



Original Research

Factors Influencing the Constraints Perceived by the Small Scale Backyard Goat Farmers

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Abstract

A study was carried out to analyze the constraints in the small scale backyard goat farming in Perambalur district of Tamil Nadu. The data for the study was collected from 60 backyard goat farmers' by simple random sampling method. Constraints in the various categories of goat farming were analyzed using Likert scale. Lack of knowledge about balanced feeding, non-availability of improved breeding bucks, higher mortality rate in kids, exploitation by middlemen, lack of willingness in youths to take up the goat farming, attack of goats / kids by predators were perceived as major constraints in backyard goat farming. The factors influencing the intensity of constraints were analyzed by multiple linear regression. Among the eight demographic and farm related variables taken as explanatory variables, five variables viz. educational status, occupation, distance from the veterinary hospital, distance from the market and experience in the goat farming were found to be associated with the constraint score in a significant manner.

Key words: Backyard Goat Farming, Constraints, Goat, Multiple Linear Regression

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Introduction

India is mainly an agriculture based country. Most of the small, marginal and landless farmers are depending on livestock for their livelihood. Goats are referred as poor man's cow. India ranks second in goat population in the world, holds 135.17 million numbers of goats. Goats are one of the main components of livestock in India which contributes about 26.40 per cent of total livestock population in the country. The total number of goats in Tamil Nadu state was 8.14 million (19th Livestock census of India, 2012). Backyard goat farming is largely practiced by the resource poor households for family support purposes because of



their low initial investment. Though the goat farmers earn profit from the goat farming, they face lots of problems in day to day farming activities which reduces their income, hence this study was conducted to analyze the constraints in the small scale backyard farming and the factors influencing the constraints.

Materials and Methods

For the present study, Perambalur district of Tamil Nadu state was purposively selected as most of the farmers were depending mainly on agriculture and livestock and the study area is mainly irrigated by rain. A total number of 60 goat farmers were selected through simple random sampling technique from 10 villages (6 farmers from each village). The data were collected by using pre-tested interview schedule and data were related to the year 2016-17. The constraints perceived by the backyard goat farmers in health, feeding, breeding and marketing were enlisted under each of the management category and analyzed using five point Likert scale (Sorathiya *et al.*, 2016). For every constraint, the farmers were asked to select the scales/extent of severity constraints. The original version of the scale included five response categories and each response category 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 (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree). The response given by each farmer was added to every individual constraint, which would yield the intensity/severity for the concerned constraints. Ranking of the constraints was done based on the order of score obtained for every constraint.

Multiple linear regression function of the following form was fitted to study the factors which are influencing the intensity of the constraints perceived by the goat farmers in backyard goat farming.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu$$

Where,

Y	=	Constraint score
α	=	Constant term
β_i 's	=	Regression coefficients
X_i	=	Demographic and farm related variables
μ	=	Random disturbance term; ($\mu_i \sim 0, \sigma_i^2$)

The explanatory variables (X_i) used in this analysis include:

X_i	Variables
α	Constant
X_1	Land holding in acres
X_2	Educational status (Illiterate=1, Primary=2, secondary=3, Collegiate=4)
X_3	Occupation (1 if livestock and 0 for others)
X_4	Total livestock holding (number of animals)
X_5	Flock size in terms of number of goats
X_6	Distance from the Veterinary hospital (in Kms)
X_7	Distance from the livestock market (in Kms)
X_8	Experience in goat farming (in years)

Result and Discussion

The constraints perceived in backyard goat farming were collected from the goat farmers and compared for their order of importance. The total scores calculated for feeding, breeding, health, marketing and management constraints were ranked and the results are presented in Table 1, 2, 3, 4 and 5, respectively.

Feeding Constraints

Feeding constraints perceived by the backyard goat farmers are summarized in Table 1. From the table, it is evident that lack of knowledge about importance of mineral mixture was the major constraint with the constraint score of 209 (I), followed by lack of knowledge about balanced feeding (score 202- II), non-availability of green fodder (score 161 -III), shrinkage of grazing land (score 159- IV) and high cost of feed and fodder (score 109 -V). Similar results were observed by Rajkumar and Kavitha (2014), Tanwar (2012) and Sabapara *et al.* (2014). The study area mainly depends on rain fed irrigation, hence agricultural activities happens only for 6-8 months in a year which leaves the animals with fodder scarcity during rest of the year. The grazing lands are being slowly converted into cultivable lands and for other commercial purposes, hence the grazing land for the goats' decreases day by day.

Table 1: Feeding constraints perceived in backyard goat farming

S. No.	Constraints	Constraint Score	Per cent	Rank
1	Lack of knowledge about importance of mineral mixture	209	24.88	I
2	Lack of knowledge about balanced feeding	202	24.04	II
3	Non-availability of green fodder	161	19.16	III
4	Shrinkage of grazing land	159	18.92	IV
5	High cost of feeds and fodder	109	12.97	V
Total		840	100	

Breeding Constraints

It was observed from the Table 2 that among the breeding constraints, lack of knowledge about breeding practices were the major constraints with the constraint score of 244 and it was considered as the most serious constraint perceived by most of the goat farmers, followed by non-availability of improved breeding bucks (total score 186-II) and delay in puberty in goat (total score 178-III). These findings were in agreement with the findings of Tanwar (2011) and Rajkumar and Kavitha (2014), Senthil (2017), Kumar *et al.* (2017) and Maousami *et al.* (2017). Since most of the farmers are not aware of the improved scientific breeding practices they follow inbreeding which leads to the subsequent generations of less efficient kids in terms of production.

Table 2: Breeding constraints perceived in backyard goat farming

S. No.	Constraints	Constraint Score	Per cent	Rank
1	Lack of knowledge about breeding practices	244	40.13	I
2	Non-availability of improved breeding bucks	186	30.59	II
3	Delay in puberty in goat	178	29.27	III
Total		608	100	

Health Constraints

Health constraints perceived by the backyard goat farming are summarized in Table 3. The table reveals that high mortality rate in kids was the most important constraint (I) with total constraint score of 214, followed by lack of knowledge about diseases with total score of 202 (II), high incidence of disease with total score of 189 (III), problems of pre-mature delivery/ abortion with total score of 176 (IV) and lack of veterinary services with the score of 141 (V). These findings were similar to that of Kirar *et al.* (2013), while contradictory to those reported by Tanwar (2011), Wani *et al.* (2009) and Senthil (2017). Kumar *et al.* (2017) has also reported that lack of knowledge on diseases as a major constraint.

Table 3: Health constraints perceived in backyard farming

S. No.	Constraints	Constraints Score	Per cent	Rank
1	High mortality rate in kids	214	23.21	I
2	Lack of knowledge about disease	202	21.9	II
3	High incidence of disease	189	20.49	III
4	Problems of pre-mature delivery/ abortion	176	19.08	IV
5	Lack of veterinary services	141	15.29	V
Total		922	100	

The higher rate of mortality in kids was due to lack of knowledge of the farmers about the diseases and lack of management skills during the earlier stages of kids life and advanced stages of pregnancy. The findings indicated the necessity of creating awareness about the prevailing diseases and providing veterinary healthcare facilities including vaccination against contagious diseases of goats such as PPR, goat pox, enterotoxaemia, *etc.*

Marketing Constraints

The marketing constraints noticed in backyard goat farming are summarized in Table 4. It revealed that middle man not providing remunerative price was the foremost constraint (I) with the total score of 284, followed by low market price for goats (II) with constraint score of 283 and distant located goat market (III). As the backyard goat farmers are engaged in agriculture and other livestock activities (such as grazing and cleaning the shed, bringing the fodder for animals and other family commitments) and depend on middleman for marketing of their goats in the distant market, they are not involved in the marketing and they were paid less price for the goats and hence they felt low price for goats as the major constraint.

Exploitation by middleman and absence of organized marketing agency hindered the backyard goat farmers in getting their reasonable profit. These findings were in agreement with the earlier studies of Meganathan *et al.* (2010), Tanwar (2012), Sabapara *et al.* (2014) and Senthil (2017). In addition to the above mentioned constraints lack of marketing infrastructure and no agency help in marketing of goats were also reported by the goat farmers.

Table 4: Marketing constraints perceived in backyard goat farming

S. No.	Constraints	Constraints Score	Per cent	Rank
1	Middleman not providing remunerative price to kids	284	34.71	I
2	Low market price for goat	283	34.59	II
3	Distant goat market	251	30.68	III
Total		818	100	

Management Constraints

Management constraints perceived among backyard goat farms are presented in Table 5. Farmers expressed that lack of willingness among young generation in goat rearing as their major constraints (constraints score of 196) followed by lack of money (total score of 174), attack of predators (total score 167) and complaints from neighbors (total score of 142). Lack of willingness among younger generation to rear goats was observed to be notable constraint, this might be because of the rural youths are attracted towards opportunities in white collar jobs and they find goat rearing as non-remunerative and not a reasonable job. The present findings were contradictory to the results reported by (Kirar *et al.*, 2013, attack of predators as least constraint); (Jana *et al.*, 2014, attack of predators and complaints by neighbors as lesser constraint), Naidu *et al.* (2016) and Senthil (2017). Predation by stray dogs were considered as one of the major constraints in the study area and there should be some measures to control the population of stray dogs especially during the summer seasons because during summer days most of the animals were left to graze without the care takers.

Table 5: Management constraints perceived in backyard goat farming

S. No.	Constraints	Constraints Score	Per cent	Rank
1	Lack of willingness in young generation in goat rearing	196	28.86	I
2	Lack of money	174	25.62	II
3	Attack of predators	167	24.59	III
4	Complaints by neighbors	142	20.91	IV
Total		679	100	

Factors Influencing the Intensity of the Constraints Faced By the Backyard Goat Farmers

Multiple linear regression function was fitted to assess the contribution of different factor to the intensity of constraints perceived by the backyard goat farmers. The results of regression analysis to analyze demographic and farm related variables associated with constraints perceived by the backyard goat farmers

are given in the Table 6. It could be noted that the F-value of the function was statistically significant at 99 per cent level ($P < 0.01$). Further the co-efficient of multiple determinations (adjusted R^2) of the estimated regression equation was 0.777 indicating that 77.7 per cent of the variations in the constraint score was explained by independent variables included in the study.

Table 6: Factors influencing the intensity of the constraints in the goat farming

X_i	Variables	Coefficients β_i	t-statistic	P-value
α	Constant	100.057	33.023	0
X_1	Land holding	-.203 ^{NS}	-1.412	0.164
X_2	Educational status	-3.538**	-7.477	0
X_3	Occupation (1 if livestock and 0 for others)	-5.900*	-2.653	0.011
X_4	Total livestock holding	.046 ^{NS}	0.312	0.757
X_5	Flock size in terms of number of animals	-.024 ^{NS}	-0.133	0.895
X_6	Distance from the Veterinary hospital	.788**	-3.128	0.003
X_7	Distance from the livestock market	.947**	3.696	0.001
X_8	Experience in goat farming	-.138**	-3.079	0.003

F-value = 26.709**; $R^2 = 0.807$; Adjusted $R^2 = 0.777$; * - $P < 0.05$; ** - $P < 0.01$

Among the eight demographic and farm related variables taken as explanatory variables, five variables viz., educational status, occupation, distance of veterinary hospital, distance of the market and experience in the goat farming were found to be associated with the constraint score in a significant manner and other variables were statistically non-significant. Educational status of the farm owner, occupation, distance of the veterinary hospital, distance of the market and experience in the goat farming were significant at 99 per cent level ($P < 0.01$). In which educational status of the farm owner, occupation and experience in the goat farming were influencing the constraint score negatively, while distance of the veterinary hospital and distance of market were influencing the constraint score positively. It could be concluded that as the educational status increases the intensity of the constraints decreases this might be because of the fact that as educational status increases they have more knowledge and awareness which reduces the intensity of constraints. Shorter the distance to the hospital the goat farmers will have more access to the health facilities and the constraint score was less. As the distance to the market increases, dependency on the middle man for marketing of goats increase thus leads to higher intensity of constraint score. Likewise as the experience in goat farming increases the goat farmers will have more knowledge about the prevailing conditions of goat farming, hence the constraint intensity decreases.

Conclusion

Goat farmers may be given the trainings about the various improved goat management practices such as breeding and feeding etc., Exploitation of middleman could be controlled through organization of local goat farmers. Rural youths might be encouraged to take up the goat farming practices. Credit facilities and subsidized schemes might be implemented to help the needy people.



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