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# **SOCIO-ECONOMIC STATUS, HUSBANDRY PRACTICES FOLLOWED AND CONSTRAINTS FACED BY MADRAS RED SHEEP FARMERS IN THEIR FIELD FLOCKS IN KANCHIPURAM DISTRICT**

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## **ABSTRACT**

A detailed study was conducted to analyze the socio-economic status, husbandry practices followed and constraints faced by Madras Red sheep farmers in their field flocks in Kanchipuram district. The study was conducted on 100 farmer's flock from 19 villages included in Network Project on Sheep Improvement, PGRIAS, Kattupakkam (NWPSI). Socio-economic status of the Madras Red sheep farmers revealed that majority (99%) of the Madras Red sheep farmers belonged to Hindu religion, more than half of them (56.0%) belonged to most backward community, followed by backward community (25.0%), majority of sheep rearers (69.0%) located in rural areas, more than half (64%) of the sheep rearers were in the age group of > 50 years and majority (74%) of them were rearing goat along with sheep. The husbandry practices revealed that majority of the farmers (72%) provided shelter to their sheep near their residence, most of the sheep sheds (91%) were having earthen floor, half of the sheds were (56%) made with thatched roofing material, majority of the sheep rearers (56%) stored manure away from the sheep, nearly half of sheep farmers (42%) were allowing animals for a grazing duration of 8 and 8 hours 30 minutes, All most all (100%) of them were following flock mating type breeding and all (100%) were following ram exchange program, majority of sheep rearers (96%) followed deticking technique for sheep. Constraints perceived from sheep farmers revealed that most prevailing problem faced was lack of grazing land during summer followed by low sale price per animal and threat of stray dogs.

**Key Words:** Sheep rearers, extensive system of management, field flocks & constraints

## **INTRODUCTION**

Tamilnadu possesses ten defined sheep breeds (Ganesakala and Rathnasabapathy,

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1973; Acharya, 1982) namely Kilakarsal, Mecheri, Madras Red, Ramnad White, Vembur, Katchaikatty Black, Nilagiri, Coimbatore, Chevadu and Tiruchi Black with 4.79 million population, of which Madras Red sheep is a medium-sized hairy sheep, well adapted to the agro-climatic conditions of the North-Eastern region of Tamil Nadu (Acharya., 1982). It is a meat

type breed mainly distributed in Thiruvallur, Kancheepuram, Chennai, Vellore and Villupuram districts of the state (Raman et al., 2003). Breeding and performance characters (Devendranet *al.*, 2009; Balasubramanyamet *al.*, 2010), most of these reports were mainly based on animals maintained on the organized farms or in adopted farmers flocks. Information about the socio economic status of sheep farmers and husbandry practices followed and constraints faced by farmers in its breeding tract is scanty. Therefore the present study was undertaken to evaluate Madras Red sheep under actual field conditions. Moreover, knowledge about the constraints in sheep farming will help policy makers and planners in making suitable corrective and remedial measures.

## MATERIALS AND METHODS

Survey on socioeconomic status of the Madras Red sheep farmers was done and information such as age of the farmer, religion, community, type of family, size of family, land holding pattern, flock size possessed by farmer and other animals for integrated farming and the husbandry practices *viz.* housing management, grazing management, manure management, health care management, marketing management & reproductive management were obtained from Madras Red sheep farmers in the breeding tract through structured questionnaire. A total of 11 constraints perceived by the Madras red sheep farmers through survey questionnaire were given rank as 1 to 11. The most severe problem faced by the farmer was given rank 1 likewise increasing order the least severe problem was given as rank 11.

## RESULTS AND DISCUSSION

### 1) SOCIO- ECONOMIC STATUS OF THE FARMER

The socio-economic status of the Madras Red sheep farmers are given in Table 1. Majority (99%) of the Madras Red sheep farmers belonged to Hindu Religion, only 1 percent of them belonged to Christian religion and no Muslims were found. Majority (85.83%) of sheep farmers belonged to Hindu religion while only 14.17% of sheep farmers were Muslims among the sheep farmers in Rajasthan (Choudaryet *al.*, 2012). 99.32% of the sheep farmers in the Telangana region of Andhra Pradesh were Hindu followed by 0.52% Christians and 0.17% Muslims (Rajannaet *al.*, 2012).

Among Madras Red sheep farmers majority of them (56.0%) belonged to most backward community, followed by backward community (25.0%), SC (19.0%) and no ST were found. 71.11% of sheep farmers of Andhra Pradesh were belonging to Backward caste (BC) followed by 11.67% Scheduled Castes (Mastanbiet *al.*, 2017).

Majority of Madras Red sheep rearers (69.0%) located in rural areas but few farmers (31.0%) were located in Sub urban areas. 40.83% of sheep farmers in Kancheepuram district (were) belonged to old age and 21.67% belonged to young age group (Thilakar and Krishnaraj., 2007). which was also the case with Madars Red sheep farmers. In Telangana region of Andhra Pradesh the average age group of Sheep farmers was 42.69 years and majority (70.31%) of the respondents belonged to middle age (Rajannaet *al.*, 2012).

In the breeding tract of the Madras Red sheep majority of them (50%) were illiterates followed by primary school (27%) educational qualification, higher secondary school (22%) educational qualification and only 1% of them were graduates. These findings are in agreement with the observations Rajanna et al. (2012), Maheswaran (1993), Suresh et al. (2011) and Choudary et al. (2012). However Tilakar and Krishnaraj (2007) observed that more than 64 per cent of sheep farmers were literate with primary to secondary education. Majority of respondents (77.26%) in Telangana region had agriculture as main occupation and 22.74% of respondents had animal husbandry as their main occupation (Rajanna et al., 2012). which was like sheep rearing was the primary occupation for 86 percent of Madras Red farmers whereas for 14 percent of them it was secondary occupation.

Most of the families (66%) of Madras Red sheep farmers were of nuclear type with a small number (34%) of joint type of families. Majority of the sheep farmers (61%) were land less where as 35% of them had 0.1 to 2.0 acre land. 60.10% of shepherds in North coastal zone of Andhra Pradesh had less than 2.5 acres land (Rao et al., 2013), 90% of Coimbatore sheep farmers were landless and among those who owned land the average holding size was 5.28 acres (Devendran et al., 2009). In contrast to present findings Rajanna et al. (2012) observed that majority of sheep farmers in Telangana region were land owners.

73% of Madras Red sheep farmers in the study area had >20 years of experience in sheep rearing. Similarly in Telangana

region of Andhra Pradesh (64.58%) of sheep farmers had 17 to 41.3 years of experience (Rajanna et al., 2012) and in Prakasam district of Andhrapradesh 62.22% of sheep farmers possessed medium experience in sheep farming (Mastan bi et al., 2017)

## 2) INTERGRATION WITH OTHER FARM ANIMALS

Integration with other farm animals and flock size of sheep in field flocks were presented in Table 2. 65% of Madras Red sheep farmers in Kanchipuram district were rearing cattle along with sheep, 18% were rearing buffalos and majority (74%) of them were rearing goat along with sheep. Similar observations were made by Venkataraman et al. (2017) in Madras Red sheep as farmers reared goats (78.4%), cows (53.8%) and buffaloes (27.7%).

The study on flock size maintained by sheep farmers revealed that majority of them (51.0%) had a flock size of 26-50 animals, followed by 51-100 animals (25%), 1-25 animals (15.0%), 101-150 animals (7%) and more than 150 animals (2%). Similarly varying flock sizes were reported for other Indian breeds viz. 57-64 in Cholka sheep farmers of West Rajasthan (Kushwala et al., 1999) and 20 -68 sheep with the mean size of 38.6 in Vembur sheep (Chandran et al., 2009).

## 3) HOUSING MANAGEMENT

Housing practices followed by Madras Red sheep farmers in Kanchipuram district were given in Table 3. Half of the (50%) farmers provided closed type shed with adjoining paddock, followed by both open and closed type (32%) shelter, open type

(11%) with tree shade and fencing and closed type (7%) shelters. Most of the sheep sheds (91%) were having earthen floor followed by floor covered with tarpaulin sheet (7%), with only 2% having cement type of floor. Tiruvenkadanet *al.* (2007) reported for Mecheri sheep in its breeding tract of Tamil Nadu that 94.84 sheep sheds are open type, 2.73 percent were semi open and 2.43 percent were closed type and type of flooring observed were 99.6 percent sheds with kutcha flooring and only 0.04 percent were having pucca flooring. Yadav and Tailor (2010) reported that 44% of sheep farmers maintained their flock in open housing system. Madras Red sheep in their breeding tract revealed that the partition is made with dried thorny bushes and 'all open' type housing is seen in the villages of Kanchipuram (Balasubramanyamet *al.*, 2012).

Tailor and Yadav (2010) reported that housing had tile as the roofing material (57.3%). But observations in the study area of Madras Red sheep were half of the sheds were (56%) made with thatched roofing material.

Among Madras Red sheep farmers 67% followed soil replacement in their sheds, 12% farmers followed filling the depressions on the floor and 21% neither follow soil replacement nor follow depression filling. Most of the farmers (65%) did not disinfect their sheds, whereas 35% only disinfect their sheds.

#### 4) MANURE MANAGEMENT

Manure storage, usage and sale price/ tractor load of manure followed by Madras

Red sheep farmers are presented in Table 4. Majority of the sheep rearers (56%) stored manure away from the sheep shed but, 44% stored near the shed. 96% of them stored manure in the form of a heap and 4% of them applied directly into their agricultural fields. 88.02% of sheep farmers in north coastal zone of Andhra Pradesh stored their manure in open method (Rao *et al.*, 2013).

Balasubramanyamet *al.* (2012) revealed that in Villupuram and Thiruvannamalai districts, it is a common practice that the sheep are kept overnight in the fields for manuring purpose. 55.72% of farmers used the manure for the own farms and 13.95% of farmers sold the manure. Similarly in the present study, majority of sheep farmers were landless, 49% of them were selling their manure and 32% were using sheep manure for their own agricultural purposes.

#### 5) FEEDING MANAGEMENT

Feeding management followed by Madras Red sheep farmers are depicted in Table 5. Nearly half of the sheep farmers (42%) were allowing animals for a grazing duration of 8 to 8 hours 30 minutes followed by 7 to 7 hours 30 minutes grazing (41%), 6 hours to 6 hours 30 minutes grazing (11%) and 9 hours to 9 hours 30 minutes grazing by 6% of farmers. Majority of sheep farmers (89%) covered a distance of 3 to 5 km for grazing, 10% farmers covered 1 to 2 km distance and 1% farmers were taking more than 5 km distance. Studies in Madras Red sheep (Balasubramanyamet *al.*, 2012) in Kancheepuram, Thiruvallur, Villupuram and Thiruvannamalai districts, the animals are mainly reared on extensive grazing

as no fodder is cultivated separately for feeding the sheep. Similarly Tiruvenkadanet al. (2007) reported that Mecheri sheep in its breeding tract of Tamil Nadu mainly depended on grazing for 7 to 8 hours daily and sheep were taken for grazing up to a distance of 3 – 4 km. But, Arora et al. (2014) in Malpura sheep said that sheep farmers moved their flock daily up to 10 km for grazing.

Kumar et al. (2015) revealed that 80 percent of goat keepers in Rajasthan adopted grazing on community pasture land. Only 7% of Madras Red sheep farmers were allowing animals in forest areas and others (93%) were allowing in common grazing lands, river sides, Real estate lands and harvested agricultural fields .

Balasubramanyamet al. (2012) reported that Madras Red animals are also fed with different fodder tree leaves and dried ground nut haulms. Similar results are observed in this survey as 35% sheep farmers were provided groundnut haulms as supplementary feed during lean period of summer, 3% farmers provided concentrate feed and remaining (62%) were not provided any supplementary feed during lean period.

## 6) REPRODUCTIVE MANAGEMENT

Reproductive data perceived from field flocks of Madras Red sheep are given in Table 6. All the farmers (100%) were following flock mating type breeding and as farmers were included in NWPSI, all farmers (100%) followed ram exchange program. The ram is retained in the Madras Red flock all the day (Balasubramanyamet al., 2012) and about 85.59% sheep farmers

replaced breeding rams from their own flock (Rajanna et al., 2012).

The mean age at first mating observed in the Northcostal zone of Andhrapradesh was  $12.85 \pm 0.10$  months (Rao et al., 2013). Field flocks of Southern and North eastern agro climatic zone of Tamil Nadu revealed that the age of ewes at first mating (months) was 12.90 and 13.41 (Kumarvelu and Pandian, 2012). The present study revealed that in majority of the flocks (52%) age at first mating was 1.5 – 2 years, followed by 1 – 1.5 years of age (36%) and 2 to 2.5 years of age (12%).

The mean age at first lambing observed in the Northcostal zone of Andhrapradesh was  $17.75 \pm 0.10$  months (Rao et al., 2013). Field flocks of Southern and North eastern agro climatic zone of Tamil Nadu revealed that the age of ewes at first lambing (months) was 18.19 and 18.97. In the present study age at first lambing of 2-2.5 years was observed in 52% flocks, 1.5 – 2 years in 36% flocks and 2.5 – 3.0 years was observed in 12% flocks.

Life time number of lambing up to which ewes were kept was 5-6 in 38% flocks, 4 to 5 in (30% flocks), >6 in 18% flocks and 2-4 in 14% flocks. Only 9% sheep farmers reported twinning in their flock. Majority (85%) of them did not prefer the ewes that had twinning.

## 7) HEALTH MANAGEMENT

Health care practices followed by Madras Red sheep farmers are given in Table 7. Majority of sheep rearers (96%) followed deticking technique for sheep, of them 37%

followed pour on method of deticking, 40% followed spraying method and 19% followed dipping method. Lahoti and Chole (2010) reported that 94.00% farmers were not following and 6% followed deticking. Only 55.33% of Sonadi sheep farmers followed the deworming practices (Tailor et al., 2010).

Most of the Madras Red shepherds (92%) were not following any traditional method of treatment, whereas a small proportion (8%) was practicing traditional method of treatment. Majority of farmers (90%) disposed dead animals from the flock by burying and only 10% farmers thrown in to bushes.

## 8) MARKETING MANAGEMENT

Marketing management of the Madras Red sheep farmers are given in Table 8. Majority (93%) of sheep farmers were selling Ram lambs (RL) at the age of 6-12 months and only 7% farmers sold at 12-18 months age. Majority (57%) of them were getting a sale price of Rs. 3001-4000/animal, followed by Rs 4001-5000 (40%) and 3% were getting Rs.1000- 3000/animal. 98% farmers only sold their aged ewes @ Rs.1001-2000/animal (43%), Rs.100-1000/animal (30%) and >Rs. 2000 (25%). The lambs of Ramnad white were sold at the age of 5-6 months at the rate of Rs 1500-2000 and selling price of the animal was based on the body size (Raja et al., 2012)

## 9) CONSTRAINTS

Constraints perceived by Madras Red sheep farmers WERE obtained through structured questionnaire by direct interviews and score was given according to

the farmer's perception and the constraints were ranked by Friedman ranking test and presented in Table 9. Most of the farmers felt insufficient grazing during summer as most severe constraint, followed by threat of stray dogs, low sale price of animal, unavailability of loans, availability of quality breeding stock, middle men exploitation, safety while grazing, lack of proper scientific knowledge to manage sheep and sudden disease incidence. Similarly major constraints hindering in Garole sheep rearing by the farmers were lack of grazing facility (73.64%) (Sagar and Biwas, 2008) and in contrast Rao et al. (2013) revealed that the major problems faced by sheep farmers were disease outbreaks (85.95%) and lack of veterinary facilities (83.81%).

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**Table1: Socio-economic status of Madras Red sheep rearers**

| S. no | Category                                 | Sub category            | Percentage |
|-------|------------------------------------------|-------------------------|------------|
| 1     | Religion                                 | Hindu                   | 99.0       |
|       |                                          | Christian               | 1.0        |
| 2     | Community                                | BC                      | 25.0       |
|       |                                          | MBC                     | 56.0       |
|       |                                          | SC                      | 19.0       |
| 3     | Location of the farmer                   | Sub urban               | 31.0       |
|       |                                          | Rural                   | 69.0       |
| 4     | Age of farmer                            | Below 30 years          | 4.0        |
|       |                                          | 31-40 years             | 10.0       |
|       |                                          | 41-50 years             | 22.0       |
|       |                                          | 51-60 years             | 41.0       |
|       |                                          | Above 60 years          | 23.0       |
| 5     | Educational qualification of the farmers | Illiterate              | 50.0       |
|       |                                          | Primary school          | 27.0       |
|       |                                          | Higher secondary school | 22.0       |
|       |                                          | Graduate                | 1.0        |
| 6     | Sheep farming as                         | Primary occupation      | 86.0       |
|       |                                          | Secondary occupation    | 14.0       |
| 7     | Family type                              | Nuclear                 | 66.0       |
|       |                                          | Joint                   | 34.0       |
| 8     | Land holding                             | No land                 | 61.0       |
|       |                                          | 0-2.0 acres             | 35.0       |
|       |                                          | 2.1-5.0 acres           | 4.0        |
| 9     | Experience in sheep rearing              | 1-5 years               | 14.0       |
|       |                                          | 6-10 years              | 13.0       |
|       |                                          | 11- 20 years            | 39.0       |
|       |                                          | >20 years               | 34.0       |

**Table2: Integration of sheep farming with other animals& flock size in field flocks**

| S. no | Category                   | Sub category          | Percentage |
|-------|----------------------------|-----------------------|------------|
| 1     | Integration with cattle    | No cattle             | 35.0       |
|       |                            | Integration with C    | 65.0       |
| 2     | Integration with buffalo   | Not having buffalo    | 82.0       |
|       |                            | Integration with B    | 18.0       |
| 3     | Integration with goat      | Not having goat       | 26.0       |
|       |                            | Integration with G    | 74.0       |
| 4     | Integration with C+B+G     | No integration        | 9.0        |
|       |                            | Integration with C+B  | 30.0       |
|       |                            | Integration with C+G  | 53.0       |
|       |                            | Integration with B+G  | 8.0        |
| 5     | Poultry                    | No poultry            | 52.0       |
|       |                            | Have poultry          | 48.0       |
| 6     | Other species(Duck/Rabbit) | No                    | 99.0       |
|       |                            | Yes                   | 1.0        |
| 7     | Flock size                 | 1-25                  | 15.0       |
|       |                            | 26-50                 | 51.0       |
|       |                            | 51-100                | 25.0       |
|       |                            | 101-150               | 7.0        |
|       |                            | >150                  | 2.0        |
| 8     | Sheep rearing system       | Semi intensive system | 3.0        |
|       |                            | Extensive system      | 97.0       |
| 9     | Dog as grazing companion   | No grazing companion  | 97.0       |
|       |                            | Grazing companion     | 3.0        |

**Table3: Housing system followed in the field flocks of Madras Red sheep**

| S. no | Category             | Sub category                        | Percentage |
|-------|----------------------|-------------------------------------|------------|
| 1     | Location of the shed | Near the residence                  | 72.0       |
|       |                      | Away from the residence             | 18.0       |
|       |                      | Both                                | 10.0       |
| 2     | House type           | Open                                | 11.0       |
|       |                      | Closed                              | 7.0        |
|       |                      | Closed with open space              | 50.0       |
|       |                      | Both open and closed                | 32.0       |
| 3     | Type of floor        | Earthen floor                       | 91.0       |
|       |                      | Cement floor                        | 2.0        |
|       |                      | Earthen floor with tarpaulins cover | 7.0        |
| 4     | Roof type            | No roof                             | 10.0       |
|       |                      | Gable                               | 71.0       |
|       |                      | Lean to type                        | 18.0       |
|       |                      | Both gable and lean to type         | 1.0        |
| 5     | Roofing material     | No roof                             | 10.0       |
|       |                      | Thatched                            | 56.0       |
|       |                      | Asbestos                            | 16.0       |
|       |                      | Galvanized iron                     | 3.0        |
|       |                      | Tarpaulins                          | 3.0        |
|       |                      | Thatched with tarpaulin sheet       | 12.0       |
|       |                      | Tiles                               | 1.0        |
| 6     | Housing of lambs     | Housed separately                   | 19.0       |
|       |                      | Along with ewe                      | 81.0       |

|    |                         |                           |      |
|----|-------------------------|---------------------------|------|
| 7  | Type of lamb enclosure  | No special house          | 81.0 |
|    |                         | Movable structure         | 6.0  |
|    |                         | Partition inside ewe shed | 4.0  |
|    |                         | Kept in farmers house     | 9.0  |
| 9  | Height of roof at ridge | No roof                   | 10.0 |
|    |                         | 5-10 ft                   | 78.0 |
|    |                         | >10 ft                    | 12.0 |
| 10 | Height of roof at eaves | No roof                   | 9.0  |
|    |                         | 1 – 2 ft                  | 22.0 |
|    |                         | 3 – 7 ft                  | 63.0 |
|    |                         | 8ft & above               | 6.0  |
| 11 | Soil replacement        | No replacement            | 21.0 |
|    |                         | Once a year               | 43.0 |
|    |                         | Twice a year              | 18.0 |
|    |                         | Thrice a year             | 6.0  |
|    |                         | Fill the depressions      | 12.0 |
| 12 | Disinfection            | Yes                       | 35.0 |
|    |                         | No                        | 65.0 |

**Table4: Manure management in the field flock**

| S. no | Category                          | Sub category                          | Percentage |
|-------|-----------------------------------|---------------------------------------|------------|
| 1     | Place of storage of manure        | Near the shed                         | 44.0       |
|       |                                   | Away from the shed                    | 56.0       |
| 2     | Method of Storage of manure       | Kept as open heap                     | 96.0       |
|       |                                   | Applied directly in agriculture field | 4.0        |
| 3     | Mode of use of manure             | Sale                                  | 49.0       |
|       |                                   | Own purpose                           | 32.0       |
|       |                                   | Both sale & own purpose               | 12.0       |
|       |                                   | Relatives                             | 4.0        |
|       |                                   | Exchange for dry fodder               | 3.0        |
| 4     | Frequency of disposal of manure   | Need basis                            | 39.0       |
|       |                                   | 6 months once                         | 11.0       |
|       |                                   | Yearly once                           | 49.0       |
|       |                                   | 2 years once                          | 1.0        |
| 5     | Sale price of manure/tractor load | No sale                               | 39.0       |
|       |                                   | <Rs.500                               | 20.0       |
|       |                                   | Rs.501-1000                           | 39.0       |
|       |                                   | >Rs.1000                              | 2.0        |

**Table5: Feeding management in field flocks**

| S. no | Category            | Sub category     | Percentage |
|-------|---------------------|------------------|------------|
| 1     | Duration of grazing | 6 and 6.30 hours | 11.0       |
|       |                     | 7 and 7.30 hours | 41.0       |
|       |                     | 8 and 8.30 hours | 42.0       |
|       |                     | 9 and >9 hours   | 6.0        |

|   |                                          |                                         |      |
|---|------------------------------------------|-----------------------------------------|------|
| 2 | Grazing distance                         | 0-2 km                                  | 10.0 |
|   |                                          | 3-5 km                                  | 89.0 |
|   |                                          | >5 km                                   | 1.0  |
| 3 | Grazing area for sheep                   | Common land                             | 26.0 |
|   |                                          | Forest area                             | 6.0  |
|   |                                          | Common land & forest area               | 28.0 |
|   |                                          | Forest area & harvested field           | 20.0 |
|   |                                          | Common land+forest area+harvested field | 3.0  |
|   |                                          | Real-estate land & harvested field      | 9.0  |
|   |                                          | Real-estate & river side area           | 7.0  |
| 4 | Supplementary feed offered during summer | No other feed                           | 62.0 |
|   |                                          | Concentrate feed                        | 3.0  |
|   |                                          | Groundnut haulms                        | 35.0 |
|   |                                          |                                         |      |
| 5 | Provision of water in summer             | Yes                                     | 64.0 |
|   |                                          | No                                      | 36.0 |

**Table6: Reproductive data from field flocks**

| S. no | Category                  | Sub category   | Percentage |
|-------|---------------------------|----------------|------------|
| 1     | Detection of anestrus ewe | Yes            | 62.0       |
|       |                           | No             | 38.0       |
| 2     | Age at first mating       | 1 to 1.5 yrs   | 36.0       |
|       |                           | 1.5 to 2.0 yrs | 52.0       |
|       |                           | 2 to 2.5 yrs   | 12.0       |
| 3     | Age at first lambing      | 1.5 to 2 7 yrs | 36.0       |
|       |                           | 2 to 2.5 yrs   | 52.0       |
|       |                           | 2.5 to 3 yrs   | 12.0       |

|   |                                  |              |       |
|---|----------------------------------|--------------|-------|
| 4 | No. of lambings in the life time | 2 to 4       | 14.0  |
|   |                                  | 4 to 5       | 30.0  |
|   |                                  | 5 to 6       | 38.0  |
|   |                                  | > 6          | 18.0  |
| 5 | Twinning observed among flocks   | Yes          | 9.0   |
|   |                                  | No           | 91.0  |
| 6 | Twinning preference              | Yes          | 15.0  |
|   |                                  | No           | 85.0  |
| 7 | Breeding method                  | Flock mating | 100.0 |
| 8 | Ram exchange                     | Yes          | 100.0 |

**Table7: Health care management in the field flock**

| S. no | Category                         | Sub category       | Percentage |
|-------|----------------------------------|--------------------|------------|
| 1     | Deticking                        | Yes                | 96.0       |
|       |                                  | No                 | 4.0        |
| 2     | Method of deticking              | Application        | 37.0       |
|       |                                  | Spraying           | 40.0       |
|       |                                  | Dipping            | 19.0       |
|       |                                  | No deticking       | 4.0        |
| 3     | Traditional method of treatment  | Yes                | 8.0        |
|       |                                  | No                 | 92.0       |
| 4     | Mode of disposal of died animals | Burying            | 90.0       |
|       |                                  | Thrown into bushes | 10.0       |

**Table 8: Marketing management of Madras Red sheep in field flock**

| S. no | Category                   | Sub category    | Percentage |
|-------|----------------------------|-----------------|------------|
| 1     | Sale price of ram lambs    | Rs.1000-rs.3000 | 3.0        |
|       |                            | Rs.3001-rs.4000 | 57.0       |
|       |                            | Rs.4001-rs.5000 | 40.0       |
| 2     | Marketing age of ram lambs | 6 to 12 months  | 93.0       |
|       |                            | 12 to 18 months | 7.0        |
| 3     | Sale price of aged ewe     | Rs.100- rs.1000 | 30.0       |
|       |                            | Rs.1001-rs.2000 | 43.0       |
|       |                            | >rs.2000        | 25.0       |
|       |                            | No sales        | 2.0        |