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Credit Utilization and Financial Behavior in Cattle Farming: Evidence from Tokat Central District

Sığır Besiciliği İşletmelerinde Kredi Kullanımı ve Finansal Davranışlar: Tokat Merkez İlçesi Örneği

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Credit Utilization and Financial Behavior in Cattle Farming: Evidence from Tokat Central District

Abstract

This study was conducted to examine the socio-demographic characteristics, credit utilization structures, and financial behaviors of cattle farming enterprises operating in the central district of Tokat province, Türkiye. The primary material of the study consisted of data obtained through face-to-face surveys conducted with 169 enterprises selected by stratified sampling from 27 villages where cattle farming activities are intensive. The enterprises were classified into three groups according to herd size: 5–10, 11–30, and 31–227 head of cattle. According to the research findings, the average age of farm owners was 49 years, while their average sectoral experience was approximately 26 years. The majority of producers were primary and middle school graduates. The average annual agricultural income was calculated as 307,156 TL, and only 12% of the enterprises considered their equity capital sufficient. Most producers met their financial needs through bank loans and informal borrowing practices. Credit utilization was mainly preferred to finance feed, veterinary, and medication expenses. However, high interest rates and bureaucratic procedures were identified as the major problems associated with credit use. In addition, insurance utilization rates were found to be low, and a considerable proportion of insured producers stated that they obtained insurance primarily due to loan-related requirements. The findings indicate that although producers have access to financial instruments, they experience various limitations in financial planning, risk management, and sustainable financial decision-making processes. In this context, expanding financial awareness and farm-level financial management training programs for producers may contribute to improving the sustainability of cattle farming enterprises.

Keywords: Cattle farming, Credit utilization, Financial behavior, Tokat, Agricultural finance

Sığır Besiciliği İşletmelerinde Kredi Kullanımı ve Finansal Davranışlar: Tokat Merkez İlçesi Örneği

Öz

Bu çalışma, Tokat ili merkez ilçesinde faaliyet gösteren sığır besiciliği işletmelerinin sosyo-demografik özelliklerini, kredi kullanım yapılarını ve finansal davranışlarını incelemek amacıyla yürütülmüştür. Araştırmanın ana materyalini, yoğun besicilik faaliyetinin gerçekleştirildiği 27 köyde tabakalı örnekleme yöntemiyle belirlenen 169 işletmeden yüz yüze anket yoluyla elde edilen birincil veriler oluşturmuştur. İşletmeler, hayvan varlığı esas alınarak 5–10, 11–30 ve 31–227 baş olmak üzere üç grupta değerlendirilmiştir. Araştırma bulgularına göre işletme sahiplerinin ortalama yaşı 49, sektörel deneyim süresi ise yaklaşık 26 yıldır. İşletmecilerin büyük çoğunluğunun ilkokul ve ortaokul mezunu olduğu belirlenmiştir. Ortalama yıllık tarımsal gelir 307.156 TL olarak hesaplanırken, işletmelerin yalnızca %12'si öz sermayesini yeterli görmektedir. Üreticilerin önemli bir kısmı finansman ihtiyacını banka kredileri ve gayriresmî borçlanma yöntemleriyle karşılamaktadır. Kredi kullanımı çoğunlukla yem, ilaç ve veterinerlik giderlerinin finansmanında tercih edilmektedir. Bununla birlikte üreticilerin kredi kullanımında yüksek faiz oranları ve bürokratik işlemleri önemli sorunlar olarak değerlendirdiği belirlenmiştir. Ayrıca sigorta kullanım oranlarının düşük olduğu ve sigorta yaptıran işletmelerin önemli bölümünün bunu kredi kullanımına bağlı zorunluluk nedeniyle gerçekleştirdiği tespit edilmiştir. Araştırma sonuçları, işletmelerin finansal araçlara erişim sağlayabilmelerine rağmen finansal planlama, risk yönetimi ve sürdürülebilir finansal karar alma süreçlerinde çeşitli sınırlılıklar bulunduğunu göstermektedir. Bu kapsamda, üreticilere yönelik finansal bilinç ve finansal yönetim odaklı eğitim programlarının yaygınlaştırılmasının önemli olduğu değerlendirilmektedir.

Anahtar Kelimeler: Sığır besiciliği, Kredi kullanımı, Finansal davranış, Tokat, Tarımsal finansman

1. INTRODUCTION

Agriculture remains one of the most strategic sectors worldwide due to its contribution to food security, employment, rural development, and industrial production. Beyond its economic importance, the agricultural sector also plays a critical role in ensuring social welfare and environmental sustainability (Doğan et al., 2015). Within agriculture, livestock production constitutes a major source of animal protein and rural income, while also supplying raw materials to several industries, including food, textile, pharmaceutical, and processing industries (Ergün and Bayram, 2021; Ünlü Ören, 2021). In Türkiye, cattle farming is one of the most important branches of the livestock sector in terms of both meat and milk production and its contribution to rural livelihoods (Demircan et al., 2006).

Despite its strategic importance, the agricultural sector is highly vulnerable to financial constraints arising from increasing input costs, market uncertainties, insufficient capital accumulation, and production risks. In this context, access to financial resources and the effective management of agricultural credit have become increasingly important for the sustainability and competitiveness of agricultural enterprises (Ahmad, 2011). Agricultural loans play a critical role in maintaining production continuity, meeting input requirements, and supporting enterprise growth. Previous studies have demonstrated a positive relationship between agricultural credit utilization and agricultural production performance (Obilor, 2013).

However, agricultural enterprises frequently experience difficulties in accessing and managing financial resources efficiently. In addition to structural production problems, limited financial awareness, inadequate financial planning, and insufficient knowledge of formal financial systems may negatively affect the long-term sustainability of farms (Özdemir and Kan, 2020). Particularly in livestock enterprises, where production costs are high and income fluctuations are common, financial management practices have become increasingly important. In this respect, producers' borrowing behaviors, credit utilization tendencies, and approaches toward financial management constitute important indicators for evaluating the financial sustainability of agricultural enterprises.

Previous studies conducted in Türkiye have mainly focused on agricultural credit utilization, financing constraints, and the structural characteristics of livestock enterprises (Taşkıran and Özdoğru, 2010; Kahramanoğlu, 2021; Çoban, 2024). In addition, several studies have examined financial literacy and financial awareness in different sectors and population groups (Öztürk and Demir, 2015; Güler and Tunahan, 2017). However, studies directly focusing on the financial behaviors, borrowing practices, and financial management tendencies of cattle farming enterprises remain limited, particularly at the regional level. Therefore, evaluating the financial behaviors of cattle farmers may contribute to a better understanding of farm-level financial sustainability and financial decision-making processes.

Tokat province represents an important livestock production area due to its suitable climate conditions, pasture potential, agricultural resources, and rural production structure. Cattle farming activities in the region contribute significantly to both household income and the regional economy (Hekimoğlu and Altındeğer, 2014). In this context, examining producers' financial structures, borrowing tendencies, and credit utilization practices is important for identifying the financial challenges faced by cattle farming enterprises.

Therefore, this study aims to examine the socio-demographic characteristics, credit utilization structures, and financial behaviors of cattle farming enterprises operating in the central district of Tokat province. In addition, the study evaluates producers' financing preferences, capital insufficiency problems, borrowing tendencies, and approaches toward financial management within the framework of agricultural sustainability and farm-level financial management.

2. MATERIAL AND METHOD

2.1. Material

The primary material of this study consisted of data obtained through face-to-face surveys conducted with cattle farming enterprises operating in villages affiliated with the central district of Tokat province, Türkiye. The survey data were collected in 2024 from 169 farm owners selected using a stratified sampling method.

The questionnaire form used in the study was prepared based on previous national and international studies related to agricultural finance, credit utilization, and livestock farming. In addition to the survey data, records obtained from the Tokat Provincial Directorate of Agriculture and Forestry and relevant literature sources were also utilized as secondary data sources.

This study was conducted within the scope of a master's thesis. Ethical approval for the research was obtained from the Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee with decision number 01-43, dated October 22, 2024, and session number 17.

2.2. Method

The sampling framework of the study was established using official records obtained from the Tokat Provincial Directorate of Agriculture and Forestry. According to the 2022 records, cattle farming activities involving enterprises with at least five head of cattle were carried out in 141 villages located in the central district of Tokat province. The total number of cattle in these villages was reported as 80,543 head.

Among these villages, 27 villages with intensive cattle farming activities were purposively selected to represent the research area. These villages accounted for approximately 50% of the cattle farming enterprises in the central district and therefore constituted the main population of the study. In this study, financial behavior refers to producers' borrowing tendencies, use of formal financial services, internet banking usage, investment preferences, and financial management practices related to agricultural production activities.

2.2.1. Method Applied in Sampling Phase

First, the coefficient of variation was calculated by considering the number of animals in the businesses included in the sample to determine the sample size. The coefficient of variation is important in showing whether the values of the units in a population or sample are homogeneous or heterogeneous (Düzgüneş et al., 1983).

Since the coefficient of variation was found to be higher than 75%, the "Stratified Sampling Method" was used to determine the number of businesses by conducting a survey. Accordingly, the number of businesses was determined as 169 with a 95% confidence interval and a 5% deviation from the mean (t-table value = 1.96). The Proportional Distribution Method was used in sampling and the sample size was calculated with the formula numbered (1) (Çiçek and Erkan, 1996).

$$n = \frac{N.\Sigma N_h S_h^2}{N^2 D^2 + \sum N_h S_h} = \frac{376768776{,}4}{42118916 * 0{,}48617183 + 183431{,}7} = 168{,}61 \quad (1)$$

$$D = \left(\frac{d}{z}\right)^2 = \left(\frac{X * 0{,}05}{1{,}96}\right)^2 = \left(\frac{19{,}058 * 0{,}05}{1{,}96}\right)^2 = 0{,}486172 \quad (2)$$

In Formulas 1 and 2:

n = Sample size

Nh = Number of businesses in the sampling frame belonging to the h-th stratum

Sh = Standard deviation of the data in the h-th stratum

N = Total number of businesses in the sampling frame

t = Table value for the confidence interval

D = 5% deviation from the mean (d/z).

z = Degrees of freedom in the t-distribution table and the value belonging to a specific confidence limit.

The businesses surveyed were randomly selected, and a total sample size of 169 was determined by

applying formulas 1 and 2. The distribution of the businesses comprising the population according to strata and the number of businesses selected from each stratum are given in Table 1.

Table 1. Distribution of farms in the population by strata and the number of farms selected for the sample from each stratum

Group No	Upper and lower limits (heading)	$\bar{X}$	N_h	S_h	$N_h * S_h$	S_h^2	$N_h * S_h^2$	Number of samples (n_h)
I	5 -10	7.33	747	1.68	1255.50	2.82	2110.15	61
II	11- 30	17.93	970	5.35	5185.84	28.58	27724.67	80
III	31- 227	48.30	337	21.35	7194.59	455.78	153596.90	28
Total			2054	28.38	13635.93	487.18	183431.73	169
Average		19.06	-	-	-	-	-	-

The results obtained are presented in tables as frequencies, percentages, and averages in the study (Arıkan and Gökhan, 2019).

3. RESEARCH FINDINGS

3.1. Socio-Demographic Characteristics of Farmers

The average age of cattle farming enterprise owners included in the study was calculated as 49 years. When the age distribution across farm groups was examined, no substantial differences were observed among the groups. However, the findings indicate that cattle farming activities are predominantly carried out by middle-aged and older producers. The limited participation of younger individuals in cattle farming activities may be associated with rural out-migration, changing employment preferences, and the decreasing interest of younger generations in agricultural production. Within the sample, the minimum farmer age was 22, while the maximum age was 76 years. The highest average age was observed in the first group, with an average of 52 years (Table 2).

Hassan (2019), in a study conducted on cattle farming enterprises in Antalya province, reported that the average age of producers was 46.8 years, with farmers generally ranging between 30 and 65 years of age. The findings of the present study are generally consistent with the existing literature, indicating that livestock farming activities are predominantly carried out by middle-aged producers.

Table 2. Average age of farmers (years)

	Average	Min.	Max.
1st Group	52.13	23	74
2nd Group	48.26	22	76
3rd Group	46.25	24	74
Average	49.33	22	76

A relationship was observed between the age of producers and their experience in cattle farming activities. The findings indicate that producers generally start livestock farming at relatively early ages and continue these activities for many years. The average farming experience of producers was calculated as approximately 26 years. This suggests that most cattle farmers possess substantial practical and managerial experience in livestock production. Within the sample, farming experience ranged from a minimum of 2 years to a maximum of 55 years (Table 3).

Similarly, Bulut et al. (2023), in a study conducted in Iğdır province, reported that producers had between 1 and 50 years of cattle farming experience, with an average experience period of approximately 20 years. Compared to this finding, the producers included in the present study appear to have relatively longer sectoral experience.

Table 3. Duration of farmers' experience in cattle fattening (years)

	Average	Min.	Max.
1st Group	27.48	2	55
2nd Group	24.56	2	53
3rd Group	24.96	5	55
Average	25.68	2	55

The educational status of producers indicates that the majority of cattle farmers have relatively low formal education levels. Approximately 46% of producers were primary school graduates, while nearly 24% had completed middle school education. Overall, nearly 70% of the surveyed farmers had only primary or middle school education (Table 4). Across farm groups, educational levels did not show a consistent increase with farm size.

Although the present study does not directly measure financial management capacity levels, lower educational attainment may influence producers' access to financial information, financial planning practices, and utilization of formal financial services. Therefore, educational structure may indirectly affect financial decision-making processes within agricultural enterprises. In addition, non-agricultural household income varied across farm groups. The highest level of non-agricultural income was observed in the third group, while the second group had the lowest non-agricultural income level. On average, annual non-agricultural household income was calculated as 240,544 TL.

Table 4. Educational status of farmers

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Literate (no diploma)	1	1.64	0	-	0	-	1	0.59
Primary school	29	47.54	37	46.25	11	39.29	77	45.56
Middle school	17	27.87	16	20.00	7	25.00	40	23.67
High school	11	18.03	19	23.75	7	25.00	37	21.89
Associate degree	1	1.64	5	6.25	1	3.57	7	4.14
Bachelor's degree	2	3.28	3	3.75	2	7.14	7	4.14

The findings regarding non-agricultural household income indicate that income levels vary across farm groups (Table 5). The lowest level of non-agricultural income was observed in the second group, while the highest non-agricultural income was recorded in the third group, which represents larger-scale enterprises. Average annual non-agricultural household income was calculated as 240,544 TL.

Table 5. Annual non-agricultural income of households

	Average Annual Non-Agricultural Income (TL)
1st Group	229.738
2nd Group	190.975
3rd Group	405.714
Average	240.544

The results suggest that there is no regular or linear relationship between farm size and non-agricultural income levels. In particular, the relatively high non-agricultural income observed in larger farms may be associated with income diversification strategies and additional economic activities carried out by household members. Non-agricultural income sources may contribute to reducing financial pressure on farms and supporting household financial sustainability.

When agricultural income levels were examined, the average annual agricultural income of households was calculated as 307,156 TL, while the average total household income was determined as 547,700 TL. Accordingly, agricultural income accounted for approximately 56.08% of total household income (Table 6). This finding indicates that agricultural production constitutes the primary source of income for a considerable proportion of the surveyed households.

Across farm groups, annual agricultural income increased in parallel with farm size. Larger-scale enterprises generated substantially higher agricultural income compared to small- and medium-scale farms. This situation may be associated with higher production capacity, larger herd sizes, and greater operational scale in larger enterprises.

The findings further suggest that livestock production continues to play an important role in household income generation and rural economic sustainability in the study area.

Table 6. Annual agricultural income of households

	Average Annual Agricultural Income (TL)
1st Group	211.770,49
2nd Group	235.300,00
3rd Group	478.929,00
Average	307.156

The analysis of household income sources revealed that pension income constituted the largest share of total income sources among producers, accounting for approximately 42.01% of responses (Table 7). This was followed by crop and livestock production income and income earned by household members engaged in agricultural activities, each representing 11.83% of total responses. In addition, income obtained from non-agricultural employment of household members accounted for 20.12% of responses.

Table 7. Income sources of farmers

	Frequency	%
Crop and livestock production	20	11.83
Livestock production only	13	7.69
Livestock farming (secondary income)	14	8.28
Household members with agricultural income	20	11.83
Household members with non-agricultural income	34	20.12
Pension income	71	42.01
Rental income	4	2.37

*Multiple responses were allowed.

The findings indicate that households generally rely on diversified income sources rather than depending solely on livestock production. The relatively high share of pension income may suggest that a considerable proportion of producers are older individuals who continue agricultural activities after retirement. Furthermore, the existence of non-agricultural income sources may contribute to reducing household financial risks and supporting the sustainability of farming activities.

Overall, the results demonstrate that cattle farming enterprises in the study area operate within a mixed household income structure in which agricultural and non-agricultural income sources coexist.

Overall, the results indicate that financial instrument usage tends to increase as enterprise scale expands, particularly in relation to short-term financing and payment practices

3.2.Credit Usage in Farms

The findings regarding credit card usage among cattle farming enterprises indicate that approximately 54.44% of producers use credit cards, while 45.56% reported that they do not use credit cards (Table 8). Credit cards are generally utilized to meet short-term cash requirements and facilitate daily financial transactions within farm operations.

Across farm groups, credit card usage was observed to increase with farm size. The highest usage rate was recorded in the third group, representing large-scale enterprises, with approximately 64% of producers reporting credit card use. In contrast, small-scale farms exhibited relatively lower levels of credit card utilization compared to medium- and large-scale enterprises.

This finding may suggest that larger farms are more integrated into formal financial systems and utilize a wider range of financial instruments in their operational activities. However, credit card usage alone should not be interpreted as a direct indicator of financial behavior. Rather, it may reflect differences in access to banking services, operational scale, and financial transaction intensity among enterprises of different sizes.

When the use of internet banking services among producers was examined, approximately 81.66% of the surveyed farmers reported that they actively use internet banking applications (Table 9). Internet banking usage was observed to increase in parallel with farm size, reaching approximately 96% among large-scale enterprises. This finding suggests that larger farms may be more integrated into digital financial systems and may conduct financial transactions more frequently through formal banking channels.

Approximately 79.29% of producers stated that they personally use internet banking services and conduct financial transactions themselves. This may indicate that financial management processes are generally carried out directly by farm owners. In contrast, 22.49% of respondents reported that internet banking transactions are performed by other household members, such as spouses or sons. This finding suggests that financial management responsibilities may sometimes be shared within the household structure.

Table 8. Credit card usage status of farmers

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Users	27	44.26	47	58.75	18	64.29	92	54.44
Non-users	34	55.74	33	41.25	10	35.71	77	45.56

The widespread use of internet banking among producers may reflect increasing adaptation to digital financial services and technological developments in rural areas. However, internet banking usage alone should not be interpreted as a direct indicator of financial behavior. Rather, it may be associated with factors such as access to digital technologies, banking service availability, enterprise scale, and frequency of financial transactions.

Overall, the findings indicate that the use of digital financial tools has become increasingly common among cattle farming enterprises, particularly in medium- and large-scale farms.

Table 9. Internet banking usage status of farmers

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Uses internet banking personally	44	72.13	67	83.75	27	96.43	138	81.66
Self-use	43	70.49	65	81.25	26	92.86	134	79.29
Family member use (spouse/son)	13	21.31	16	20.00	9	32.14	38	22.49

The investment preferences of producers regarding the evaluation of their savings are presented in Table 10. The findings indicate that cattle farmers primarily prefer to invest their savings in livestock purchases (38.46%). This was followed by cash holdings (35.50%), gold investments (15.98%), and real estate investments such as land, fields, and housing (11.83%). Foreign currency investments remained limited, accounting for only 1.18% of responses.

The results demonstrate that producers generally tend to invest in tangible and traditional assets rather than formal financial investment instruments. In particular, the relatively high proportion of producers holding their savings in cash may increase vulnerability to inflation and purchasing power losses. In addition, no respondents reported investments in financial instruments such as bonds, treasury bills, or interest-bearing accounts.

However, the absence of formal financial investment instruments should be interpreted cautiously. This situation may not solely reflect financial management capacity levels, but may also be associated with producers' investment preferences, risk perceptions, cultural investment habits, limited trust in financial markets, and the need for liquidity in agricultural production activities.

Across farm groups, producers in the first and second groups mainly preferred to keep their savings in cash, whereas livestock investment was more common among large-scale farms in the third group. This finding may suggest that larger enterprises prioritize reinvestment in production capacity and livestock expansion.

Overall, the findings indicate that cattle farmers predominantly adopt conservative and production-oriented investment strategies when evaluating their savings.

Table 10. Investment preferences of farmers regarding their savings

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Cash (TL)	23	28.75	28	35.00	9	32.14	60	35.50
Gold	15	18.75	9	11.25	3	10.71	27	15.98
Foreign Currency	1	1.25	1	1.25	0	0.00	2	1.18
Bond and Treasury Bill Purchase	0	0	0	0	0	0.00	0	0.00
Interest-bearing deposits	0	0	0	0	0	0.00	0	0.00
House, land, and field purchase	5	6.25	10	12.50	5	17.86	20	11.83
Animal Purchase	18	22.50	36	45.00	11	39.29	65	38.46

*Multiple responses were allowed.

The findings regarding credit utilization in cattle farming activities indicate that approximately 66.86% of producers used credit for their enterprises, while 33.14% reported that they did not use credit (Table 11). Credit utilization rates were observed to increase with farm size. The proportion of credit users was approximately 55.74% in the first group, 73.75% in the second group, and 71.43% in the third group.

The relatively higher credit utilization rates among medium- and large-scale farms may be associated with greater production costs, higher working capital requirements, and increased investment needs. In addition, larger enterprises may have greater access to formal financial institutions due to higher production capacity and stronger collateral opportunities.

The widespread use of agricultural credit suggests that external financing plays an important role in sustaining livestock production activities in the study area. However, credit utilization alone should not be interpreted as a direct indicator of financial management capacity or financial behavior. Rather, it reflects the financing requirements of enterprises and their dependence on external financial resources under existing production conditions.

Overall, the findings demonstrate that credit has become an important financing instrument for cattle farming enterprises, particularly as enterprise scale increases.

Table 11. Credit usage status of farmers for cattle fattening activities

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Users	34	55.74	59	73.75	20	71.43	113	66.86
Non-users	27	44.26	21	26.25	8	28.57	56	33.14

The findings regarding the adequacy of own capital in cattle farming enterprises indicate that a considerable proportion of producers experience financial constraints during production and marketing activities (Table 12). Approximately 47.93% of producers stated that their own capital is occasionally insufficient, while 40.24% reported that their capital is generally insufficient. In contrast, only 11.83% of producers considered their own capital to be sufficient for maintaining production activities.

Across farm groups, occasional capital insufficiency was more common in the first and second groups, whereas continuous capital insufficiency was reported more frequently among enterprises in the third group. This situation may be associated with the larger operational scale and higher production costs of large-scale farms,

which increase the demand for working capital and external financing.

The findings suggest that cattle farming enterprises largely depend on external financial resources to sustain production activities. Insufficient own capital may negatively affect production continuity, investment capacity, and financial sustainability, particularly under conditions of increasing input costs and market uncertainty.

Overall, the results indicate that capital insufficiency constitutes an important financial challenge for cattle farming enterprises in the study area.

Table 12. Adequacy of farmers' own capital during production and marketing activities

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Sufficient	8	13.11	6	7.5	6	21.43	20	11.83
Sometimes insufficient	30	49.18	41	51.25	10	35.71	81	47.93
Insufficient	23	37.70	33	41.25	12	42.86	68	40.24

The findings regarding financing sources used in cases of capital insufficiency indicate that cattle farmers utilize both formal and informal financing channels (Table 13). Among the surveyed producers, banks constituted the most preferred financing source, with 66.86% of respondents reporting the use of bank loans. This was followed by informal borrowing from friends and relatives (44.38%), agricultural credit cooperatives (18.34%), and merchants (8.88%). Financing obtained from official institutions, dealers, cooperatives, and third parties with high interest rates remained relatively limited.

Across farm groups, small-scale enterprises relied more heavily on informal borrowing from friends and relatives, whereas medium- and large-scale farms predominantly preferred bank loans to meet their financial needs. This difference may be associated with varying levels of access to formal financial institutions, collateral capacity, and borrowing opportunities among farm groups.

The relatively widespread use of bank loans suggests that formal financial institutions play an important role in financing cattle farming activities in the study area. However, the continued reliance on informal borrowing practices indicates that some producers still depend on traditional financing mechanisms, particularly in situations requiring rapid and flexible access to funds.

Informal borrowing practices may provide short-term financial flexibility for producers; however, excessive dependence on non-institutional financing sources may increase financial vulnerability and limit long-term financial planning capacity. Therefore, improving access to sustainable and producer-oriented agricultural financing mechanisms may contribute to strengthening the financial resilience of livestock enterprises.

Table 13. Sources of capital used by farmers in case of own capital insufficiency

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Loans from friends and relatives	35	57.38	29	36.25	11	39.29	75	44.38
High-interest borrowing from third parties	1	1.64	1	1.25	1	3.57	3	1.78
Official institutions (dealers/cooperatives)	3	4.92	0	0	1	3.57	4	2.37
Agricultural credit cooperatives	8	13.11	18	22.5	5	17.86	31	18.34
Banks	34	55.74	59	73.75	20	71.43	113	66.86
Merchants	6	9.84	7	8.75	2	7.14	15	8.88

*Multiple responses were allowed.

The findings regarding producers' preferences for borrowing from third parties under conditions of capital insufficiency are presented in Table 14. Approximately 55.62% of producers stated that they do not prefer borrowing from third parties. However, among those who rely on informal borrowing mechanisms, the most common reasons included ease of access to funds (34.32%), the absence of formal procedures (23.08%), ease of repayment (9.47%), habitual borrowing practices (6.51%), and the absence of collateral or insurance requirements (6.51%).

A smaller proportion of producers reported that they preferred third-party borrowing because official financial channels were inaccessible (1.18%) or because interest rates were perceived to be lower than those of banks (2.96%). These findings indicate that informal borrowing is generally preferred due to its flexibility, accessibility, and lower procedural requirements rather than long-term financial planning considerations.

Across farm groups, borrowing from third parties was more common among small-scale enterprises. This situation may be associated with difficulties in accessing formal financial institutions, urgent liquidity needs, or limited collateral capacity. In contrast, medium- and large-scale farms appeared to rely more heavily on formal financial sources such as banks and agricultural credit cooperatives.

Although informal borrowing practices may provide short-term financial flexibility, excessive dependence on non-institutional financing mechanisms may increase financial vulnerability and reduce the sustainability of long-term financial management practices. Therefore, improving producers' access to flexible and accessible formal financing mechanisms may contribute to reducing dependence on informal borrowing channels.

Table 14. Reasons for farmers' preference for borrowing from third parties in case of capital insufficiency

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Not preferred	28	45.90	51	63.75	15	53.57	94	55.62
Easy to obtain	28	45.90	22	27.5	8	28.57	58	34.32
No transaction required	17	27.87	15	18.75	7	25.00	39	23.08
Cannot obtain funds through official channels	1	1.64	1	1.25	0	0.00	2	1.18
Ease of repayment	5	8.20	7	8.75	4	14.29	16	9.47
Lower interest rates compared to banks	1	1.64	2	2.5	2	7.14	5	2.96
Habitual borrowing	6	9.84	3	3.75	2	7.14	11	6.51
No collateral or insurance requirement	4	6.56	4	5	3	10.71	11	6.51

*Multiple responses were allowed.

The findings regarding the effects of agricultural credit on cattle farming enterprises are presented in Table 15. Approximately 23.67% of producers stated that credit use had no noticeable effect on their enterprises, while 7.10% reported that credit use had adverse effects. In contrast, 13.61% of respondents indicated that credit contributed to enterprise expansion through investment, and 5.33% reported that credit use increased farm income.

In addition, approximately 22.49% of producers stated that credit was mainly used for debt repayment purposes. This finding suggests that a considerable proportion of producers utilize loans to maintain short-term financial continuity rather than for productive investment activities. Such borrowing practices may increase financial pressure on enterprises and limit long-term capital accumulation.

Across farm groups, the use of credit for debt repayment purposes was more common than

investment-oriented credit utilization. Nevertheless, a smaller proportion of producers reported that credit contributed positively to business growth and operational expansion. This finding indicates that some enterprises are able to use credit as a production-supporting and investment-oriented financial tool.

The results demonstrate that the impact of agricultural credit varies depending on producers' financial conditions, production structures, and credit utilization purposes. Therefore, improving the efficiency of credit use and strengthening producers' financial planning capacities may contribute to more sustainable and productive financial management practices in livestock enterprises.

Table 15. Effects of agricultural credit on farms as reported by farmers

	1st Group		2nd Group		3rd Group		Average	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Increase in income	4	6.56	4	5	1	3.57	9	5.33
Increase in labor use	1	1.64	1	1.25	0	0.00	2	1.18
Expansion through investment	4	6.56	15	18.75	4	14.29	23	13.61
Debt repayment	11	18.03	22	27.5	5	17.86	38	22.49
No effect	15	24.59	16	20.00	9	32.14	40	23.67
Adverse effect	3	4.92	7	8.75	2	7.14	12	7.10

4. CONCLUSION AND RECOMMENDATIONS

The findings of the study indicate that cattle farming enterprises in Tokat Central District are predominantly operated by middle-aged and experienced producers. The average age of producers was approximately 49 years, while the average farming experience was nearly 26 years. Although producers possess substantial practical experience in livestock farming, the educational structure of the enterprises remains relatively limited, as nearly 70% of producers were primary or middle school graduates. This situation may influence producers' access to financial information, financial planning capacity, and utilization of formal financial services.

The study further revealed that a considerable proportion of producers actively use formal financial instruments such as credit cards and internet banking services. Approximately 54% of producers reported using credit cards, while more than 80% stated that they use internet banking services. The widespread use of digital banking applications suggests that producers are increasingly integrated into formal financial systems and digital financial services. However, these indicators should not be interpreted as direct measures of financial awareness; rather, they may reflect producers' access to banking services, operational needs, and adaptation to digital financial practices.

The findings also demonstrate that cattle farming enterprises experience significant capital insufficiency during production and marketing activities. Most producers rely on external financing sources, particularly bank loans, to sustain production activities. In addition to formal financing channels, informal borrowing practices from friends and relatives remain common among producers, especially in small-scale enterprises. While informal borrowing may provide short-term financial flexibility, excessive dependence on non-institutional financing mechanisms may increase financial vulnerability and negatively affect long-term financial sustainability.

Another important finding of the study is that agricultural loans are primarily used to meet operational expenses and repay existing debts rather than to support long-term investments and enterprise expansion. Although some producers reported positive effects of credit use on investment and income generation, a considerable proportion stated that credit had either no significant effect or adverse effects on their

enterprises. This finding suggests that the effectiveness of agricultural credit largely depends on producers' financial management practices and the purposes for which credit is utilized.

Based on the findings of the study, several recommendations can be proposed to improve the financial sustainability of cattle farming enterprises:

Improving Financial Awareness and Financial Management Capacity

Training programs focusing on farm-level financial management, budgeting, debt management, investment planning, and risk management should be expanded through universities, agricultural extension services, Provincial Directorates of Agriculture and Forestry, and Chambers of Agriculture. Such programs may contribute to improving producers' financial decision-making processes and strengthening long-term financial planning practices.

Increasing the Effectiveness of Agricultural Credit Utilization

Producers should be supported in using agricultural loans more efficiently and productively. In particular, technical guidance regarding investment-oriented credit use, repayment planning, and sustainable financing strategies should be provided before loan utilization. In addition, more accessible, flexible, and producer-oriented agricultural financing mechanisms may contribute to reducing dependence on informal borrowing channels and strengthening the financial resilience of livestock enterprises.

Overall, the study demonstrates that financial sustainability in cattle farming enterprises depends not only on access to credit but also on effective financial management practices and sustainable financing strategies.

REFERENCES

Ahmad, N. (2011). Impact of institutional credit on agricultural output. Theoretical and Applied Economics, 42, 469-485.

Aral, Y., Altın, O., Sarıhan Şahin, T., Gökdai, A. (2020). Structural status and sectoral analysis of cattle fattening in Turkey. *Journal of the Turkish Veterinary Medical Association, 91*(2), 182–189.

Arıkan, M. S., Gökhan, E. E. (2019). Evaluation of financing sources and credit use in dairy cattle enterprises: The case of Elazığ province. *Journal of the Turkish Veterinary Medical Association, 90*(1), 43–49.

Aydın, E., Can, M. F., Aral, Y., Cevger, Y., Sakarya, E. (2010). The effects of live animal and red meat import decisions on cattle breeders in Turkey. *Journal of the Turkish Veterinary Medical Association, 81*(2), 51–57.

Baysa, E., Karaca, S. S. (2016). An application on financial literacy and bank customer segmentation. *Journal of Accounting and Finance, 71*, 109–126.

Beserek, S. (2019). Analysis of agricultural Credit usage of greenhouse producers: The case of Muğla province (Master's thesis). Isparta University of Applied Sciences, Graduate School of Education, Department of Agricultural Economics, Isparta.

Bilge, E. (2022). Analysis of factors affecting farmers' preferences according to credit usage purposes: The case of Aksaray (Master's thesis). Aksaray University, Institute of Social Sciences, Department of Business Administration, Aksaray.

Gözener, B. (2013). Economic analysis and technical efficiency of cattle breeding enterprises in the TR83 region (Doctoral dissertation). Gaziosmanpaşa University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, Tokat.

Can, Ü. (2022). Comparison of financial literacy levels in agricultural enterprises: The case of Eskişehir province (Master's thesis). Ankara University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, Ankara.

Cengiz, B. (2020). Factors affecting farmers' credit use: The case of Karaisalı district of Adana province (Master's thesis). Çukurova University,

Institute of Natural and Applied Sciences, Department of Agricultural Economics, Adana.

Çiçek, A., Erkan, O. (1996). *Research and sampling methods in agricultural economics*. Gaziosmanpaşa University, Faculty of Agriculture Publications No: 12, Lecture Notes Series No: 6, Tokat.

Çiçek, H., Sakarya, E. (2003). Profitability and productivity analysis of cattle fattening enterprises in Afyon province. *Lalahan Livestock Research Institute Journal, 43*(2), 1–13.

Çoban, Ç. (2024). Investigation of structural characteristics of cattle enterprises and socio-demographic characteristics, breeding preferences and problems of breeders in Bingöl province (Master's thesis). Fırat University, Institute of Health Sciences, Department of Animal Science.

Demircan, V., Dernek, Z., Yılmaz, H. (2006). Comparative analysis of the cattle sector in Turkey and the European Union. *Proceedings of the VII. Agricultural Economics Congress of Turkey*, 13–15.

Doğan, Z., Arslan, S., Berkman, A. (2015). Economic development and problems of the agricultural sector in Turkey: A historical perspective. *Journal of Niğde University Faculty of Economics and Administrative Sciences, 8*(1), 29–41.

Durmuş, G. (2024). Determination of mechanization characteristics of dairy cattle enterprises in Efeler district (Master's thesis). Aydın Adnan Menderes University, Institute of Natural and Applied Sciences.

Düzgüneş, O., Kesici, T., Gürbüz, F. (1983). *Statistical methods*. Ankara University, Faculty of Agriculture Publications No: 861, Textbook No: 229, Ankara.

Ergün, O. F., Bayram, B. (2021). Changes in the livestock sector in Turkey. *Bahri Dağdaş Livestock Research Journal, 10*(2), 158–175.

Esenkar, D. (2019). Agricultural financing practices in the Turkish banking sector (Master's thesis). Bilecik Şeyh Edebali University, Institute of Social Sciences.

Eser, A., Yiğiter, Ş. Y. (2020). Determination of financial literacy levels of individuals with participation bank accounts: The case of Erzincan province. *Journal of Business, Economics and Management Research, 3*(2), 234–253.

Gül, M., Gürbüz, D. (2016). Financing sources in dairy cattle enterprises: The case of Burdur province. *Mustafa Kemal University Journal of Agriculture Faculty, 21*(1).

Güler, E., Tunahan, H. (2017). Financial literacy: A study on households. *Journal of Business Science, 5*(3), 79–104.

Hekimoğlu, B., Altındeğer, M. (2014). Comparison of agriculture/industry and agro-industry potential of TR83 provinces (Samsun, Tokat, Amasya, Çorum). Ministry of Food, Agriculture and Livestock, Samsun Provincial Directorate, Strategy Development Unit, Samsun.

Hozman, S. B., Akçay, H. (2016). Some technical and economic characteristics of dairy cattle enterprises that are members of the breeders' association in Sivas province. *Journal of Agricultural Economics, 22*(1), 57–65.

Kahramanoğlu, A. (2021). Analysis of agricultural producers' credit use and production financing within the banking system: The case of Bafra. *Turkish Journal of Agriculture - Food Science and Technology, 9*(3), 615–620.

Karagaytan, A. (2019). Access to agricultural credit cooperatives and factors affecting credit demand of agricultural enterprises in Çarşamba district of Samsun province (Master's thesis). Ondokuz Mayıs University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, Samsun.

Kaşık, C. (2015). Determination of factors affecting farmers' use of agricultural credit in Türkoğlu district of Kahramanmaraş province (Master's thesis). Institute of Natural and Applied Sciences.

Keleş, M. (2021). A study on agricultural credit use and supports of fisheries enterprises in the TRB2 region (Van, Bitlis, Muş, Hakkâri) (Master's thesis). Van Yüzüncü Yıl University,

Institute of Natural and Applied Sciences, Department of Fisheries Engineering, Van.

Köksal, H. (2019). Analysis of agricultural credit use in Samsun province (Doctoral dissertation). Ondokuz Mayıs University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, Samsun.

Obilor, S. I. (2013). The impact of commercial banks' credit to agriculture on agricultural development in Nigeria: An econometric analysis. *International Journal of Business, Humanities and Technology, 3*(1), 85–94.

Orhan, A. (2019). Determination of financial structure and sustainable borrowing strategies of agricultural enterprises using credit from Ziraat Bank in central districts of Konya province (Master's thesis). Institute of Natural and Applied Sciences, Department of Agricultural Economics.

Özdemir, H. Ö., Kan, M. (2020). Agricultural information sources used in the management of agricultural enterprises: The case of Kırşehir province. *Turkish Journal of Agricultural and Natural Sciences, 7*(2), 500–509. https://doi.org/10.30910/turkjans.725990

Özsağlıcak, S. (2019). Structural characteristics of cattle enterprises in the central district of Erzincan province (Master's thesis). Atatürk University, Institute of Natural and Applied Sciences, Department of Animal Science, Erzurum.

Öztürk, E., Demir, Y. (2015). Financial literacy and money management: An application on academic staff of Süleyman Demirel University. *Journal of Accounting and Finance, 68*, 113–134. https://doi.org/10.25095/mufad.396629

Özvardar, B. (2019). Agricultural financing and credit applications in Turkey: The case of Tekirdağ province (Master's thesis). Tekirdağ Namık Kemal University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, Tekirdağ.

Sarıgül, H. (2020). Content analysis of postgraduate theses on financial literacy in Turkey. *Journal of Higher Education and Science, 1*, 153–165.

Sumer, S., Gövdeli, T. (2020). A study on financial literacy and financial behavior. *Journal of Oltu Faculty of Humanities and Social Sciences, 1*(1), 86–98.

Taşkıran, R., Özüdoğru, H. (2010). Agricultural credit applications in Turkey. *Journal of Gazi University Faculty of Commerce and Tourism Education, 1*, 150–163.

Terzi, O. (2020). A study on planning financial resources for a competitive agricultural sector within Turkey's local rural development strategy (Doctoral dissertation). Ege University, Institute of Natural and Applied Sciences, Department of Agricultural Economics, İzmir.

Tiryaki, M., Göker, İ. E. K. (2021). Financial structure of the agricultural sector and financing of agriculture in Turkey: Salam contracts as an alternative financing method. *Journal of Economic, Administrative and Political Research, 6*(14), 1–18.

Ünlü Ören, H. G. (2021). Livestock sector in the world, regions and Turkey. *Journal of Social and Humanities Research, 22*(48), 72–95.

Ünlüer, M. (2014). Economic analysis of agricultural credit use in agricultural enterprises in Eskişehir province (Doctoral dissertation). Ankara University, Institute of Natural and Applied Sciences, Department of Agricultural Economics.

Yücel, S. (2007). Technical and financial analysis of cattle fattening production activities in agricultural enterprises in Ankara province (Master's thesis). Institute of Natural and Applied Sciences.