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Constraints in Livestock Rearing among Resource Poor Farmers in Rural Tamil Nadu

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Authors' contributions

This work was the part of PhD thesis of the author GSK, who designed the study, performed the statistical analysis and wrote the manuscript. This work was carried out in collaboration between all authors. Author KNS acted as chairman and guided the above research work. Authors MP, ASSP and CV acted as the members of the advisory committee for the research work. Author MSK involved in data analyses. All authors read and approved the final manuscript.

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ABSTRACT

The present study was undertaken in rural Tamil Nadu to explore various constraints in livestock rearing in rural Tamil Nadu using randomly selected 100 dairy farmers and 113 sheep and goat farmers from six sample districts. The data pertaining to the objectives of the study were collected through personal interview. Most of the poor livestock farmers expressed fodder shortage (with RBQ more than 60), water scarcity (RBQ – around 60 for buffalo and sheep), labour problems (RBQ – 55.71 to 62.08) as their major constraints. However, priority of the constraints varied with respect to the livestock species reared.

Keywords: Constraints; livestock; cattle; buffalo; sheep and goat; Rank Based Quotient.

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1. INTRODUCTION

Livestock rearing is critical for many of the poor in the developing world, often contributing to multiple livelihood objectives and offering pathways to come out of poverty. Livestock rearing also acts as an indispensable asset to the poor, their human capital, through its impact on their own nutrition and health [1]. Livestock also serves as the key risk mitigation tool especially for the poorest cultivators in rain-fed regions as they face uncertain and erratic weather conditions. With this background, the present study was conducted to explore various impediments in livestock rearing in rural Tamil Nadu.

2. MATERIALS AND METHODS

A Composite Index (CI) was constructed through factor analysis based on secondary data related to livelihood in order to select six sample districts of Tamil Nadu *viz.,* Thiruvannamalai, Villupuram, Dharmapuri, Pudukottai, Ariyalur and Ramanathapuram. Among the selected districts, Villupuram, Thiruvannamalai and Pudukottai districts contributed about 22 per cent of the total cattle population of the state. Similarly, the buffalo population of the selected districts *viz.,* Dharmapuri, Villupuram and Pudukottai districts comprised about one-tenth of the total buffalo population of the state. In case of small ruminants, Pudukottai district contributed remarkably in sheep (4.54 per cent) and goat (4.71 per cent) population of the state. Villupuram, Ramanathapuram and Thiruvannamalai districts were bestowed with notable proportion of the small ruminant population of the state. Thus a total sample of 100 dairy farmers were selected randomly from Thiruvannmalai, Villupuram and Dharmapuri districts and 113 sheep and goat farmers were randomly selected from the rest of the sample districts. The data pertaining to the objectives of the study like livestock farm size, management practices, investment, cost and returns and various constraints they perceive in farm management were collected through personal interview using structured pre-tested interview schedule. The period of data collection was from August 2013 to October 2014. The constraints which were encountered in various livestock farming activities were listed and the sample respondents were asked to rank those constraints. The data so obtained were quantified by calculating Rank Based Quotient (RBQ) as used by [2,3].

$$RBQ = \frac{\sum f_i (n+1-i)}{N\ n} \times 100$$

Where,

f_i : Frequency of farmers for the i^{th} rank of the attribute
N : Number of farmers contacted for factor identification
n : Maximum number of ranks given for various factors
i : Rank of the attributes

3. RESULTS

The constraints which were encountered in various livestock farming activities were enlisted along with the calculated RBQ scores for various livestock enterprises is shown in Table 1 and Table 2. The average herd / flock size of the cattle, buffalo, sheep and goat farms of the

Table 1. Impediments in cattle and buffalo farming as perceived by the sample respondents

Serial number	Constraints	Cattle		Buffalo	
		RBQ	Rank	RBQ	Rank
1	High feed cost	65.00	I	59.17	IV
2	Unremunerative price for milk	59.17	II	52.50	VII
3	Inadequate labour and high wage rate	58.75	III	62.08	II
4	Non-availability of paddy straw	53.13	IV	56.25	V
5	Disease outbreak and parasitic infestation	49.58	V	37.92	IX
6	Non-availability of pasture land / fodder	46.25	VI	68.75	I
7	Breeding problems	43.44	VII	51.67	VIII
8	Inadequate Rainfall and water scarcity	38.75	VIII	59.58	III
9	Poor productivity of animals	37.50	IX	23.75	X
10	Lack of finance / support from government	32.29	X	52.92	VI
11	Predators / thefts	24.90	XI	13.33	XII
12	Lack of marketing facility	22.08	XII	17.92	XI

RBQ – Rank Based Quotient

Table 2. Impediments in sheep and goat farming as perceived by the sample respondents

Serial number	Constraints	Sheep		Goat	
		RBQ	Rank	RBQ	Rank
1	Non-availability of pasture land / fodder scarcity	71.67	I	61.75	I
2	Inadequate rainfall and water scarcity	63.81	II	35.47	X
3	Inadequate labour and high wage rate	55.71	III	38.89	VII
4	High mortality rate	49.76	IV	42.20	V
5	Disease outbreak and parasitic infestation	45.48	V	59.40	II
6	Exploitation by middlemen	43.57	VI	38.35	VIII
7	Predators / thefts	41.90	VII	52.24	III
8	Lack of finance / support from government	39.76	VIII	39.10	VI
9	Poor productivity of animals	31.43	IX	48.72	IV
10	Lack of insurance coverage	19.52	X	10.47	XII
11	Breeding problems	13.57	XI	38.03	IX
12	High feed cost	11.19	XII	16.35	XI

RBQ – Rank Based Quotient

sample respondents were calculated as 2.31, 1.59, 55.83 and 8.50, respectively. Major breeds reared by the farmers were found to be cross-bred and non-descript animals and these animals act as the primary source of income for the resource poor farmers.

4. DISCUSSION

4.1 Dairy Cattle Farming

The study revealed that the majority of farmers expressed high feed cost as their prime constraint (RBQ: 65.00). The farmers felt that the price of cattle feed available in the market and price of the raw materials for dairy ration formulation was continuously increasing when compared to stagnant / slowly increasing milk price. The result concurs with the findings of [4,5]. Next major constraints were unremunerative price for milk (RBQ – 59.17), inadequate labour and high wage rate (RBQ – 58.75) and non-availability of paddy straw (RBQ – 53.13). The moderately felt constraints in dairy cattle farming were observed to be disease outbreak and parasitic infestations, non-availability of pasture land / fodder, breeding problems and water scarcity with the RBQ values ranging between 49.58 and 46.25. Better service delivery by the field veterinarians might have reduced the severity of constraint namely disease outbreak and parasitic infestation to moderate level. The results were in accordance with the previous studies of [6]. Lack of marketing facility was identified to be the least severe constraint (RBQ – 22.08), as the dairy cattle farmers had immediate access to milk co-operative societies and private dairies.

4.2 Dairy Buffalo Farming

Non-availability of pasture land / fodder was perceived to be the foremost constraint in buffalo farming with the highest RBQ of 68.75. The results concurs with the findings of [7]. As the farmers were resource poor, none of them cultivated green fodder and highly dependent on common pasture land for grazing. Shrinkage in grazing land and poor fodder output in grazing land lead to the farmers to perceive non-availability of pasture land / fodder as their major constraint. The reduction / shrinkage of common property resources of grazing land and water resources intensified the pressure among the buffalo farmers, who were highly dependent on these resources. Inadequate labour and high wage rate (RBQ – 62.08), inadequate rainfall and water scarcity (RBQ – 59.58) were perceived as next major constraints. High feed cost (RBQ – 62.08) and non-availability of paddy straw (RBQ – 56.25) were observed to be the next level constraints among buffalo farmers as the feed and fodder occupied major share in cost of production. Timely and superior service provided by the veterinarians reduced the breeding problems and disease incidence among the buffalo population.

4.3 Sheep Farming

Sheep farmers in the study area professed non-availability of pasture land (RBQ – 71.67) as their top-most constraint followed by inadequate rainfall and water scarcity (RBQ – 63.81). The findings were in line with [8,9]. The sole dependence of resource poor sheep farmers on natural resources might be the reason for the above results. Inadequate labour and high wage

rate (RBQ – 55.71) was felt as the next major constraint as the sheep farming is highly labour intensive due to grazing practice. High mortality rate (RBQ – 49.76) and disease outbreak and parasitic infestation (RBQ – 45.48) were identified to be moderately severe constraints among the sheep farmers. Further, it was noted that the exploitation by middlemen (RBQ – 43.57) was found to be an important constraint among sheep farmers due to lack of organized marketing facilities. Predators and theft (RBQ – 41.90) was also considered as notable constraint among sheep farmers. The least severe constraint as perceived by the sheep farmers in the study area were breeding problems and high feed cost.

4.4 Goat Farming

Similar to sheep, goat farmers also expressed their greater concern over non-availability of pasture land / fodder scarcity, which was reflected by the highest RBQ value of 71.67 and it concurs with the previous study by [7]. Disease outbreak and parasitic infestation (RBQ – 59.40) and predators / thefts (RBQ – 52.24) were considered as next major constraints, which concurred with the findings of [10]. They might have expressed this constraint, as the goats are docile and prone to be attacked by stray dogs. Poor productivity of animals and high mortality especially among kids were found to be moderately severe constraints among goat farmers. Lack of finance / support from Government was expressed by the goat farmers as sixth ranked constraint (RBQ – 39.10), followed by inadequate labour and high wage rate, exploitation by middlemen and breeding problems. High feed cost and lack of insurance coverage were felt to be the least severe constraints with the RBQ value of 16.35 and 10.47, respectively.

5. CONCLUSION

Most of the poor livestock farmers expressed fodder shortage and water scarcity as their major constraints in livestock rearing and they depend largely on common property resources. Hence, necessary steps have to be taken to improve the availability of common property resources (grazing land and water resources) without causing negative externalities. Further, fodder development programmes have to be implemented effectively at the grass root level to overcome fodder shortage. Low cost and area specific nutritive compounded feed might be produced and distributed at subsidized rate for the resource poor livestock farmers to improve the animal productivity. Further, various livestock development programmes should be framed and implemented by giving appropriate attention to the species specific constraints.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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