



Constraints Perceived by Small Scale Goat Farmers of Kamrup, Kamrup Metro and Morigaon Districts of Assam

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Authors' contributions

This work was carried out in collaboration among all authors. Author AKS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors DB and FA managed the analyses of the study. Authors PB and MN prepared the questionnaire and managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The present study was conducted to know the constraints perceived by the small scale goat farmers of Kamrup, Kamrup Metro and Morigaon districts of Assam. The data obtained on various constraints perceived by the goat farmers under the study were tabulated and analyzed statistically by using Garrett's Ranking Technique. The study was conducted at Goat Research Station, Assam Agricultural University, Burnihat, Kamrup Metro, Assam during the years, 2020-21 and 2021-22. For the purpose the research station prepared a questionnaire for surveying and data collection about various constraints faced by the goat farmers and entrepreneurs of three districts viz. Kamrup, Kamrup Metro and Morigaon who visited the station during the period for seeking advises and taking training on Scientific goat rearing and management. The farmers were asked to identify the constraints he/ she and their fellow farmers of their villages faced with respect to rearing of goats in their locality and to rank the constraints from 1 to 13 according to the seriousness of the constraints faced by them. The higher incidence of diseases was the major constraints of goat farmers with mean score of 77.66 and ranked first among the constraints in goat rearing. Scarcity of feed and

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fodder (63.76), lack of knowledge on scientific goat farming (63.25) and inadequate veterinary facilities (61.07) were ranked second, third and fourth major constraints, respectively. Similarly, high rate of kid mortality, lack of grazing land and scarcity of breedable male goat (buck) were ranked fifth, sixth and seventh, respectively as constraints in goat rearing. Non-availability of nutrient rich fodder trees/grasses, inbreeding, recurrent flood and lower sale prices of goats were some other constraints for the goat farmers surveyed during the study. From the study, it can be concluded that the small scale goat farmers of the districts of Kamrup, Kamrup Metro and Morigaon have a lot of constraints in goat rearing, the major being the incidence of diseases and scarcity of feed and fodder.

Keywords: Constraints; fodder trees; goat farmers; kid mortality.

1. INTRODUCTION

Small ruminant production is a very significant component of livestock production throughout the World and more especially developing countries like India. One of such small ruminant is goat that plays very important role in improving the socio-economic condition of the poor farmers and for which it is popularly known as the "Poor Man's Cow". The importance of goat can be judged by their number (148.88 million), which is around 27.78% of the total livestock population in India [1]. India ranks second in goat population which contributes about 19 % of the World goat population and the contribution of Assam towards country's goat population is 4.315 m, which is around 4.32 % of the country's population [1]. The greatest advantage and popularity in goat rearing relative to the large ruminants is due to their low cost, small size, their suitability to small holdings and their multipurpose use for meat, milk, fibre, manure etc. Goat rearing is an age old practice in Assam, especially in rural areas irrespective of any caste and community. The goat requires less investment and easy to manage even by children and women. Goat is mainly reared for meat purpose in Assam along with other North Eastern states. These states have very large non-vegetarian populations which do not have any religious taboo in consuming goat meat. Despite the high cost of goat meat compared to other types of meat, it is considered as the sign of delicacy in various social organization for which its demand has been increasing day by day. Goat rearing in Assam is still in traditional expensive system without adopting any scientific practices in terms of housing, breeding, feeding and management. Lately, some educated youths are coming forward to take goat as a commercial venture with scientific and systematic methods of rearing. Still the majority of the goat population is village based where numbers of constraints and drawbacks are observed with respects to various

aspects of goat rearing including housing, breeding, management and feeding. Goat farmers are facing some genuine problems like frequent disease occurrences, lack of healthcare facilities, shortage of feeds and grazing land, lack of organized market system etc. for which they are deprived of the desired productivity and economic benefits they supposed to get. Hence, the present study was undertaken with the objective of studying the major constraints in goat rearing faced by the small scale goat farmers of Kamrup, Kamrup Metro and Morigaon districts of Assam.

2. MATERIALS AND METHODS

The study was undertaken among the farmers of three districts viz. Kamrup, Kamrup Metro and Morigaon districts of Assam during 2020-21 and 2021-22 by the Goat Research Station, Assam Agricultural University, Burnihat, Assam. A questionnaire was prepared for data collection about various constraints faced by the goat farmers and entrepreneurs of these three districts who visited the station during that period for seeking advises and taking training on goat rearing and management. Out of two hundred goat farmers one hundred and fifty farmers were selected for the study on the basis of their experience in goat rearing and having a flock size of 5 to 15 goats. The goat farmers were asked to enlist the constraints faced by them and their fellow farmers of their villages with respect to goat rearing. Each of the respondents was asked to rank the enlisted constraints from 1 to 13 according to their seriousness. Rank 1 denoted the most severe while rank 13 denoted the least severe constraint. On the basis of the ranks allotted by the respondents, the severity of constraints was assessed. The data so collected were tabulated and analyzed statistically by using Garrett's Ranking Technique. The assigned ranks given by the respondents were

counted into percent position value by following formula:

$$\text{Percent position} = 100(\text{Rij} - 0.50)/\text{Nj}$$

Where, Rij= Rank given for the i^{th} factor by j^{th} individual; Nj=Number of factor ranked by j^{th} individual.

The percent position was then converted to scores by referring the table given by Garrett and Woodworth [2]. For each factor the scores of the individual respondents were added together and divided by the total number of respondents to get mean scores. All the enlisted constraints were ranked by assigning ranks in the descending order based on the mean score.

3. RESULTS AND DISCUSSION

Various constraints with their ranking according to their severity perceived by small scale goat farmers in Kamrup, Kamrup Metro and Morigaon districts of Assam are presented in the Table 1. Analyzing the data from the table it is found that higher incidence of diseases (Score 77.66) in goats is the most severe constraint faced by the small scale goat farmers and ranked first among all the constraints. Higher disease incidences in goat might be due mainly to improper healthcare management such as deworming and vaccination, improper housing management, imbalanced feeding and lack of knowledge about bio-security measures on the part of the farmers. Economic condition of the goat rearers also plays important role here as most of the farmers from rural areas are not sound economically; hence unable to provide required housing facilities and optimal feeding as per age and stage of growth

and production. Another reason for more incidence of disease in goat might be due to high humid climatic condition which creates conducive condition for various bacterial and fungal diseases and also infestation with external and internal parasites. Moreover, diseases like PPR, enterotoxaemia, pneumonia are more prevalent due to unhygienic management conditions of the farms which lead to more disease incidence and mortality of goats. There are also reports of higher incidence of diseases as a major constraint among the goat farmers of Southern Rajasthan and Dhubri district of Assam, respectively [3,4].

Scarcity of feed and fodder ranked second as the constraint in goat rearing with a mean score of 63.76 (Table 1) by the farmers. This might be due to degradation of common grazing lands, recurrent flood, increase in human population leading to deforestation as a result of human activities, increase in livestock population and lack of management of common grazing land. Scarcity of feed and fodder leading to nutrient deficiency has multifaceted effect on productivity of animal as well as the immunity of the animal causing higher disease occurrences. Non-availability of green fodder in Tamil Nadu emerged as the major constraints of goat rearing [5]. Some other researchers also opined that scarcity of feed and fodder was an important factor affecting goat farming in Dhubri district of Assam [4] and in Rajasthan [6]. Lack of knowledge on scientific goat farming was ranked as third major constraint in goat farming by the respondents with a mean score of 63.25. The goat farmers were also of the opinion that the traditional knowledge on goat farming is not

Table 1. Constraints perceived by small scale goat farmers in Kamrup, Kamrup Metro and Morigaon districts of Assam

Constraints	Garrett's Total Score	Garrett's Mean Score	Rank
Scarcity of breedable male goat (buck)	6656	44.37	VII
Scarcity of feed and fodder	9564	63.76	II
Lack of credit facilities	5650	37.67	XII
Lack of knowledge on scientific goat farming	9488	63.25	III
Lack of organized marketing facilities	6411	42.74	IX
Inadequate veterinary facilities	9160	61.07	IV
Recurrent flood / seasonal effect- rainy season	6187	41.25	XI
High rate of kid mortality	8022	53.48	V
Inbreeding (mating between close relatives)	6246	41.64	X
Lack of grazing land	7315	48.77	VI
Non-availability of nutrient rich fodder trees/grasses	6527	43.51	VIII
Higher incidence of diseases	11649	77.66	I
Lower sale prices of goats	4774	31.83	XIII

enough for modern goat production with commercial outlooks and required sufficient training on such aspects from which they have been deprived off. Inadequate veterinary facilities, a severe constraint (ranked fourth), with a mean score of 61.07, might be due to non-proportionate veterinary facilities to the livestock population and shortage of manpower in Animal Husbandry and Veterinary Department. The farmers could not avail necessary medical facilities timely due to non-availability of Veterinary Officers and efficient field staff leading to severity in diseased animals and their death in majority of the cases. Inadequate veterinary service was reported to be a major constraint among small scale pig farmers in state of Assam [4,7]. Poor veterinary infrastructure and services were also reported as important constraint in goat rearing in Ethiopia [8], Mathura [9], Jammu and Kashmir [10] and Uttar Pradesh [11]. Scarcity of some common medicines and vaccines against PPR, enterotoxaemia, goat pox etc. was a major problem of the goat farmers. Similarly, high rate of kid mortality with mean score of 53.48 was a fifth significant constraint perceived by the goat keepers under the study. Improper housing, various diseases like diarrhoea, pneumonia, parasitic infestation etc. and lack of knowledge about colostrum feeding to newborn kids and care to be taken during kidding were the major causes of kid mortality. The present findings were corroborated with the findings of some other study among goat keepers of Dhubri district of Assam [4]. Similar types of findings were also reported by few more researchers [3,12] in their respective study areas. Goat farmers of these three districts considered the lack of grazing land and scarcity of breedable male goat (buck) as some other hindrances for goat farming in rural areas and occupied sixth and seventh ranks respectively among thirteen constraints identified. Lack of grazing land might be due to ever increasing human population and lack of management of available grazing land by the farmers. Non-availability of pure breed buck was also reported as a constraint among the goat farmers of Burdwan district of West Bengal [13]. Non-availability of nutrient rich fodder trees/grasses was another constraint identified by the goat farmers in goat rearing and placed at eighth rank among the listed constraints. Some of other problems faced by the farmers surveyed during the study were found to be of lesser importance viz. lack of organized marketing facilities, inbreeding (mating between close relatives), recurrent flood / seasonal effect- rainy season, lack of credit facilities lower sale prices

of goats etc. There was paucity of organized marketing facilities in most of the districts of the state due to which the goat farmers were exploited by the middle men and they used to get less profit margin than they supposed to. Inbreeding is an important factor in rural areas as the same buck is used for mating progeny after progeny leading to inbreeding depression and poor growth performances of the goats. Inadequate availability of quality breeding buck was also reported by other researchers as one of the major breeding constraints in semi-arid regions of Rajasthan [6]. In some of the areas of the districts surveyed under the study recurrent flood or seasonal rain created problems in goat rearing due to occurrence of disease and shortage of fodders in that period. Similar types of constraints among the goat keepers of Dhubri district of Assam were also reported from a study [4]. It was also observed that the poor access to credit facilities to the goat farmers was another important constraint to improve overall goat husbandry practices, especially among landless, marginal and small farmers [14]. Lower sale price of goat was the least important constraint for the goat farmers of these districts as they practiced extensive system of rearing and spent very less amount of money in rearing their goats and satisfied with remunerative prices for their goats.

4. CONCLUSION

It can be concluded that the small scale goat farmers of the districts of Kamrup, Kamrup Metro and Morigaon have lot many constraints in goat rearing. However, addressing various constraints as per their merits and proper planning can minimize the severity of problems and ensures better productivity with higher margin of profit from small scale goat farming. For that to happen the farmers must have wide knowledge base on various aspects of goat management especially the diseases management by proper and timely vaccination and bio-security measures as the higher disease incidence was emerged as the most important constraint. Therefore, the small scale goat farmers may be trained through various short and long duration training programme by different training providers including Krishi Vigyan Kendras of different districts of the state for minimizing those constraints and to uplift the economic conditions of goat farmers. The problem of fodder shortage can be addressed by cultivation of perennial grasses like napier, guinea, setaria, para etc. and annual grasses like oats, maize, cowpea, pea, berseem, lucern, rina and by planting nutrient

rich trees such as subabul, jackfruit, *neem*, guava, moringa, mango, *soura*, *dimoru* etc. Problems of recurrent flood or seasonal rain can be addressed by cultivating extra fodder during other season and preserving them in the form of silage and hay.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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