağrı province by Koçyiğit et al. (2022). Moreover, Satılmış and Kul (2024) reported that 24.6% of the farms stored milk in plastic canisters and 15.9% in metal milk containers in Amasya province, while Doğanay and Yanar (2023) reported that 70.1% of the farmers stored milk in aluminium or plastic canisters, and 29.9% in cooling tanks in Eyyübiye district of Şanlıurfa. Furthermore, Kaygısız and Özkan (2021) noted that all the farms participating in the survey in the Tekkeköy district of Samsun province stored milk in refrigerators after milking. In another study conducted in cattle farms in Kahramanmaraş province, Ayman (2014) stated that 59.3% of the farmers stored their milk in plastic canisters and 24.7% in aluminium milk cans. In Kars province, the findings of the study are similar to the findings reported by Tilki et al. (2013), where milk is kept in plastic canisters in almost all farms. The majority of cattle farming enterprises in the region are small-scale enterprises. Consequently, milk is frequently stored in plastic canisters on the farm, which can have an adverse effect on its quality.

Cow Calving Season and Keeping Records of Animals

Information related to the calving seasons of cows and the practice of record-keeping among cattle enterprises is presented in Table 2. The data show that the majority of calving events occurred during the winter season, accounting for 70.6% of total cases. This was followed by the spring season with 14.6%, and the autumn season with 13.7%. Additionally, the study revealed that only 18.9% of enterprises maintained records of their herd, indicating a low level of systematic record-keeping among cattle farmers in the region.

Table 2. The calving season of cows and record record-keeping status of these animals

Calving season	**Frequency**	**Percentage (%)**
Spring	51	14.6
Summer	3	0.9
Autumn	48	13.7
Winter	247	70.6
No response	1	0.3
Total	**350**	**100,0**
Are records kept for animals?	**Frequency**	**Percentage (%)**
Yes	66	18.9
No	284	81.1
Total	**350**	**100.0**

In a similar study, Koçyiğit et al. (2017) reported that the calving season in cattle farms in the Narman district predominantly occurred in spring (19.2%) and autumn (18.8%). In another study

conducted in Erzurum Province, Çoban et al. (2013) found that 83.9% of farm owners indicated winter and spring as the primary calving seasons. In livestock farming (particularly in dairy cattle operations), the continuous and intensive production of milk is essential for maintaining a stable income for the enterprise. For the economic sustainability of cattle farms, it is crucial that calving occurs at least twice a year, ensuring optimal productivity and income flow. However, it is estimated that approximately 20% of farms do not maintain adequate and accurate records, especially concerning key parameters such as milk yield, fertility, and animal health. This lack of systematic record-keeping presents a significant challenge for effective farm management and long-term planning.

Use and Sources of Informational Support by Farmers

An analysis of the technical information sources for livestock enterprises in the Selim district of Kars province revealed that only 31.0% of farmers reported receiving informational support. Among these, private veterinarians were the primary source, accounting for 27.7% of all responses (Table 3).

In a study conducted in Yozgat province, it was reported by Ermetin and Abacı (2022) that technical information support was very high, especially in large enterprises (80.6%). This information was mostly received from the units within the ministry in small and medium-sized enterprises, and 36% of large enterprises received technical information support from veterinarians. Aydın Eryılmaz et al. (2020) stated that in cattle farming enterprises in Bafra and Canik districts of Samsun province, business owners preferred family members (72.9%) and neighbouring farmers (67.1%) as technical information sources.

Table 3. Use of informational support and information source of farmers

Utilisation of informational sources	**Frequency**	**Percentage (%)**
Yes	37	31.0
No	81	69.0
Total	**118**	**100**
Informational sources	**Frequency**	**Percentage (%)**
Union	4	1.1
Village cooperative	1	0.3
Faculty of Veterinary Medicine	4	1.1
Provincial Directorate of the Ministry of Agriculture	7	2.0
Private veterinarian	97	27.7
Other family members	5	1.4
Non-respondents	232	66.3
Total	**350**	**100**

Vaccination of Cows against Septicemia, Signs of Heat, Artificial Insemination and Drying Off Times

Within the breeding practices in the research region, practices such as results regarding septicaemia vaccination for pregnant cows, heat cattle, insemination, and drying times are presented in Table 4. It was found that a small proportion (16.0%) of the enterprise owners in Selim district, Kars province, were vaccinating pregnant cows against septicemia (Table 4). In previous studies, this rate was reported to be between 10.0% and 60.0% (Koçyiğit et al. 2021; Demirhan and Yenilmez, 2019; Savaş and Yenice, 2016). The results of the present study are among the literature reports. However, it is understood that the farmers in the research area do not sufficiently adopt this practice and do not attach importance to it.

Table 4. Administration of septicemia vaccine to cows, signs of estrus, timing of insemination, and dry-off period

Status of vaccinating pregnant cows against septicemia	**Frequency**	**Percentage (%)**
Yes	56	16.0
No	294	84.0
Total	**350**	**100**
Signs of cow heat*	**Frequency**	**Percentage (%)**
Bellowing	46	10.4
Jumping on other cows	181	41.0
Vulvar discharge	45	10.2
All of these signs	169	38.3
Total	**441**	**100.0**
Artificial insemination	**Frequency**	**Percentage (%)**
Yes	203	58.0
No	147	42.0
Total	**350**	**100**
How long after calving do you inseminate your cows?	**Frequency**	**Percentage (%)**
In the first heat	269	76.9
45 days after calving	43	12.3
3 months after calving	38	10.9
Total	**350**	**100.0**
Age at first insemination in heifers	**Frequency**	**Percentage (%)**
1.5 years of age	3	0.9
2 years of age	57	16.3
2.5 years of age	186	53.1
3 years of age	104	29.7
Total	**350**	**100.0**
Dry-off time in cows	**Frequency**	**Percentage (%)**
One month before calving	7	2.0
Two months before calving	46	13.1
Three months before calving	137	39.1
At weaning	160	45.7
No response	3	0.9
Total	**350**	**100.0**

*: Multiple answers have been provided.

Among the farmers, 41.0% stated that they recognised estrus in their cows when they observed mounting behaviour, while 38.3% identified estrus based on a combination of mounting, bellowing, and the presence of vulvar discharge (Table 4). When literature reports are examined, it is reported that 29.0% of the farms in Narman district of Erzurum province jumped on other cows (Diler et al., 2017) and 45.7% of the farms in Muş province understood that they came into heat when they jumped and jumped movements by Şeker et al. (2012). It can be said that the findings

obtained from the studies conducted are similar. In other studies conducted, Tugay and Bakır (2008) reported that their cows came into heat when they jumped on other cows (% 53.9%), and Koçyiğit et al. (2015) reported that enterprise owners reported that their cows came into heat when they bellowed (63.0%).

The study revealed that 42.0% of the farmers in Selim district do not practice artificial insemination (Table 4). In cattle breeding, the use of sperm from bulls with superior genetic capacity is extremely important in terms of increasing the herd average in terms of efficiency, preventing various diseases (abortion, etc.), and eliminating expenses such as bull care and feeding. However, it is understood that almost half of the enterprise owners in the Selim district of Kars province do not show the necessary sensitivity to artificial insemination applications. When other studies are examined, similar results emerge. For example, the rates of enterprises that have artificial insemination were reported as 51.1% by Özsağlıcak and Yanar (2022a); 23.0% by Tutkun et al. (2017); 38.0% by Kaygısız et al. (2008); 81.0% by Tatar (2007); 68.0% by Soyak et al. (2007).

The findings of the study indicated that more than ¾ of the farmers (76.9%) inseminated their cows at the first heat after calving (Table 4). It was found that the rate of farmers inseminating their cows in the first 45 days after calving was 12.3% and that the farmers inseminating their cows after the three-month period was 10.9%. In different studies conducted, it was reported that a very large portion of the farmers in Ağrı province (92.8%) inseminated their cows at the first heat after calving, Bakır and Kibar (2019) reported that 33.8% of the farmers in Muş province 45 days after calving, Kaylan et al. (2019) reported that 91.0% of the farmers in Iğdır province 60 days after calving, and Kaygısız et al. (2008) reported that 46.0% of the farmers in Kahramanmaraş province 60 days after calving. In order for cows to be healthy and ready for subsequent calvings, insemination during the heat period that occurs in the first 45-60 days after calving is a desired situation in cattle breeding. It is thought that it would be beneficial to raise awareness among farmers on this issue and to explain the disadvantages of early and late insemination of their animals.

It was found that 53.1% of the farmers inseminated their animals when they reached 2.5 years of age, 29.7% at 3 years of age, 16.3% at 2 years of age and 0.9% at 1 year of age (Table 4). Doğanay and Yanar (2023) reported that 75.7% of the enterprise owners inseminated heifers when they were 1.5 years old, 8.7% when they were 2 years old, 1.7% when they were 2.5 years old and 0.9% when they were 3 years old in cattle farms in Eyyubiye district of Şanlıurfa province. In other studies, it was reported that 33.9% of the enterprise owners inseminated heifers at the age of 18 months and 20.7% at the age of 24 months in Şeker et al. (2012), while 61.4% of the farmers inseminated heifers at the age of 15-16 months in Önal and Özder (2008). It is generally known that heifers can be inseminated at the age of 15-18 months if they are in good condition and health under appropriate care and feeding conditions. Heifers should start their productive life as early as possible in dairy cattle farms. However, sufficient body development of heifers should be completed. It can be said that the farmers in the Selim district are not sufficiently conscious about the first insemination age of heifers.

This study found that 45.7% of enterprises dried off their cows three months before calving, 39.1% dried off them two months before calving, 13.1%

Table 5: Diseases observed in the barn, utilisation of veterinary services, and sources of veterinary services

Which disorders are most common in your barn? *	**Frequency**	**Percentage (%)**
Dystocia	140	25.9
Hoof Problems	180	33.3
Mastitis	113	20.9
Abortion	79	14.6
Diarrhea	25	4.6
Coughing	3	0.6
Total	**540**	**100.0**
Do you benefit from veterinary services?	**Frequency**	**Percentage (%)**
Sometimes	21	6.0
I do not receive veterinary services	2	0.6
When a disease is detected	307	87.7
I regularly receive veterinary services	19	5.4
No response	1	0.3
Total	**350**	**100.0**
Where do you usually obtain veterinary services?	**Frequency**	**Percentage (%)**
Provincial Directorate of the Ministry of Agriculture	3	0.9
Municipality	1	0.3
Private veterinarian	345	98.6
No response	1	0.3
Total	**350**	**100.0**

*: Multiple answers have been provided.

dried off them one month before calving, and 2% dried off them less than one month before calving (Table 4). It can be concluded that enterprises in the Selim district of the Kars province have deficient and inaccurate practices when it comes to drying cows. To ensure healthy, continuous milk production on modern dairy farms, pregnant animals should be dried off two months before calving. Similar findings were reported by Doğanay and Yanar (2023), Koçyiğit et al. (2015), and Şeker et al. (2012), who observed that 48.3%, 65.0%, and 46.0% of the cows, respectively, were milked until they stopped producing milk naturally.

Diseases Seen in the Barn, Use of Veterinary Services, and Places Where Veterinary Services Are Received

The most common diseases in dairy farms in the Selim district of Kars Province are toe and nail problems (33.3%), dystocia (25.9%), mastitis (14.6%), diarrhoea (4.6%) and coughing (0.6%) (Table 5). In similar studies, the rates in farms where foot and nail problems are commonly seen were reported as 50.7% by Şeker et al. (2012), 36.4% by Koçyiğit et al. (2018) and 55.2% by Bakır and Kibar (2019), respectively. In the current study, diseases such as toe and nail problems, dystocia and mastitis not only affect important factors such as calf yield and milk production, but also lead to problems such as loss of live weight in cattle, shortening of the lactation period, decrease in milk yield, increase in treatment costs and infertility. The study found that the majority of cattle farms (87.7%) received veterinary health services when the disease was observed, while 6.0% of farms sometimes and 5.7% of farms regularly applied to veterinary services. The vast majority of farmers (98.6%) received veterinary services from independent veterinarians (Table 5). In studies conducted in different regions of our country, 78.2% of Doğanay and Yanar (2023), 64.7% of Koçyiğit et al. (2018), 79.0% of Akkuş (2009), 57.7% of Şeker et al. (2012), and 70.0% of Öztürk (2009) reported that veterinary services were

received. This study is based on a survey evaluation, which provides valuable insights into farmers' practices but may also be limited by the subjective nature of self-reported data.

Conclusion

In this study, where farm management practices were examined in cattle farming enterprises in Selim district of Kars province, it can be stated that milking is done manually in almost half of the enterprises, a considerable number of enterprises do not clean milking machines before each milking and udder cleaning is not at the desired level. In the vast majority of the farms, milk is not kept in suitable conditions, enterprises do not show the necessary sensitivity in milking management and are inadequate in terms of implementation. It is necessary to raise awareness of enterprise owners on these issues, to store milk in a healthy way and to design a cold chain network. In the present study, most of the farmers do not keep any records of their herds, which is seen as a concerning deficiency in the practices of the district. In addition, the fact that the farmers who receive technical information support in the animal breeding practices of the farmers are very few indicates that the enterprise owners are not aware of current and new information. In order to eliminate these deficiencies, it is necessary to expand the activities, such as agricultural publications of the relevant institutions and organisations. Artificial insemination practices in the district remain at very low levels due to farmers' perceptions and prejudices, as many do not view artificial insemination favourably. To address these misconceptions, provincial and district agricultural directorates, relevant university departments, and official institutions need to collaborate in organising farmer training programs. These programs should emphasise that artificial insemination does not conflict with religious beliefs and aim to correct misinformation. Additionally, it has been observed that practices such as cleaning udders before milking and properly sanitising milking machines are often inadequate. Furthermore, milk is frequently stored in unsuitable conditions before being transported to processing facilities. To ensure that milk, especially vulnerable to spoilage in hot or unhygienic environments, reaches dairies or milk factories without losing its economic value, farmers must take greater care. Establishing and maintaining a shared cold chain network is particularly important for small-scale cattle farms in the district and should be prioritised to preserve milk quality and safety.

References

Akkuş, Z. (2009). Konya İlinde süt sığırcılığı işletmelerinin yapısal özellikleri. (Yüksek lisans tezi). Selçuk Üniversitesi Fen Bilimleri Enstitüsü, Konya.

Arıkan, R. (2007). Araştırma Teknikleri ve Rapor Hazırlama. Asil Yayın Dağıtım Ltd. Şti. ISBN:975-8784-35-8, Ankara.

Aydın Eryılmaz, G., Kılıç, O., Boz, İ., Kaynakçı, C. (2020). Süt Sığırcılığı Yapan İşletmelerin Tarımsal Yeniliklerin Benimsenmesi ve Bilgi Kaynakları Yönünden Değerlendirilmesi: Samsun İli Bafra ve Canik İlçeleri Örneği. Journal of the Institute of Science and Technology, 10(2), 1361-1369. https://doi.org/10.21597/jist.665198

Aydın, R., Bayram, B., Ergün, O.F., Özdemir, V. F., Diler, A., Yanar, M., Koçyiğit, R. (2023). Sığırcılık İşletmelerinde İşletme Büyüklüğü ve Yetiştiricilerin Eğitim Durumlarının Çiftlik Uygulamaları Üzerine Etkileri: Erzurum İli Aşkale İlçesi Örneği. Palandöken Journal of Animal Sciences Technology and Economics, *2*(1), 29-37.

Ayman, H. (2014). Kahramanmaraş ili Merkez ilçede süt sığırcılığı işletmelerinin yapısal özellikleri, sorunları ve çözüm önerileri (Yüksek lisans tezi). Kahramanmaraş Sütçü İmam Üniversitesi Fen Bilimleri Enstitüsü, Kahramanmaraş.

Bakan, Ö. (2014.) Ağrı ili süt sığırcılığı işletmelerinin yapısal özellikleri (Yüksek lisans tezi). Atatürk Üniversitesi Fen Bilimleri Enstitüsü, Erzurum.

Bakır, G., Kibar, M. (2019): Muş ilinde özel süt sığırcılığı işletmelerinde üreme faaliyetlerinin belirlenmesi. Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi, 22(5), 772-780. doi:10.18016/ksutarimdoga.vi.536831

Çoban, O., Lacın, E., Sabuncuoglu, N., Genc, M. (2013). Production and health parameters in cattle herds: A survey from Eastern Turkey. The Journal of Animal and Plant Sciences, 23(6):1572-1577.

Demir, P., Adıgüzel, S. I., Sarı, M., Ayvazoğlu, C. (2014). Kars merkez ilçedeki süt sığırcılık işletmelerinin genel yapısı ve ekonomik boyutu. Fırat Üniversitesi Sağlık Bilimleri Veteriner Dergisi, 28(1), 9-13.

Demirhan, S., Yenilmez M. (2019). Current situation, problems and solution of dairy cattle enterprises in uşak province. Turkish Journal of Agriculture - Food Science and Technology, 7(12): 2198-2203.

Diler, A., Güler, O., Aydın, R., Yanar, M., Koçyiğit, R. (2017). Erzurum ili Narman ilçesi sığırcılık işletmelerinde çiftlik yönetimi ve buzağı yetiştirme uygulamaları. Alinteri Journal of Agriculture Science 32(1): 39-45.

Diler, A., Yanar, M., Özdemir, V. F., Aydın, R., Koçyiğit, R., Yılmaz, A. (2022). A study on cattle feeding practices and habits of cattle enterprises in central county of Ağrı Province. Turkish Journal of Agriculture-Food Science and Technology, 10(6), 1083-1088.

Doğanay, S., Yanar, M. (2023). Güneydoğu Anadolu Bölgesindeki Büyükbaş Hayvancılık İşletmelerinde Uygulanan Yetiştirme Teknikleri: Şanlıurfa İli Merkez Eyyubiye İlçesi Örneği. Bahri Dağdaş Hayvancılık Araştırma Dergisi, 12(2), 103-117.

Eltas, M.F. (2018). Doğu Anadolu hayvancılığı geliştirme (DAP) projesi kapsamında inşa edilen yeni sığır barınaklarının kullanımı, yetiştiricilerin memnuniyet düzeyi ve üretim üzerindeki etkileri. Atatürk Üniv. Fen Bil. Ens. Zootekni Anabilim Dalı, 98.

Ermetin, O., Abacı, N.İ. (2022). Yozgat İli Süt Sığırcılığı Faaliyetinin Mevcut Durumu ve Üreticilerin Gelecekten Beklentileri. Gaziosmanpaşa Bilimsel Araştırma Dergisi, 11(1), 14-26.

Fróna, D., Szenderák, J., Harangi-Rákos, M. (2019). The challenge of feeding the world. Sustainability, 11(20), 5816.

Kaygısız, A., Özkan, İ. (2021). Samsun Tekkeköy ilçesindeki süt sığırcılık işletmelerinin yapısal özellikleri ve hijyen koşulları. Harran Tarım ve Gıda Bilimleri Dergisi, 25(2): 225-233.

Kaygısız, A., Tümer, R., Orhan, H., Vanlı, Y. (2008). Kahramanmaraş bölgesi süt sığırı işletmelerinin yapısal özellikleri: I. Yetiştirme uygulamaları. Ziraat Fakültesi Dergisi, 3(2), 23-31.

Kaylan, V., Yılmaz, İ., Yanar, M. (2019). Iğdır ilinde süt sığırcılığı işletmelerinde buzağı yetiştirme üzerine bir araştırma. Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi, 22, 169-178.

Koçyiğit, R., Diler, A., Yanar, M., Güler, O., Aydın, R., Avcı, M. (2015). Erzurum ili Hınıs ilçesi sığırcılık işletmelerinin yapısal durumu: Çiftlik yönetimi ve buzağı yetiştirme uygulamaları. Iğdır Üni. Fen Bilimleri Enst. Derg. 5 (4): 85-97.

Koçyiğit, R., Yanar, M., Aydın, R., Diler, A., Güler, O. (2017). Erzurum İli Narman İlçesindeki sığırcılık işletmelerinde uygulanan sağım yönetimi üzerine bir araştırma. Alinteri Journal of Agriculture Science, 32(2), 45-54.

Koçyiğit, R., Yanar, M., Aydın, R., Diler, A., Güler, O. (2018). Sığırcılık işletmelerinde hayvan sağlığı, veteriner sağlık hizmetleri ve yetiştirici memnuniyeti ve beklentileri: Erzurum İli Narman İlçesi örneği. Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi, 21(2), 203-208.

Koçyiğit, R., Yanar, M., Diler, A., Aydın, R., Özdemir, V.F., Yılmaz, A. (2021). Cattle and calf raising practices in the eastern Anatolia Region: An example of central county of Ağri province. International Journal of Agricultural and Natural Sciences, 14(3), 152-163.

Koçyiğit, R., Yanar, M., Aydın, R., Özdemir, V. F., Diler, A., Yılmaz, A. (2022). Structural Characteristics of Dairy Cattle Enterprises in Central County of Ağrı Province: milking Management Practices. Journal of Animal Production/Hayvansal Üretim, 63(1).

Koçyiğit, R., Yanar, M., Aydın, R., Özdemir, V. F., Ergün, O. F., Bayram, B., Şat, O. (2023). Erzurum İli Aşkale İlçesindeki Süt Sığırı İşletmelerinde Mevcut Barınak Yapısal Özellikleri ile İşletme Büyüklükleri Arasındaki İlişkiler. Bahri Dağdaş Hayvancılık Araştırma Dergisi, 12(1), 38-49.

Önal, A.R., Özder, M. (2008). Edirne ili damızlık sığır yetiştiricileri birliğine üye işletmelerin yapısal özellikleri. Tekirdağ Ziraat Fakültesi Dergisi, 5(2):197-203.

Özhan, M., Tüzemen, N., Yanar, M. (2015). Büyükbaş hayvan yetiştirme. Atatürk Üniversitesi Ziraat Fakültesi Yayınları, (6. baskı).

Özdemir, V. F., Yanar, M., Bayram, B., Koçyiğit, R., Ergün, O. F., Aydın, R., Şat, O. (2023). Erzurum İli Aşkale İlçesi Sığırcılık İşletmelerinde Buzağı Yetiştirme Uygulamaları. Akademik Ziraat Dergisi, 12(2), 279-288.

Özsağlıcak, S., Yanar, M. (2022a). Doğu Anadolu Bölgesindeki Sığırcılık İşletmelerinde Yetiştiricilik Uygulamaları: Erzincan İli Merkez İlçesi Örneği. Palandöken Journal of Animal Sciences Technology and Economics, 1(2): 32-34.

Özsağlıcak, S., Yanar, M. (2022b). Erzincan ili merkez ilçesi sığırcılık işletmelerinin yapısal özellikleri: İşletmelere ait genel bilgiler ve sağım yönetimi. Muş Alparslan Üniversitesi Fen Bilimleri Dergisi, 10(1), 899-908.

Öztürk, N.N. (2009). Mardin İlindeki Süt Sığırcılığı İşletmelerinin Yapısal Özellikleri. (Yüksek lisans tezi), Selçuk Üniversitesi Fen Bilimleri Enstitüsü, Konya.

Said, M.I. (2021). The role of the livestock farming industry in supporting the global agricultural industry. Agricultural Development in Asia—Potential Use of Nano-Materials and Nano-Technology.

Satılmış, A.S., Kul, E. (2024). Herd Management Practices in Water Buffalo Enterprises in Amasya Province: Feeding, Milking and Health Protection. Turkish Journal of Agriculture - Food Science and Technology, 12(5): 753–762.

Savaş, S., Yenice, G. (2016). Rize ilinde yapılan süt sığırcılığının mevcut durumunun araştırılması. Atatürk Üniversitesi Vet. Bil. Derg. 11(1): 74-83.

Soyak, A., Soysal, M.İ., Gürcan, E.K. (2007). Tekirdağ İli Süt Sığırcılığı İşletmelerinin Yapısal Özellikleri ve Bu İşletmelerin Siyah Alaca Süt Sığırlarının Çeşitli Morfolojik Özellikleri Üzerine Bir Araştırma. Tekirdağ Ziraat Fakültesi Dergisi, 4(3), 297-305.

Şeker, İ., Tasalı H, Güler H. (2012). Muş ilinde sığır yetiştiriciliği yapılan işletmelerin yapısal özellikleri. Fırat Üniv. Sağ. Bil. Vet. Derg. 26 (1): 09-16.

Tatar, A.M. (2007). Ankara ve Aksaray Damızlık Sığır Yetiştiricileri il birliklerine üye süt sığırcılığı işletmelerinin yapısı ve sorunları. (Doktora tezi). Ankara Üniversitesi Fen Bilimleri Enstitüsü, Ankara.

Tilki, M., Sarı, M., Aydın, E., Işık, S., Aksoy, AR. (2013). Kars İli sığır işletmelerinde barınakların mevcut durumu ve yetiştirici talepleri: I. Mevcut durum. Kafkas Üniversitesi Veteriner Fakültesi Dergisi, 19(1):109- 116.

Tugay, A., Bakır, G. (2008). Giresun yöresindeki süt sığırcılığı işletmelerinin yapısal özellikleri. Atatürk Üniversitesi Ziraat Fakültesi Dergisi 40(1): 37-47.

Tutkun, M., Denli, M., Sessiz, A. (2017). Diyarbakır ili süt sığırcılığı işletmelerinin yapısal durum analizi. Turkish Journal of Agriculture- Food Science and Technology, 5(5), 476-483.

TÜİK, 2024. https://data.tuik.gov.tr/Kategori/GetKategori?p=tarim-111&dil=1

Tüzemen, N., Yanar M., Akbulut. Ö. (2013) Hayvan Islahı. Atatürk Üniversitesi Ziraat Fakültesi Ders Yayınları 230

Yanar, M., Diler, A., Aydın, R., Koçyiğit, R., Özdemir, V.F., Tosun, M. (2022). A Study on Structural Characteristics of the Cattle Barns in İspir County of Erzurum Province. Kahramanmaraş Sütçü İmam Üniversitesi Tarım ve Doğa Dergisi, 25(Ek Sayı 2), 566-575.