Research and Analysis Journals 8(08): 01-09, 2025

e-ISSN: 2589-9228, p-ISSN: 2589-921x

Research Article

Perceptions of Professional Competence and Sectoral Problems of Small Ruminant Farmers In Şanlıurfa Province, Türkiye *

Seyran Ayalp[1], Mehmet Reşit Sevinç[1+], Mehmet Cançelik[2]

[1]Department of Agricultural Economics, Faculty of Agriculture, Harran University, Şanlıurfa, Türkiye.

[2]Şanlıurfa School of Social Sciences, Harran University, Şanlıurfa, Türkiye.

Abstract:

This study aims to examine the perceptions of small ruminant farmers in Şanlıurfa province regarding their technical knowledge and skills, access to technical support, ability to find shepherds, and the adequacy of pasture areas, as well as the socio-economic and operational structural characteristics that influence these perceptions. The primary data for the study were collected through surveys conducted with members of the Şanlıurfa Breeding Sheep and Goat Raisers Association. A total of 133 farmers were interviewed face-to-face as part of the study. Descriptive statistical methods were used for data analysis, and the Kruskal-Wallis Variance Analysis and Dunn Multiple Comparison Test were employed to identify differences between independent variable groups. According to the research findings, it was determined that farmers' perceptions of their technical knowledge and skills showed significant differences according to factors such as district, education level, number of people working in animal husbandry, and number of animals. In terms of perceptions of access to technical support, it was determined that the number of people working in animal husbandry and the number of animals were effective factors. It was revealed that farmers experienced significant differences in terms of finding shepherds according to factors such as district, age, number of people working in livestock farming, livestock farming experience, and number of animals. In terms of the adequacy of pasture areas, it was determined that the district, livestock farming experience, and number of animals were effective factors. In general, it was determined that farmers have a moderate level of negative perception regarding technical knowledge and skills, access to technical support, and finding shepherds, while they have a high level of negative perception regarding the adequacy of pasture areas. These findings reveal the complex structure of the problems encountered in the small ruminant livestock sector and are consistent with similar studies in the literature. In particular, difficulties in finding shepherds and inadequate pasture land emerge as important factors threatening the sustainability of the sector. The study provides important information to policymakers and relevant stakeholders for the development of targeted education, publication, and support programs that take into account the socio-economic and operational characteristics of farmers. It has been concluded that integrated and multi-faceted approaches must be adopted to enhance the sector's productivity and address the challenges it faces.

Keywords: Small livestock farming, technical knowledge, technical support, shepherd, pasture, Şanlıurfa-Türkiye

Introduction

Small ruminant farming is an agricultural activity of strategic importance for the Turkish economy and rural development. The country's geographical structure, climatic conditions, and extensive pasture areas provide a favourable environment for small ruminant farms (Aksoy & Yavuz, 2012; Serttaş et al., 2022). Small ruminants can convert low-productive pastures and areas unsuitable for crop production into valuable products such as meat, milk, wool, hair, and leather (Bilginturan & Ayhan, 2009). Due to these characteristics, they play a significant role as a livelihood source for families living in rural areas.

The small ruminant livestock sector in Türkiye faces various structural and operational challenges despite its significant potential. The decline in small ruminant populations observed recently highlights the severity of these issues (Günaydın, 2009; Keskin & Bebek, 2018; Palabıçak & Binici, 2023; Sevinç et al., 2022). Among these issues, the technical knowledge and skills of farmers, access to technical support, difficulties in securing shepherds, and the inadequacy of pasture areas stand out (Acıbuca & Budak, 2021; Karakuş & Akkol, 2013; Sevinç & Binici, 2016; Yıldız & Aygün, 2021). These factors negatively impact both production efficiency and farmers' satisfaction levels within the sector.

The main objective of this study is to analyse the perceptions of small ruminant farmers in Şanlıurfa regarding their technical knowledge and skills, access to technical support, ability to identify shepherds, and the adequacy of pasture areas, as well as the socio-economic and operational structural characteristics that influence these perceptions. In this context, the study aims to fill existing gaps in the literature and provide a current and detailed perspective on the challenges faced by the small ruminant livestock sector in Şanlıurfa. The findings obtained will provide a scientific basis for policymakers, relevant public institutions, and producer associations to develop more effective strategies aimed at ensuring sustainability and increasing productivity in the sector.

Materials and Methods

The main material of this study consists of primary data obtained from breeders registered with the Şanlıurfa Breeding Sheep and Goat Raisers Association (ŞBSGRA). A questionnaire was used to collect the primary data. To determine the individuals to be surveyed (sample calculation), the total number of registered breeders in the ŞBSGRA was first identified. According to ŞBSGRA data, there are 5,972 members in Şanlıurfa province. The identified number of 5,972 members also constitutes the population of the study. In determining the number of farmers to be surveyed, the proportional sampling method (Newbold et al., 2012) was used. The formulas used in the proportional sampling method are provided below:

$$\sigma_p^2 = \left(\frac{r}{Z\alpha_{/2}}\right)^2 = \left(\frac{0.1}{2.3268}\right)^2 = 0.001847$$

$$n = \frac{Npq}{(N-1)\sigma_p^2 + pq} = \frac{5972x0.5x0.5}{(5972-1)x(0.001847) + 0.5x0.5} \cong 133$$

Within the scope of the research, the sample size to be surveyed was determined as 133 farmers, taking into account a 98% confidence interval and a 10% deviation from the average. In the fieldwork, interviews were conducted with 133 farmers in accordance with this sample size.

Descriptive statistical methods were used in the data analysis process. The researchers applied the non-parametric Kruskal-Wallis variance analysis to determine the statistical significance of differences between independent variable groups. Developed by Kruskal and Wallis (1952), this analysis is preferred as an alternative to one-way ANOVA, especially when the data set does not meet the normal distribution assumption or when the number of observations is insufficient.

Results

Independent Variables

According to the research findings, the demographic and operational characteristics of small ruminant farmers participating in the study were examined. The average age of the farmers was determined to be 47.92, and they were found to have an average of 30.5 years of significant experience in livestock farming. The average number of workers per farm was 5.71, while the average number of small ruminants was 669. These findings constitute the independent variables of the study, and detailed data are presented in Table 1.

Table 1: Independent variables

Districts	**Frequency**	**%**	**Age group**	**Frequency**	**%**
Siverek	36	27.0	18-30	10	7.5
Viranşehir	24	18.0	31-40	33	24.8
Haliliye	20	15.0	41-50	28	21.1
Eyyübiye	17	12.8	51-60	43	32.3
Ceylanpınar	11	8.3	61 and +	19	14.3
Akçakale	7	5.3	**Total**	**133**	**100.0**
Suruç	6	4.5	**Level of education**	**Frequency**	**%**
Bozova	5	3.8	Literate	15	11.3
Hilvan	4	3.0	Primary sch.	75	56.3
Karaköprü	3	2.3	Middle sch.	30	22.6
Total	**133**	**100.0**	High Sch.	13	9.8
Number of employees	**Frequency**	**%**	**Total**	**133**	**100.0**
1-2	27	20.3	**Experience (years)**	**Frequency**	**%**
3-4	53	39.8	1-10	9	6.8
5 and +	53	39.8	11-20	35	26.3
Total	**133**	**100.0**	21-30	28	21.1
Number of small livestock	**Frequency**	**%**	31-40	28	21.1
1-300	34	25.6	41 and +	33	24.8
301-600	59	44.4	**Total**	**133**	**100.0**
601-1000	16	12.0			
1001 +	24	18.0			
Total	**133**	**100.0**			

Possession of Sufficient Technical Knowledge and Skills in Small Ruminant Farming

Within the scope of the research, the statement 'I have sufficient technical knowledge and skills in small ruminant farming' was presented to measure the subjective perceptions of small ruminant farmers regarding their professional competence. Participants were asked to indicate the extent to which they agreed with this statement using a five-point Likert scale, where 1 meant 'strongly disagree' and 5 meant 'strongly agree.' The results of the analysis of the responses to this statement are detailed in Table 2.

Table 2: I have sufficient technical knowledge and skills statement analysis result

Kruskal-Wallis Test	Districts	Age	Education	Number of employees	Experience	Number of small livestock
Test statistics	22.882	5.246	21.681	11.000	6.393	12.266
df	9	4	3	2	4	3
p values	0.006***	0.263	0.000***	0.004***	0.172	0.007***

**** p<0.01, ** p<0.05, * p<0.1*

The overall average score for the statement, 'I have sufficient technical knowledge and skills,' was found to be 2.93. This average indicates that farmers demonstrated moderate participation in relation to the statement. According to the results of the Kruskal-Wallis Test, there are statistically significant differences between farmers' perceptions of technical knowledge and skills and district (p=0.006), education level (p=0.000), number of employees in livestock farming (p=0.004), and number of animals (p=0.007). This situation indicates that farmers' perceptions of their technical knowledge and skills vary significantly according to factors such as the district they live in, their educational status, the number of employees in their farms, and the number of animals they own. In contrast, no statistically significant relationship was found between age (p=0.263) and livestock farming experience (p=0.172) and the perception of technical knowledge and skills (Table 2). These findings reveal that farmers' perceptions of technical knowledge and skills are influenced by other socio-economic and business structure-related factors, independent of age and experience duration. To determine the source of differences between groups of independent variables, pairwise comparisons were performed using the Dunn Multiple Comparison test. In these comparisons, Bonferroni correction was applied to address the multiple testing problem, resulting in adjusted p-values. These procedures can be automatically performed in the SPSS program. Alternatively, the Mann-Whitney U test can be used; however, in this case, the p-value must be adjusted by dividing it by the number of comparisons made (IBM, 2020a, 2020b). Table 3 presents the multiple comparison tests conducted to determine the differences between the groups of independent variables.

Table 3: I have sufficient technical knowledge and skills statement multiple comparison test results

Group 1-Group 2	Test statistics	Std. error	Std. test statistics	p values	Adj. p values
Districts					
Viranşehir-Ceylanpınar	19.771	6.414	3.083	0.002	0.092
Viranşehir-Siverek	-19.771	4.642	-4.259	0.000	0.001
Education					
High sch.-primary sch.	22.893	5.292	4.326	0.000	0.000
High sch.-middle sch.	24.229	5.849	4.143	0.000	0.000
High sch.- literate	26.346	6.675	3.947	0.000	0.000
Number of employees					
1-2, >=5	-12.546	4.165	-3.012	0.003	0.008
1-2, 3-4	-12.641	4.165	-3.035	0.002	0.007
Number of small livestock					
1-300, 301-600	-10.495	3.793	-2.767	0.006	0.034
1-300, 601-1000	-13.809	5.340	-2.586	0.010	0.058
1-300, >1000	-13.809	4.696	-2.940	0.003	0.020

When examining the district variable in Table 3, the rank average for Viranşehir (mean rank: 52.23) is lower than the rank averages for Siverek (mean rank: 72.00) and Ceylanpınar (mean rank: 72.00) and is statistically significant. According to this, the difference stems from the fact that respondents living in Viranşehir are more negative than those living in Siverek and Ceylanpınar regarding the statement 'I have sufficient technical knowledge and skills in small livestock farming.'

Table 3 shows that the mean rank of those with high school education (mean rank: 45.65) is lower than those with literate (mean rank: 72.00) and lower secondary education (mean rank: 69.55) and primary school (mean rank: 69.68) levels of education. Accordingly, the difference stems from those with high school education responding more negatively to the statement, 'I have sufficient technical knowledge and skills in small livestock farming,' compared to those with literacy, primary school, and middle

school education.

When examining the number of people employed in livestock farming in Table 3, the rank average of the group with "1-2" people employed in livestock farming (mean rank: 56.96) is lower and statistically significant compared to the groups with "3-4" (mean rank: 69.60) and "5 and above" (mean rank: 69.51). This difference is statistically significant. Accordingly, the difference stems from the fact that the group with "1-2" people employed in livestock farming responded more negatively to the statement 'I have sufficient technical knowledge and skills in small ruminant farming' compared to the groups with "3-4" and "5 or more" people employed in livestock farming.

When examining the number of animals owned variable in Table 3, the mean rank of those with "1-300" (mean rank: 58.19) small ruminants is lower than those with "301-600" (mean rank: 68.69), "601-1000" (mean rank: 72.00), and "1000 and above" (mean rank: 72.00), which are statistically significant. Accordingly, the difference stems from the fact that those with 1–300 small ruminants are more negative than those with 301–600, 601–1,000, and 1,000 or more small ruminants in their agreement with the statement 'I have sufficient technical knowledge and skills in small ruminant farming.'

Access to Technical Support When Needed

In order to assess small ruminant farmers' perceptions regarding access to technical support, participants were presented with the statement 'I can access technical support when I need it.' Responses to this statement were collected using a five-point Likert scale, where 1 meant 'strongly disagree' and 5 meant 'strongly agree.' The analysis results related to the aforementioned statement are presented in detail in Table 4.

Table 4: I can access technical support when I need it statement analysis result

Kruskal-Wallis Test	Districts	Age	Education	Number of employees	Experience	Number of small livestock
Test statistics	12.305	3.572	5.115	5.511	0.104	20.878
df	9	4	3	2	4	3
p values	0.197	0.467	0.164	0.064*	0.999	0.000***

**** p<0.01, ** p<0.05, * p<0.1*

The overall average score for the statement 'I can access technical support when needed' was found to be 2.61. This average indicates that farmers showed moderate participation in the statement. According to the results of the Kruskal-Wallis Test, no statistically significant differences were found in participants' perceptions of access to technical support based on district (p=0.197), age (p=0.467), education (p=0.164), and livestock farming experience (p=0.999) factors. In contrast, the number of people working in livestock farming (p=0.064) was found to have a marginally significant effect on the perception of access to technical support, while the number of animals (p=0.000) was found to have a statistically significant effect (Table 4). These findings reveal that farmers' perceptions of access to technical support are influenced by factors related to the structure of their operations, particularly the number of animals they own and, to a lesser extent, the number of people employed in livestock farming. Other socio-economic factors do not have a significant effect on this perception.

Table 5 contains multiple comparison tests performed to determine the differences between the groups of independent variables.

Table 5: I can access technical support when I need it statement multiple comparison test results

Group 1-Group 2	Test statistics	Std. error	Std. test statistics	p values	Adj. p values
Number of employees					
1-2, 3-4	-16.147	7.454	-2.166	0.030	0.091
Number of small livestock					
601-1000, 1-300	26.585	9.558	2.781	0.005	0.032
601-1000, >1000	-42.438	10.175	-4.171	0.000	0.000
301-600, >1000	-26.695	7.633	-3.497	0.000	0.003

When examining the number of people employed in livestock farming in Table 5, the mean rank of the group with "1-2" people employed in livestock farming (mean rank: 58.31) is lower than that of the group with "3-4" people employed (mean rank: 74.46) and is statistically significant. Accordingly, the difference stems from the fact that the group with "1-2" people employed in livestock farming responded more negatively to the statement 'I can access technical support when needed' compared to the group with "3-4" people employed in livestock farming.

When examining the variable of the number of animals owned in Table 5, the mean rank of those with "1000 or more" (mean rank: 88.00) small ruminants is higher than those with "301-600" (mean rank: 61.31), "601-1000" (mean rank: 45.56), and "1-300" (mean rank: 72.15) ranges, and the mean rank of those with "601-1,000" (mean rank: 45.56) is higher and statistically significant compared to those with "1-300" (mean rank: 72.15) and "601-1,000" (mean rank: 45.56) ranges. Accordingly, the difference is between those

with “over 1,000” small ruminants and those with '301-600“and '601-1,000” small ruminants, and those with “1-300” small ruminants compared to those with “601-1,000” small ruminants.

Difficulty in Finding Shepherds

Small livestock farmers were presented with the statement ‘I do not have difficulty finding shepherds.’ Responses to this statement were collected using a five-point Likert scale, where 1 meant ‘strongly disagree’ and 5 meant ‘strongly agree.’ The results of the analysis of this statement are presented in detail in Table 6.

Table 6: I do not have difficulty finding shepherds statement analysis result

Kruskal-Wallis Test	Districts	Age	Education	Number of employees	Experience	Number of small livestock
Test statistics	25.849	11.586	3.890	7.183	37.969	27.459
df	9	4	3	2	4	3
p values	0.002***	0.021**	0.274	0.028**	0.000***	0.000***

**** p<0.01, ** p<0.05, * p<0.1*

The overall average score for the statement, ‘I do not have difficulty finding shepherds,’ was found to be 2.05. This average indicates that farmers showed moderate participation in the statement. According to the results of the Kruskal-Wallis Test, there were significant differences in farmers' perceptions of finding shepherds in terms of district (p=0.002), age (p=0.021), number of employees in livestock farming (p=0.028), livestock farming experience (years) (p=0.000), and number of animals (p=0.000) (Table 6). The evidence indicates that farmers' perceptions regarding the availability of shepherds vary significantly depending on factors such as the district they live in, their age, the number of workers in their operations, their livestock farming experience, and the number of animals they own. However, no statistically significant relationship was found between educational level (p=0.274) and perceptions regarding the availability of shepherds. These findings show that other socio-economic and farm-related factors, independent of their educational status, influence farmers' perceptions regarding the availability of shepherds.

Table 7 shows that the average rank of Viranşehir (mean rank 50.33) is between Haliliye (mean rank: 87.68) and Eyyübiye (mean rank: 84.76). The mean rank of Siverek (mean rank: 56.17) is lower than that of Haliliye (mean rank: 87.68) and is statistically significant. Accordingly, the difference stems from the fact that respondents living in Viranşehir are more negative than those living in Haliliye and Eyyübiye, and respondents living in Siverek are more negative than those living in Haliliye regarding the statement ‘I do not have difficulty finding a shepherd.’

Table 7 shows that when looking at the age variable, the mean rank for the age group “18-30” is 96.60, which is higher and statistically significant compared to the mean ranks of the “51-60” (mean rank: 59.81) and “61 and above” (mean rank: 58.76) age groups. Accordingly, the difference stems from respondents in the “18-30” age group agreeing more positively with the statement ‘I do not have difficulty finding a shepherd’ compared to respondents in the “51-60” and “61 and above” age groups.

When examining the number of people employed in livestock farming in Table 7, the rank average of the group with “5 and above” (mean rank: 59.41) is lower than that of the group with “1-2” (mean rank: 81.19) and is statistically significant. Accordingly, the difference stems from the fact that the group with “5 or more” people employed in livestock farming responded more negatively to the statement, “I do not have difficulty finding shepherds” compared to the group with “1-2” people.

Table 7: I do not have difficulty finding a shepherd statement multiple comparison test results

Group 1-Group 2	Test statistics	Std. error	Std. test statistics	p values	Adj. p values
Districts					
Viranşehir-Eyyübiye	-34.431	10.903	-3.158	0.002	0.071
Viranşehir-Haliliye	-37.342	10.413	-3.586	0.000	0.015
Siverek-Haliliye	-31.508	9.592	-3.285	0.001	0.046
Age					
>=61, 18-30	37.837	13.437	2.816	0.005	0.049
51-60, 18-30	36.786	12.075	3.046	0.002	0.023
Number of employees					
>=5, 1-2	21.780	8.132	2.678	0.007	0.022
Experience					
>40, 21-30	30.162	8.837	3.413	0.001	0.006
>40, 11-20	34.234	8.345	4.102	0.000	0.000
>40, 31-40	46.680	8.837	5.282	0.000	0.000
>40, 1-10	57.702	12.934	4.461	0.000	0.000
Number of small livestock					

601-1000, 301-600	35.627	9.694	3.675	0.000	0.001
601-1000, 1-300	35.926	10.427	3.445	0.001	0.003
>1000, 301-600	32.794	8.327	3.938	0.000	0.000
>1000, 1-300	33.093	9.170	3.609	0.000	0.002

Table 7 shows that the mean rank of those with “40 years or more” (mean rank: 37.91) experience in animal husbandry is lower than that of those with “31-40” (mean rank: 84.59), “21-30” (mean rank: 68.07), “11-20” (mean rank: 72.14), and “1-10” (mean rank: 95.61) years of experience. Accordingly, the difference stems from the fact that those with over 40 years of experience responded more negatively to the statement ‘I do not have difficulty finding a shepherd’ compared to all other groups with less experience.

When examining the variable of the number of animals owned in Table 7, the mean ranks of those with “1000 and above” (mean rank: 44.33) and “601-1000” (mean rank: 41.50) small ruminants are lower and statistically significant compared to those with “301-600” (mean rank: 77.13) and “1-300” (mean rank: 77.43) are lower and statistically significant. Accordingly, the difference stems from the fact that those with “over 1000” and “601-1000” small ruminants are more negative in their response to the statement “I do not have difficulty finding shepherds” compared to those with “301-600” and “1-300” small ruminants.

Adequacy of Pasture Areas

Small livestock farmers were presented with the statement, ‘Pasture areas are sufficient.’ Responses to this statement were collected using a five-point Likert scale, where 1 meant ‘strongly disagree’ and 5 meant ‘strongly agree.’ The results of the analysis of this statement are presented in detail in Table 8.

The overall average score for the statement ‘Pasture areas are sufficient’ was found to be 1.83. This average indicates that farmers responded to the statement with a high level of negative feedback. According to the results of the Kruskal-Wallis Test, statistically significant differences were found in farmers' perceptions of the adequacy of pasture areas based on the factors of district (p=0.000), livestock farming experience (years) (p=0.003), and number of animals (heads) (p=0.040). This situation indicates that farmers' perceptions of the adequacy of pasture areas vary significantly according to factors such as the district they live in, their livestock farming experience, and the number of animals they own. In contrast, no statistically significant relationship was found between the variables of age (p=0.275), education level (p=0.157), and number of people working in livestock farming (p=0.112) and the perception of the adequacy of pasture areas. These findings reveal that farmers' perceptions of the adequacy of pasture areas are influenced by other socio-economic and farm structure-related factors, independent of age, education level, and the number of workers employed on the farm.

Table 8: The statement that pasture areas are sufficient is the result of the analysis

Kruskal-Wallis Test	Districts	Age	Education	Number of employees	Experience	Number of small livestock
Test statistics	48.102	5.120	5.207	4.378	16.039	8.296
df	9	4	3	2	4	3
p values	0.000***	0.275	0.157	0.112	0.003***	0.040**

*** p<0.01, ** p<0.05, * p<0.1

When looking at the district variable in Table 9, the rank average for Siverek (mean rank: 43.36) is between Ceylanpınar (mean rank: 102.64), Haliliye (mean rank: 93.65), and Eyyübiye (mean rank: 76.41), while the mean rank of Viranşehir (mean rank: 57.17) is lower than that of Ceylanpınar (mean rank: 102.64) and Haliliye (mean rank: 93.65) and is statistically significant. Accordingly, the difference stems from the fact that respondents living in Siverek are more negative than those living in Ceylanpınar, Haliliye, and Eyyübiye, and respondents living in Viranşehir are more negative than those living in Ceylanpınar and Haliliye regarding the statement ‘pasture areas are sufficient.’

Table 9: The statement ‘pasture areas are sufficient’ based on multiple comparison test results

Group 1-Group 2	Test statistics	Std. error	Std. test statistics	p values	Adj. p values
Districts					
Siverek-Eyyübiye	-33.051	10.051	-3.288	0.001	0.045
Siverek-Haliliye	-50.289	9.525	-5.279	0.000	0.000
Siverek-Ceylanpınar	59.275	11.767	5.037	0.000	0.000
Viranşehir-Haliliye	-36.483	10.341	-3.528	0.000	0.019
Viranşehir-Ceylanpınar	45.470	12.436	3.656	0.000	0.012
Experience					
>40, 11-20	23.581	8.287	2.845	0.004	0.044
>40, 31-40	28.381	8.776	3.234	0.001	0.012

>40, 1-10	39.000	12.844	3.036	0.002	0.024
Number of small livestock					
>1000, 301-600	20.437	8.269	2.471	0.013	0.081

When examining the variable of livestock farming experience in Table 9, the mean rank of those with “40 years or more” (mean rank: 48.33) is lower than that of the groups with “31-40” (mean rank: 76.71), “11-20” (mean rank: 71.91), and “1-10” (mean rank: 87.33) years of experience. Accordingly, the difference stems from the fact that those with over 40 years of experience are more negative about the statement that "pasture areas are sufficient’ compared to those with 31-40, 11-20, and 1-10 years of experience. When examining the variable ‘number of animals owned’ in Table 9, the mean rank of those with “over 1000” small ruminants (mean rank: 55.29) is lower and statistically significant compared to those with “301-600” small ruminants (mean rank: 77.73). Accordingly, the difference stems from the fact that those with “over 1000” small ruminants are more likely to disagree with the statement that “pasture areas are sufficient” compared to those with “301-600” small ruminants.

Discussion

This study examined the perceptions of small ruminant farmers in Şanlıurfa province regarding their technical knowledge and skills, access to technical support, ability to find shepherds, and adequacy of pasture areas, as well as the socio-economic and operational structural characteristics that influence these perceptions. The findings were evaluated by comparing them with similar studies in the literature.

According to the findings of the study, small ruminant farmers in Şanlıurfa showed moderate participation in the statement ‘I have sufficient technical knowledge and skills in small ruminant farming’ (average score 2.93). This perception shows significant differences according to factors such as the district where the farmers live, their level of education, the number of people working in animal husbandry, and the number of animals. In particular, it was determined that farmers living in Viranşehir have a more negative perception of technical knowledge and skills compared to those in Siverek and Ceylanpınar, and that high school graduates have a more negative perception compared to those who are literate, primary school graduates, and secondary school graduates. Additionally, it was observed that this perception becomes more negative as the number of people working in livestock farming decreases and the number of animals decreases. Age and livestock farming experience, however, do not have a statistically significant effect on this perception.

These findings are similar to some studies in the literature but differ from others. For example, Serttaş et al. (2022) conducted a study in the Hocalar district of Afyonkarahisar that revealed the majority of small ruminant farmers (93.30%) did not experience difficulties in obtaining information support. This situation indicates that the technical knowledge perception of farmers in Şanlıurfa is lower than that of farmers in Afyonkarahisar. However, the study by Serttaş et al. addressed the availability of information support in general and did not directly measure the perception of technical knowledge and skills. Çetinkaya et al. (2023), who examined the satisfaction status of small ruminant producers in Kahramanmaraş province, observed that there was no significant relationship between the educational status of producers and their likelihood of being satisfied with small ruminant farming. In our study, it was also found that educational level had a significant effect on the perception of technical knowledge and skills. Karakuş and Akkol (2013) noted that producers faced structural and technical problems, along with knowledge gaps in breeding, feeding, and health protection, which affected the productivity of small ruminant livestock farms in Van province. This finding supports the moderate level of technical knowledge and skill perception among producers in Şanlıurfa. Acıbuca and Budak (2021) observed that as the number of animals increased, the desire to access information also grew among small ruminant farming operations in Mardin Province. This observation supports the relationship between the number of animals and the perception of technical knowledge in our study.

In our study, the overall average score for the statement ‘I can access technical support when I need it’ was determined to be 2.61. This indicates that farmers demonstrated moderate participation in terms of access to technical support. According to the results of the Kruskal-Wallis Test, there was no statistically significant difference in farmers' perceptions of access to technical support according to district, age, education, and livestock farming experience factors; however, the number of people working in livestock farming (marginally significant) and the number of animals (highly significant) were found to be effective factors for this perception. In particular, it was observed that the perception of access to technical support changed positively as the number of animals increased. Karakuş and Akkol, who examined the problems of small ruminant livestock farms in Van province, stated that farmers lacked knowledge and that the potential existing in the region was not sufficiently reflected in production. This situation emphasises the importance of the perception of access to technical support. Access to technical knowledge is critical for increasing productivity and solving problems. Bilginturan and Ayhan (2009), who investigated the problems of sheep farming operations in Burdur province, noted that sheep farmers in the region face structural, technical, breeding, housing, and product marketing issues. Technical support plays a significant role in resolving these issues.

In our study, the overall average score for the statement ‘I do not have difficulty finding shepherds’ among small ruminant farmers was found to be 2.05. This indicates that farmers experience moderate difficulty in finding shepherds. According to the results of the Kruskal-Wallis Test, statistically significant differences were found in farmers' perceptions of finding shepherds based on

district, age, number of people working in livestock farming, livestock farming experience (years), and number of animals (heads). In particular, it was found that farmers in the Viranşehir and Siverek districts face greater difficulties in finding shepherds compared to farmers in the Haliliye and Eyyübiye districts, while younger age groups (18–30 years) experience fewer difficulties than older age groups (51–60 years old and 61 and above). Additionally, it was observed that the difficulty in finding shepherds increased as the number of people working in livestock farming decreased, as livestock farming experience increased, and as the number of animals decreased. Educational level, however, did not have a significant effect on this perception. These findings are consistent with many studies in the literature. For example, in a study conducted by Aksoy and Yavuz (2012) in the Eastern Anatolia Region, alack of shepherds' was identified as an important factor among the reasons why farmers abandoned small ruminant farming. This situation indicates that the difficulty in finding shepherds is a regional problem and negatively affects farming activities. Acıbuca and Budak (2021), who examined the structural status of small ruminant farming operations in Mardin Province, noted that high feed costs and the shortage of shepherds are among the most important factors hindering the development of small ruminant farming activities. Similarly, Yıldız and Aygün (2021), who examined small ruminant farming activities and general problems in the central district of Van Province, stressed that the difficulty in finding shepherds, the inadequacy of veterinary services, the low demand for this employment sector among the young population, and the rapid increase in migration to large cities are among the most important problems. These studies support the notion that the difficulty in finding shepherds is a widespread and serious problem faced by the small ruminant livestock sector across Türkiye.

In our study, we found an overall average score of 1.83 for the statement 'Pasture areas are sufficient' among small ruminant farmers. This indicates that farmers have a high level of negative participation regarding the adequacy of pasture areas, meaning they believe they are insufficient. According to the results of the Kruskal-Wallis Test, statistically significant differences were found in farmers' perceptions of the adequacy of pasture areas based on the factors of district, livestock farming experience (years), and number of animals (heads). In particular, it was observed that farmers in Siverek and Viranşehir districts had a more negative perception of the inadequacy of pasture areas compared to farmers in Ceylanpınar, Haliliye, and Eyyübiye districts. Additionally, it was observed that the perception of the inadequacy of pasture areas increased as livestock farming experience increased and the number of animals decreased. No statistically significant relationship was found between the variables of age, education level, and number of people working in animal husbandry and the perception of the adequacy of pasture areas. These findings are consistent with the literature on the issue of pasture inadequacy, which is one of the major problems in small ruminant husbandry in Türkiye. Keskin and Bebek (2018), who examined the current status of sheep farming in Mersin province, stated that farmers face problems in product marketing, insufficient pastures, animal health, and breeding stock supply. This situation indicates that pasture inadequacy is a regional problem and supports our findings in Şanlıurfa. Dağıstan et al. (2008), who conducted a factor analysis of sheep farming activities, stated that factors such as farm size, profitability, feed input, unit costs, land, labour productivity, and grazing duration affect the success of sheep farming operations. Insufficient pasture areas, feed inputs, and grazing duration can directly affect these factors, thereby reducing the productivity of operations. Gürsoy (2009), who studied the organisation of small ruminant farming in Türkiye and the European Union, noted that agricultural organisation is low in Türkiye and that this has led to a decline in sheep and goat populations. The importance of organisation in the effective use and protection of pasture areas also emerges in this context.

Conclusion and Recommendations

This study has identified the main problems faced by small ruminant farmers in Şanlıurfa province and their perceptions of these problems. Technical knowledge and skill deficiencies, limited access to technical support, difficulties in finding shepherds, and insufficient pasture areas have been identified as the main factors threatening the sustainability of the sector. These issues are closely related to the socio-economic characteristics of the farmers and the structural characteristics of their operations.

Research findings indicate that multifaceted strategies are needed to increase productivity and develop the small ruminant farming sector. First, publications and training programs should be organised to improve the technical knowledge and skills of farmers, with a particular focus on small-scale farms with low levels of education. These programs should include practical information on modern farming techniques, animal health, and nutrition. The expansion of technical support services and improving access to these services are also of great importance. Mechanisms should be developed to encourage small-scale farms with few animals to access technical support.

The shortage of shepherds is one of the most pressing issues facing the sector. Therefore, incentives and training programs should be developed to increase the appeal of the shepherding profession and attract young people to this field. Within the scope of rural development projects, vocational training and certification programs targeting the shepherding profession can be organised. Additionally, ensuring social security for shepherds and improving their working conditions will also make this profession more attractive.

The inadequacy of pasture areas is another important issue that requires long-term and strategic solutions. Pasture improvement efforts should be accelerated, and modern pasture management techniques such as rotational grazing should be widely adopted. Developing alternative feed sources and educating farmers on this matter will help reduce pressure on pasturelands. Additionally, cooperation between local governments, universities, and farmer cooperatives should be strengthened to protect and effectively utilise pasturelands.

This study presents the current status and problems of the small ruminant livestock sector in Şanlıurfa, providing important information to policymakers and relevant stakeholders. Future research may focus on evaluating the effectiveness of policies developed to address these problems and examining in greater depth the problems faced by small ruminant livestock farms in different regions. Additionally, the perceptions of farmers regarding innovation and technology adaptation, as well as the barriers they face in this regard, could be investigated.

References

1. Acıbuca, V., & Budak, D. B. (2021). Mardin ilindeki küçükbaş hayvancılık işletmelerinin yapısal durumu. *Yuzuncu Yıl University Journal of Agricultural Sciences, 31*(4), 898–905. https://doi.org/10.29133/yyutbd.925141
2. Aksoy, A., & Yavuz, F. (2012). Çiftçilerin küçükbaş hayvan yetiştiriciliğini bırakma nedenlerinin analizi: Doğu Anadolu Bölgesi örneği. *Anadolu Tarım Bilimleri Dergisi, 27*(2), 76–79. https://doi.org/10.7161/anajas.2012.272.76
3. Bilginturan, S., & Ayhan, V. (2009). Burdur ili damızlık koyun ve keçi yetiştiriciler birliği üyesi koyunculuk işletmelerinin yapısal özellikleri ve sorunları üzerine bir araştırma. *Journal of Animal Production, 50*(1), 1–8. https://dergipark.org.tr/tr/pub/hayuretim/issue/7615/99790
4. Çetinkaya, S., Akbay, C., & Güneş, A. (2023). Kahramanmaraş ilindeki küçükbaş hayvan üreticilerinin memnuniyet durumunu etkileyen faktörlerin belirlenmesi. *Tarım Ekonomisi Dergisi, 29*(2), 107–115. https://doi.org/10.24181/tarekoder.1378953
5. Dağıstan, E., Koç, B., Gül, A., & Gül, M. (2008). Koyunculuk üretim faaliyetinin faktör analizi: Orta-Güney Anadolu örneği. *Yuzuncu Yıl University Journal of Agricultural Sciences, 18*(2), 67–77. https://dergipark.org.tr/en/pub/yyutbd/issue/21988/236080
6. Günaydın, G. (2009). Koyun yetiştiriciliğinin ekonomi politiği. *Uludağ Üniversitesi Ziraat Fakültesi Dergisi, 23*(2), 15–32. https://dergipark.org.tr/tr/pub/ziraatuludag/issue/16754/174181
7. Gürsoy, O. (2009). Türkiye ve Avrupa Birliğinde küçükbaş hayvan yetiştiriciliğinde örgütlenme. *Uludağ Üniversitesi Ziraat Fakültesi Dergisi, 23*(2), 79–95. https://dergipark.org.tr/tr/pub/ziraatuludag/issue/16754/174185
8. IBM. (2020a). *Post Hoc Comparisons for the Kruskal-Wallis Test*. https://www.ibm.com/support/pages/post-hoc-comparisons-kruskal-wallis-test
9. IBM. (2020b). *The Calculation of Bonferroni-Adjusted p-values*. https://www.ibm.com/support/pages/calculation-bonferroni-adjusted-p-values
10. Karakuş, F., & Akkol, S. (2013). Van ili küçükbaş hayvancılık işletmelerinin mevcut durumu ve verimliliği etkileyen sorunların tespiti üzerine bir araştırma. *Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 18*(1–2), 9–16. https://dergipark.org.tr/tr/pub/yyufbed/issue/21968/235863
11. Keskin, M., & Bebek, D. T. (2018). Mersin ilinde koyun yetiştiriciliğinin mevcut durumu bazı verim ve yapısal özellikleri. *Mustafa Kemal Üniversitesi Ziraat Fakültesi Dergisi, 23*(2), 315–323. https://dergipark.org.tr/tr/pub/mkuzfd/issue/41577/423761
12. Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association, 47*(260), 583–621. https://doi.org/10.2307/2280779
13. Newbold, P., Carlstone, W. L., & Thome, B. M. (2012). *Statistics For Business and Economics*. Pearson Education.
14. Palabıçak, M. A., & Binici, T. (2023). Investigating the effects of dynamics and crises on livestock production in developing countries by using time series and future forecasting with ARIMA; a case study of sheep production in Türkiye. *Applied Ecology and Environmental Research, 21*, 5785–5806. https://doi.org/10.15666/aeer/2106_57855806
15. Serttaş, İ., Akbaş, A. A., & Sarı, M. (2022). Afyonkarahisar ili Hocalar ilçesindeki küçükbaş hayvancılık işletmelerinin mevcut durumunun belirlenmesi. *Veterinary Journal of Mehmet Akif Ersoy University, 7*(1), 34–42. https://doi.org/10.24880/maeuvfd.1003515
16. Sevinç, G., & Binici, T. (2016). Kırsal Alanda Sosyal Destek Projesi (Kasdep) kapsamında kurulan damızlık sığır yetiştiriciliği kooperatiflerinin genel durumu, sorunları ve çözüm önerileri (Şanlıurfa örneği). *Harran Tarım ve Gıda Bilimleri Dergisi, 20*(3), 214–222. https://doi.org/10.29050/harranziraat.259114
17. Sevinç, G., Şahin, Z., & Aydoğdu, M. H. (2022). Türkiye'nin küçükbaş hayvan varlığı ile süt üretimindeki gelişmelerin son dönemlerindeki trend analizi. *International Academic Social Resources Journal, 7*(35), 377–384.
18. Yıldız, A., & Aygün, T. (2021). Van ili merkez ilçede küçükbaş hayvancılık faaliyetleri ve genel sorunlar: I. işletmelerin yapısal özellikleri. *Hayvan Bilimi ve Ürünleri Dergisi, 4*(1), 23–36. https://doi.org/10.51970/jasp.891211