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## Feeding management adopted by sheep farmers in North Eastern region of Tamil Nadu

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### Abstract

The study was conducted on grazing management practices of sheep in north eastern semi arid region of Tamil Nadu covered 150 sheep farmers in 20 villages. Majority of the sheep farmers (95%) followed in the extensive system of management. Most of the farmers (71%) were allowing animals for grazing 4 to 8 hours. The grazing time was highest (9.56 hrs) in summer and lowest in rainy season (3.72hrs). Generally, Sheep farmers (69%) were covered a distance of 3 to 5 km. They adopted sheep and goats were taken for grazing in mixed flocks. In the present finding, (22%) lambs started grazing up to 2 months and (78%) after 2 months respectively. Most of the sheep farmers were followed in zero input system to rear sheep flocks. The method of watering animals revealed (65%) of the farmers offered drinking water in sheep shed. Mineral mixture and salt licks was not provided to sheep by (94%) sheep farmers. Adoption of overall scientific feeding practices among sheep farmers in vogue and donot meet the scientific standards. Hence, these practices need to be improved to a greater extent by adopting training and demonstration to increase production potential in this zone. The cost of feed and fodder was higher besides fodder scarcity and provision of subsidized loan facility to sheep farmers need to give priority in this region.

**Keywords:** Sheep, pasture land, grazing, feeding and Tamil Nadu

### Introduction

Small ruminants are widely distributed and great importance as main source of occupation and their livelihood for the landless rural communities in developing countries (Tembley, 1998)<sup>[14]</sup>. Sheep are mainly grazers, the lush green pasture serves as main source of feed resources. They mostly prefer 50% grasses, 30% forages and 20% shrubs according to the different seasons. They can well adapted to harsh climatic conditions even in scarce water and vegetation in semi arid conditions. The total sheep population in India 74.26 million, increased by 14.1% over previous census (Livestock Census, (2020)<sup>[7]</sup>. Sheep are reared predominantly by grazing under traditional extensive system of management in different agro-climatic conditions of India.

Madras Red sheep is a medium sized meat type breed mainly distributed in, Kancheepuram, Chengalpattu, Thiruvallur Chennai, Vellore, Thiruvannamalai and Villupuram districts of Tamil Nadu. It is well adapted to the hot and humid conditions of North-Eastern agro-climatic region of Tamil Nadu (Acharya, 1982)<sup>[1]</sup>. The systemic survey was undertaken to study the existing feeding practices followed by farmers for rearing of sheep under field conditions to document information and the resulting information will be useful for future improvement of sheep.

### Materials and Methods

The study was carried out on north eastern region of Tamil Nadu covering 150 farmers in 20 villages. The mean annual maximum and minimum temperature are 35.83 °C and 22.65 °C respectively. The farmers were selected at random to collect necessary information. Information on grazing, feeding and watering practices was collected through formal interviews. The grazing practices information was collected from each farmer, systems of rearing, grazing land resources, type of grazing, duration of grazing, grazing distance, seasonal grazing time, supplementary feeding for kids and ewes, age of lamb at grazing, provision of water and colostrum feeding.

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### Statistical analysis

The data were tabulated frequency and percentage of the parameters calculated as per standard procedure. The effect of these factors on different production was analysed by univariate general Linear Model (GLM).

### Results and Discussion

It was observed from this study among the sheep farmers in Northern part of Tamil Nadu majority of the sheep farmers (95%) followed in the extensive system of management. Similar observation were reported in Rajasthan sheep are reared on zero input system and 81% farmers adopted the extensive grazing system (Singh *et al.* (2018) [9]. Only (10%) of the farmers grazed their animal in forest area and 88% of the them utilized common grazing land, uncultivable land, road sides and forest area, riverside and harvested agricultural fields. These findings were agreement with of Kailash and Naruka (2015) [5]. Tailor *et al.* (2006) [12], reported mostly community land resources (82.78%) were used for grazing of sheep.

### Seasonal grazing of sheep flock

Most of the farmers (71%) were allowing animals for grazing 4 to 8 hours followed by more than 9 hours (17%) and only 12% farmers spent time for grazing less than 4 hrs. respectively (Table.1). These findings were in accordance with Singh *et al.* (2018) and Rao *et al.* 2013) [9, 8]. Mostly (69%) of them covered a distance of 3 to 5 km followed by 20% covered 5-8 km and only 11% covered more than 8 km distance for grazing. Thiruvankadan *et al.*, 2018 reported in sheep were taken 3-4 km in forest area and harvested fields for grazing. However, Suresh *et al.* (2008) [10] and Arora *et al.* (2014) [2], reported in sheep farmers covered a distance up to 10 km for grazing.

Duration of grazing and distance covered by the sheep during different seasons were presented in Table.2. The sheep farmers had been taken their animals for grazing early in the morning in summer and late in winter and rainy season. In rainy season grazing time was depended on weather conditions. Different types of grasses, herbs and shrubs are available for the grazing during rainy season. In winters sheep flocks are grazed on post harvested feeds in agricultural lands. In summer along with grazing, animals fed dry fodder and tree leaves. Jat *et al.* (2006) [4], reported tree fodders are also important source during summer season. The grazing time was highest (9.56 hrs) in summer and lowest in rainy season (3.72hrs). These findings were in accordance with earlier reports Rao *et al.* (2013) [8]. In rainy season grazing hours in was less than in summer and winter. It may due to the availability of good pasture in the nearby area after agricultural by products in harvesting of crops as well as shorter day length. The average grazing distance was maximum in summer (10.67 km), which is comparable with that of the Behura *et al.* (2009) [3], who also reported maximum distance in summer.

### Feeding management of sheep

Majority of sheep rearers (89%) were allowing animal for mixed type of grazing. Generally, farmers rear small numbers of goats with sheep flock adopted for mixed grazing. Similar findings were reported by Swarnkar and Singh (2010) [11] in Rajasthan and Thiruvankadan *et al.* (2007) [15], stated in breeding tract of Mecheri sheep in Tamil Nadu. In the present finding, (22%) lambs started grazing up to 2 months and (78%) after 2 months respectively. The results were agreement with Kailash and Naruka (2015) [5] in Rajasthan 54.44% lambs started grazing after 2 months. However, Thiruvankadan *et al.* (2007) [15], reported lambs were maintained ewes milk, local weeds, grasses and harvested crops upto 3 months of age afterwards they allowed for grazing. Majority of sheep farmers (90%) did not fed green fodder to their animals after grazing. Singh *et al.*, (2018) reported the adoption of the feeding green fodder in sheep was only (27%). Special feeding of concentrate was given for only lambs (12%), lactating (7%) and pregnant ewes (10%) respectively. Similar findings were observed by Singh *et al.* (2018) [9].

The pattern of supplementary feeding practice was not a general practice among this sheep farmers, even though during summer scarce vegetation in grazing land were fed with some dry fodder such as groundnut haulms, cultivated fodder crops and sorghum stovers (22%), green fodder and tree leaves (8%) and concentrate (4%) respectively. Due to scarcity of grasses in grazing land during summer the sheep were fed with cultivated agricultural crops and tree leaves and some concentrate mixture 100 - 300 g/day/animal were given Thiruvankadan *et al.* (2007) [15]. The method of watering animals revealed 65% of the farmers offered drinking water in sheep shed whereas the remaining 35% were taken in ponds, river, house hold tanks, bore wells and others water sources. The drinking water sources were limited in grazing area and the farmers depended on mostly open sources and traveled long distance during summer. The drinking water access for animals were one of the major problem for sheep shepherds face during summer months Misra *et al.* (2007) [7]. Among the sheep farmers (86%) prepared concentrate at home for feeding to sheep which comprised of sorghum, maize and wheat and rice and husk of green gram, black gram and horse gram in the form of gruel adding some salt. Similar results observed by Singh *et al.* (2018) [9]. Among sheep farmers (71%) prepared home grown concentrate for feeding to sheep. Mineral mixture and salt licks was not provided to sheep by 94% sheep farmers. It is due to low adoption of mineral mixture and salt feeding was lack of scientific knowledge. Similar results observed in Singh *et al.* (2018) [9]. In this present study, the Colostrum feeding practice was high (98%) among the sheep farmers. The lambs were allowed for suckling in the morning before ewes were allowed for grazing and only 5% of the sheep farmers fed lambs with cow milk. Thiruvankadan *et al.* (2007) [15], observed some farmers feeding lambs with cow milk and ragi gruel as milk replacers. Similar reports observed in Muzaffaranagari sheep by Mandal *et al.* (2000) [14].

**Table 1:** Grazing practices followed by the sheep farmers in Kanchipuram district

Sl. No	Category	Sub category	Percentage (%)
1.	Systems of rearing	Extensive system system	95.0
		Semi intensive system	5.0
2	Grazing area	Own land	2.0
		Forest area	10.0
		Common land, river side and harvested field	88.0
3	Duration of grazing	0 to 4 hours	12.0
		4 to 8 hours	71.0
		9 and above hours	17.0
4	Type of grazing	Single species	11.0
		Mixed	89.0
4	Grazing distance	0-3 km	5.0
		3-5km	69.0
		5- 8km	20.0
		> 8 km	11.0
	Age of lamb at grazing	Upto 2 months	22.0
		> 2 months	78.0
5	Green fodder feeding	Yes	10.0
		No	90.0
6.	Special feeding Concentrate	Lamb	
		Yes	12.0
		No	88.0
		Lactating ewe	8.0
		Yes	7.0
		No	83.0
		Pregnant ewe	10.0
		Yes	90.0
No			
7.	Supplementary feed offered during summer	No other feed	66.0
		Concentrate feed	4.0
		Green fodder and Tree leaves	8.0
		Groundnut haulms	22.0
8	Provision of water	Yes	65.0
		No	35.0
9.	Type of concentrate	Home made	86.0
		Purchased	14.0
10	Feeding Mineral Mixture and salt lick	Yes	6.0
		No	94.0
11	Colostrum feeding	Yes	98.0
		No	2.0
12	Cow milk feeding for Lamb	Yes	5
		No	95

Figures in the parentheses are the percentages

**Table 2:** Duration of grazing and distance covered by the sheep during different seasons

Seasons	Grazing hours (hrs.)	Maximum distance covered (km)
Rainy	3.72	4.48
Winter	7.29	6.26
Summer	9.56	10.67

### Conclusion

The sheep farmers adoption of overall scientific feeding practices were in vogue and donot meet the scientific standards. Feeding mineral mixture and concentrate feeding to kids and pregnant does was poor and needs to improve for growth and production of sheep. Further, this observation indicate need of extension activities for spreading improved management practices, conservation of the common grazing land by adopting training and demonstration to enhance the productivity of sheep in this zone. The cost of feed and fodder was higher besides fodder scarcity and provision of subsidized loan facility to sheep farmers need to give priority in this region.

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