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Constraints perceived by the small ruminant farmers of Tamil Nadu: The socio-economic determinants

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Abstract

Marketing of sheep and goat is associated with the unique set of conditions, which make it highly risky and laborious, besides the prevalence of relative imperfection in the marketing mechanism. The study was conducted in four districts of Tamil Nadu, viz., Salem, Tirunelveli, Villupuram and Virudhunagar. From the selected four districts, a sample of 120 sheep and goat farmers (30 from each district) were selected by multi-stage random sampling procedure. A personal interview method was adopted for the collection of primary data. The findings of the study revealed that the foremost constraint perceived by the sheep farmers was the foremost constraint perceived by the sheep farmers was the Unremunerative price for their animals followed by improper method of pricing by middlemen, non-availability of required fodder / grazing lands and absence of proper marketing agency for selling of small ruminants. The results of the study on the factors influencing the intensity of constraints showed that among the thirteen variables included in the analysis, six variables viz., Experience ($P < 0.01$), family income ($P < 0.05$), flock size ($P < 0.01$), deworming practice ($P < 0.01$), marketing channel and mortality ($P < 0.05$) were found to be statistically significant. The variables, Experience, family income, flock size, deworming practice and marketing channel were found to be negatively associated with the intensity of constraints in sheep farming while the variable, mortality was positively associated with the intensity of constraints.

Keywords: constraints, production, marketing, perception, sheep and goat farmers

Introduction

Sheep and Goat rearing is an important means of livelihood in the rural areas. As per the 20 livestock census, total livestock population in the country was 535.78 million numbers in 2019, among which, small ruminants contribute 223.14 million numbers [1]. Meat production in India was 8.14 million tonnes in 2019-2020. The sheep and goat rearing is an important livelihood activity for the rural poor. Apart from providing regular income, they act as an asset which could easily be converted into cash. Many rural families plan their yearly financial activity such as meeting out the educational expenses and marriages, etc., through selling young ones.

Marketing of sheep and goat is associated with the unique set of conditions, which make it highly risky and laborious, besides the prevalence of relative imperfection in the marketing mechanism. Small ruminants are marketed with the help of unscrupulous middlemen rounding off lion's share of transaction, *ipso facto* depriving both sellers and buyers of their due share. Most of the small ruminant farmers, especially small holders, stock their animal upto a period of production, and thereafter, they are forced to sell the animals in order to make as much earning as possible. Overall, livestock marketing is mostly a forced activity and is under stress. In spite of the above facts, the sheep and goat farmers are often facing many problems in marketing their animals and in getting remunerative prices for their animals in the study area. Hence, the result of the study would throw light on the problems faced by the sheep and goat farmers, which would be useful for the planners and policy makers to make suitable interventions in their supply chain and consequently increase their profit margin and livelihood.

Materials and Methods

The study was conducted in four districts of Tamil Nadu, viz., Salem, Tirunelveli, Villupuram and Virudhunagar, which constitute 21.79 percent and 71.46 percent of the total sheep and goat population respectively of the state (Integrated sample survey, 20th livestock census). The most observable fact is that most of the families in these areas were engaged with agricultural activities and rearing the livestock as their secondary income source.

From the selected four districts, a sample of 120 sheep and goat farmers (30 from each district) were selected by multi-stage random sampling procedure. A personal interview method was adopted for the collection of primary data. The pertinent data were collected through personal questioning, by interviewing the sample farmers and market functionaries with the help of well-structured and pre-tested interview schedule.

Constraints perceived by the sheep and goat farmers Likert's scaling system with 5-point continuum scale

A Likert scale presents the respondent with a statement and asks the respondent to rate the extent to which he or she agrees with it.

The Likert Scale is the most commonly used scale in quantitative research.

- i. It is designed to determine the opinion or attitude of a subject
- ii. It contains a number of statements with a scale after each statement

To analyse the constraints perceived by the small ruminant farmers in production and marketing a list of 14 constraints were enlisted [2]. For every constraint, the farmers were asked to select the scales/extent of constraints which were ordered as per Likert scale [3]. The original version of the scale included five response categories and each scale was assigned

a value. The most negative response was given a numerical value of 1 and the most positive response was given a numerical value of 5.

- 5 = Very severe constraint
- 4 = Severe constraint
- 3 = Moderate constraint
- 2 = Low constraint
- 1 = Not constraint

The answer given by each sheep and goat farmers were added for every single constraint, which would give the intensity/severity of the particular constraint. Based on the order of score obtained by every constraint, the constraints were prioritized.

Factors influencing the intensity of constraints perceived by the small ruminant farmers

The scores obtained for each of the constraints were added together for each and every respondent farmer; which would give the severity/ intensity of constraints faced by each farm. To analyse the factors associated with the severity of constraints the following multiple linear regression model was fitted.

A linear regression model was used to determine the factors associated with the intensity of constraints perceived by the small ruminant farmers. A multiple linear regression analysis was used to estimate the model.

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \dots + \beta_{13}X_{13} + \mu$$

Where,

Y = Intensity of constraints/Constraints score

X_i = Independent variables

α = Intercept

β_i = Regression coefficients to be estimated

μ = stochastic disturbance term

Table 1: Specification of the variables used in the model

X _i	Explanatory Variables	Specifications
X ₁	Age of the sheep and goat farmer	In years
X ₂	Experience in sheep and goat farming	In years
X ₃	Main Occupation	1- Sheep and goat farming 2- Animal Husbandry 3- Agriculture and Others
X ₄	Income of family	Income of the family in Rupees
X ₅	Land holding of sheep and goat farmers	In acres
X ₆	Flock size	In numbers
X ₇	Source of capital	1- If Others 2- If Self
X ₈	Veterinary Expenses	1- If Not followed 2- If Irregular 3- If Regular
X ₉	Deworming Practice	1- If Yes 0 - If No
X ₁₀	Marketing Channels	1- If Through Intermediates 2- If Direct sale
X ₁₁	Mortality rate	In percentage
X ₁₂	Type of Rearing	1- If Nomadic 2- If Static
X ₁₃	Labour	Labour in man day

Results and Discussion

The results of the study are given in Table No. 2 and 3. The table No. 2 depicts the prioritised constraints perceived by the sheep and goat farmers. From the table it could be seen that

the foremost constraint perceived by the sheep farmers was the Unremunerative price for their animals (468) followed by improper method of pricing by middlemen (464), non-availability of required fodder /grazing lands (451 score) [4]

and absence of proper marketing agency for selling of small ruminants (432). Pradheeshwaran *et al.* [2] reported that absence of organized marketing agency was the major marketing constraints perceived by sheep farmers in Northern Tamil Nadu. Singaravadivelan [4] reported lack of sufficient grazing lands and better marketing as the important

constraints in migratory sheep farming. Similar findings were made by [5].

Apart from above mentioned constraints, other constraints faced by the sheep farmers in the study area were Theft of animal, disease outbreak and Lack of marketing information.

Table 2: Constraints in Small ruminant farming and marketing

Sl.No.	Constraints	Constraints score	Rank
1	Absence of organized marketing agency	432	4
2	Lack of marketing information	394	7
3	Disease outbreak	416	6
4	Poor credit facility	332	10
5	Non availability of required feed /fodder/Grazing land	451	3
6	Less conception rate	311	14
7	Improper method of pricing by middlemen	464	2
8	Lack of transport facility	316	13
9	Poor Veterinary health care facility	321	12
10	Theft of animal	424	5
11	Unremunerative price	468	1
12	High cost of concentrate feed	372	8
13	Cost of medicine / vaccine	356	9
14	Inadequate knowledge about the improved scientific practices	326	11

A multiple linear regression model was used to determine the factors associated with the intensity of constraints in sheep and goat farming and the results are presented in Table 3. The adjusted co-efficient of multiple determination (Adjusted R²) was found to be 0.902, which indicated that 90.20 per cent of the variation in dependent variable was explained by the independent variables. The F value (52.639) of the function was found to be significant at one per cent level ($P < 0.01$). Among the thirteen variables included in the analysis, six variables viz., Experience ($P < 0.01$), family income ($P < 0.05$), flock size ($P < 0.01$), deworming practice ($P < 0.01$), marketing

channel and mortality ($P < 0.05$) were found to be statistically significant. The variables, Experience, family income, flock size, deworming practice and marketing channel were found to be negatively associated with the intensity of constraints in sheep farming while the variable, mortality was positively associated with the intensity of constraints. It could be inferred from the results that the small ruminant farmers with lesser experience, lower family income, smaller flock size, not following deworming practice in their farm, marketing with indirect channels and the farms with higher mortality had higher constraint intensity.

Table 3: Factors influencing the intensity of constraints in Small ruminant farming and marketing

Sl. No.	X _i	Variables	Constraint Co-efficient	t-statistics
	A	Constant	23.419**	18.539
1	X ₁	Age of the sheep and goat farmer	0.027	0.481
2	X ₂	Experience in sheep and goat farming	-0.236**	-7.928
3	X ₃	Main Occupation	0.082	1.839
4	X ₄	Income of family	-0.091*	2.243
5	X ₅	Land holding of sheep and goat farmers	-0.003	1.173
6	X ₆	Flock size	-0.319**	-9.864
7	X ₇	Source of capital	0.012	1.591
8	X ₈	Veterinary Expenses	-0.083	1.894
9	X ₉	Deworming Practice	-0.286**	-9.136
10	X ₁₀	Marketing Channels	-0.129*	-2.791
11	X ₁₁	Mortality rate	0.089*	2.212
12	X ₁₂	Type of Rearing	-0.002	0.954
13	X ₁₃	Labour	-0.017	1.649
R ²			0.918	
Adjusted R ²			0.902	
F statistics			52.639**	
N			120	

**Significance at one per cent level * Significance at five per cent level

Conclusion

The findings of the study concluded that the foremost constraint perceived by the sheep farmers was the unremunerative price for their animals. The results of the study on the factors influencing the intensity of constraints showed that the variables, Experience, family income, flock

size, deworming practice, marketing channel and mortality were found to be statistically significant. Considering the socio-economic background of the small ruminant farmers, the planners and policy makers should make suitable interventions to alleviate the constraints in their supply chain and consequently increase their profit margin and livelihood.

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