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## Challenges and mitigation strategies in goat meat production for assuring food security through goat farming in Puducherry

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### Abstract

The challenges met by the farmers in the goat meat production and its effect on food security in Puducherry had been assessed through data collection using structured questionnaire from 50 goat farmers in Puducherry. Analysis of these responses proved that 92 per cent farmers were rearing goat for meat purpose. Among the respondents, 82 per cent of the farmers were not aware about the importance of vaccination and only 22 per cent farmers vaccinated their herd. On the other hand, 60 per cent farmers did not deworm their herd due to lack of awareness about the importance of deworming. About 90 per cent of the farmers had experienced kid mortality in their herd due to gastro-intestinal problems, Foot and Mouth Disease and lactic acidosis. Almost 28 per cent farmers sold live goats directly to the consumers, 36 per cent sold to the butchers directly and 26 per cent sold the goats through middleman. Kid mortality, lack of awareness on proper feeding and unorganized goat meat marketing channels have major impact on goat production thereby on food security in Puducherry region.

**Keywords:** Food security, kid mortality, lactic acidosis, marketing channel

### Introduction

“Food security, at the individual, household, national, regional and global levels (is achieved) when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (World Food Summit, 1996) <sup>[1]</sup>. Goat population of India is 148.88 Million during 2019 which contributes to about 27.8 per cent of the total livestock in the country. Goat population of Puducherry is 73,630 (Livestock census, 2019) and goat meat production in 2018-19 was 4980 tonnes (Basic Animal Husbandry Statistics, 2019) <sup>[2]</sup>. Goats are an important source of protein through dairy and meat production, contributing to both the food and financial security of households, particularly the poor. It is a source of income and employment to rural poor. The rural landless, marginal and small farmers in Puducherry who cannot afford to maintain a cow or a buffalo find goats as the best alternative source of income. Goats can be maintained on a limited area and can sustain on wide variety of vegetation in varied agro-climatic conditions. Goat meat (Chevon) is one of the most preferred meat types in Puducherry. Goat rearing acts as a cushion in distress situations like drought and famine. The goats were mostly taken care (grazing, feeding, handling, etc.) by the children and old members of the family whose opportunity for other labour was very less. In spite of the favorable situations, very few farmers are entering into goat farming in Puducherry. With this background, the paper aims to analyse the challenges faced by the farmers in Goat meat production and strategies to mitigate thereby ensuring the food security by encouraging more people to take up goat farming.

### Materials and Methods

The study was conducted in five different regions of Puducherry having high goat population. The five regions include Ariyankuppam, Ariyur, Embalam, Kombakkam, and Nonankuppam. Ten goat farmers from each of these regions were interviewed with a set of 33 questions pertaining to management practices, problems faced in goat rearing and marketing policies. Responses related to management practices such as vaccination, deworming, breeding, feeding and bio security measures were recorded. Problems faced in goat rearing such as commonly occurring diseases and reasons for kid mortality were enquired and responses were recorded. Marketing policies such as slaughter age, slaughter weight, type of market used for selling the

goat meat and issues faced during marketing were recorded. The collected data were coded and analysed using SPSS software. The analysed data were illustrated in the form of tables and graphical representations.

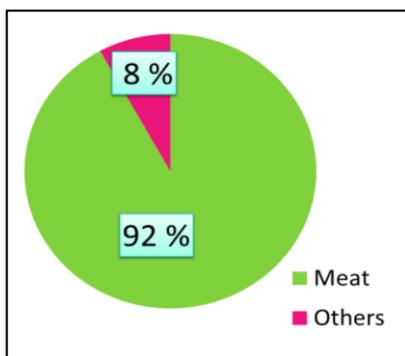
**Results and Discussion**

The demographic data of the 50 respondents are tabulated below in Table 1.

**Table 1:** Demographic data of Respondents (n = 50)

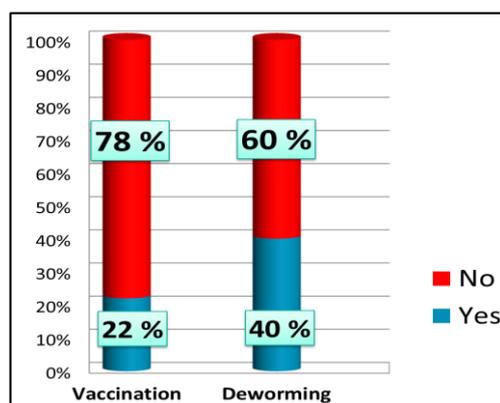
Sl. No.	Particulars	Group	N	Percentage (%)
1	Sex	Male	18	36
		Female	32	64
2	Age	Young (<35 )	6	12
		Middle (35-50)	26	52
		Old (>50)	18	36
3	Education	Uneducated	7	14
		School educated	38	76
		College educated	5	10

It is evident that more females (64%) were involved in goat farming than the males (36%) (Table 1). The reason for more number of female goat farmers in our study may be due to the fact that men prefer to go to work for daily wages while the women in the household take care of the goats and do it as a supplementary occupation for additional income. About 52 per cent goat farmers were middle aged people (Table 1). Among the respondents, 14 per cent were uneducated, 76 per cent were educated up to school level and 10 per cent were graduates (Table 1).



**Fig 1:** Purpose of Rearing

About 92 per cent of the respondents rear goats for meat purpose while 8 per cent rear due to their interest in goat rearing (Figure 1). All the respondents in this study did not sell the goat milk as they were fed to the kids only.



**Fig 2:** Vaccination and Deworming turnout

Only 22 per cent of the farmers vaccinated their herd. Most of the farmers vaccinated their herd only for Foot and Mouth Disease through veterinary dispensaries and none of the farmers vaccinated the animals for PPR, HS, Goat pox and Enterotoxaemia. In case of deworming, only 40 per cent of the farmers were deworming their herd. The vaccination and deworming turnout were low due to the lack of awareness among the farmers about the importance of vaccination and deworming. Similar findings were reported by Mamta kumawat *et al.*, (2017) [3] who proposed that major constraints faced by goat farmers with respect to health care were lack of veterinary services, ignorance about the importance of vaccination and deworming.

**Table 2:** Diseases commonly encountered

Sl. No.	Particulars	N	Percentage (%)
1	Gastro intestinal problems	27	54
2	Respiratory problems	7	14
3	Foot and Mouth Disease(FMD)	7	14
4	Lactic acidosis	9	18

Diseases commonly affecting the goats as reported by the farmers were Gastro intestinal problems (54%), Respiratory problems (14%), Foot and Mouth Disease (14%) and lactic acidosis (18%) [Table 2].

**Table 3:** Reasons for Kid mortality

Sl. No.	Particulars	N	Percentage (%)
1	Gastro intestinal problems	17	38
2	Foot and Mouth Disease(FMD)	9	20
3	Lactic acidosis	8	18
4	Respiratory problems	3	6
5	Others	8	18

One of the major challenges faced in goat rearing in Puducherry was the kid mortality which has a direct effect on the financial security of the farmers. Gastro-intestinal problems (38%) tops the reasons for kid mortality which can be attributed to the fact of poor deworming (40%). Other reasons for kid mortality include Foot and Mouth Disease (20%) and lactic acidosis (18%) which may be due to the taboos regarding vaccination among the farmers and improper feeding management respectively (Table 3). In addition to that Black quarter, automobile accident and dog bite (18%) were the other problems reported by the farmers. This is in line with the findings of Thangavel *et al.*, (2018) [4] who proposed that poor knowledge of the farmers about the disease and lack of management skills were the reasons for kid mortality.

In our study, it was found that 72 per cent of farmers disposed dead carcass by burial while 28 per cent sold the dead carcass for low price. Improper carcass disposal leads to various public health problems.

**Table 4:** Market type used for selling Goat meat

Sl. No:	Particulars	N	Percentage (%)
1	Direct to the consumer (Live)	14	28
2	Butchers	18	36
3	Middlemen	13	26
4	Own purpose	5	10

Another major concern in goat rearing was marketing of goat meat. Seasonal variation was noticed in the sale of goat meat in Puducherry. More sales of goat meat was noticed during

Sundays and festival days such as Diwali, Christmas, Bakrid and Aadi month. Nearly 68 per cent farmers sold their goats at the age of above 6 months and 32 per cent sold their goats at the age of below 6 months. Around 62 per cent farmers sold their goats at below 10 kg and the rest 38 per cent sold the goats at above 10 kg. In our study it was found that, Although 68 per cent farmers were selling their goats at the age of above 6 months, majority (62%) of the goats were attaining a weight of less than 10 kg which may be due to various reasons including improper feeding, lack of deworming practices and improper health management. Similar findings were reported by Karthik *et al.*, (2017) <sup>[5]</sup> who proposed that average live weight of the carcass weight ranged between 5-10kg which varied with breeds. Appropriate feeding practices and health management including deworming can increase the weight of the goats at slaughter age. Farmers used different types of market for selling their goats such as Direct sale of live goats to the consumer (28%), to the roadside butchers (36%), through middlemen (26%) and for own house purpose (10%) (Table 4). Around 32 per cent farmers were not satisfied with the profit they got and were intended to earn more. This is in line with the findings of Thangavel *et al.*, (2018) <sup>[4]</sup> who proposed that exploitation by middlemen and absence of organized markets hindered the farmers in getting reasonable profit. Providing preferable marketing channel for the meat and reducing the involvement of middlemen may aid the farmers in getting enhanced profit.

### Conclusion

Goats play a vital role in ensuring food security in Puducherry. The above study proved that Kid mortality, lack of awareness on proper feeding and unorganized goat meat marketing channels have major impact on goat production thereby on food security in Puducherry region. Kid mortality can be curtailed by regular deworming and vaccination policies. Lactic acidosis can be reduced by proper feeding practices. Training programs can be conducted for the farmers on Scientific Goat Rearing which will enhance the goat meat production. A well organized marketing system for meat and meat products in Puducherry will reduce the monopoly of meat traders, demand-supply gap and middlemen in the trade. By 2050, it is expected that meat production in India should increase by 3 times to meet the demand (NAP on goat, 2017) <sup>[6]</sup>. It is a big challenge to fulfill the future demand with available resources. Apart from the above recommendations, value addition and processing of goat meat products and genetically improved breeds may also help to meet the animal protein demand in Puducherry where there is high demand for chevon.

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