

# A STUDY ON MIGRATORY PATTERN AND SOCIO-ECONOMIC STATUS OF TIRUCHY BLACK SHEEP IN TAMIL NADU

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## ABSTRACT

*Tiruchy Black is one of the coarse wool breeds of sheep reared in Tamil Nadu. An investigation was undertaken to ascertain the migratory pattern and socio-economic status of Tiruchy Black sheep at 71 flocks in 53 villages of Dharmapuri and Krishnagiri Districts of Tamil Nadu. The migratory tracts were almost regular over the year in the breeding tract. A total of eight migratory tracts comprising of three major and five minor tracts were identified. The overall distance covered was  $98.64 \pm 1.13$  km with a range of 15 to 128 km. The mean radial migratory distance was  $184.12 \pm 1.42$  with range from 65 to 234 in major tracts and  $34.12 \pm 1.62$  with a range of 15 to 64 Km in minor tracts. The Tiruchy Black sheep farmers family size was comprised of 2-5 numbers and both the genders were involved in sheep rearing. In the present study, it was observed that vast majority of sheep farmers belonged to the most backward (72.16 %), followed by backward (22.37 %) and others (5.47 %). Majority of sheep farmers belonged to the 'Kurumba Gounders' (96.00%). A small proportion of them in small farms belonged to the Vanniyars (4.00%). Statistical analysis revealed no significant relation between caste, community and farm size. Depending upon the condition of the animal, prices of adult rams and ewes varied from Rs. 7,000 to 8,000 and from Rs.5000 to 6,000 respectively. Surplus ram lambs were sold at the age of 3 to 5 months for Rs.1,750 to 2,500. It is concluded that the Tiruchy Black sheep farmers were following traditionally migratory pattern over the generations and which helps improves their socio-economic status in the breeding tract of Tamil Nadu.*

**Key Words:** Migratory pattern; Pastoralists, Sheep, Socio-economic status, Tiruchy Black

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## INTRODUCTION

Livestock is one of the fastest growing agricultural subsectors in developing countries. Its share of agricultural GDP is already 33 per cent and production systems have both positive and negative effects on the natural resource base, public health, social equity and economic growth (Thornton, 2010). Currently, this growth is driven by the rapidly increasing demand for livestock products, this demand being driven by population growth, urbanization and increasing incomes in developing countries. Sheep with its multi-faceted utilities through meat, wool, skin and manure, form an important component of rural economy particularly in the arid, semi-arid and mountainous areas of the country (Ganesan *et al.*, 2015). The sheep are distinct species among the domestic animals in the world since they have an excellent ability to survive over a prolonged period of drought and semi starvation and are less prone to extreme weather conditions. In the event of failure of seasonal rainfall in the rainfed area, leading to crop failure, sheep gives the farmers a helping hand and uplifts their livelihood in extreme climatic conditions (Swarnkar and Singh, 2010). Some sections of the people practice migratory sheep management as a way of life and have acquired caste/community connotations as well, for example, the Raika community of Rajasthan and Gaddi community in Himachal Pradesh and Konar/ Yadhav community in Tamil Nadu (Kumaravelu, 2007). Also, the Kurumba Gounder (*Kumbers*) community preferred to rear Tiruchy Black sheep and hence this sheep is commonly called '*Karum kurumbai*' (Ganesakale and

Rathnasabapathy, 1973). On the other hand, the temporary migration is a coping strategy to farmers to the risk and uncertainties in the production system in the form of deficit rainfall and drought conditions which brings disturbance between the demand-supply equilibrium of the fodder (Suresh *et al.*, 2011). Migratory production systems ensure sustainability and also are a major thrust to the narrowing genetic base of high performing animal breeds. Unfortunately, policy makers, conservationists and animal scientists have failed to recognize the importance of these longstanding human-animal-landscape associations for biodiversity conservation and for rural livelihoods (Rollefson *et al.*, 2008). Thus, the aim of the present study was to collect the baseline comprehensive details of migratory pattern and socio-economic aspects of Tiruchy Black sheep farmers of Tamil Nadu.

## MATERIALS AND METHODS

The survey was conducted on Tiruchy Black sheep breeding tract at Dharmapuri and Krishnagiri districts in North-Western agro-climatic zone of Tamil Nadu, India. The study was made in 53 selected villages and in each village flock structure, migratory pattern of the sheep and the socio-economic status of the shepherds were recorded. A total of 71 sheep flocks were selected randomly in the study location and divided based on the flock size as 1 to 20; 21 to 50; 51 to 75; 76 to 100 and above 100. The socio-economic factors like caste, community, literacy level, family type, age, migratory farming experience, land holding and type of land were included in the study. The desirable data were collected through

structured and pre-tested questionnaire. The questionnaires were filled on the spot by face-to-face interview with the sheep farmers. Based on the cost and returns, economics were calculated and presented. The data collected were scrutinized, collated and analysed by the conventional tabular analysis in the form of mean, standard error and percentage using the methods suggested by Snedecor and Cochran (1994).

## RESULTS AND DISCUSSION

Tiruchy Black sheep population in the breeding tract was estimated on the basis of the total sheep population from 53 villages of eight Panchayat Unions. The survey revealed that Tiruchy Black sheep

population was approximately 9.35 per cent of the total sheep population in the breeding tract. During the survey the population was estimated to be approximately 19,509. The flock size and distribution of the sheep in various groups are presented in the Table 1.

The migratory tracts were almost regular over the year in the breeding tract. A total of eight migratory tracts comprising of three major and five minor tracts were identified. The overall distance covered was  $98.64 \pm 1.13$  Km with the range of 15 to 128 Km. The mean radial migratory distance was  $184.12 \pm 1.42$  with a range from 65 to 234 in major tracts and  $34.12 \pm 1.62$  with a range of 15 to 64 Km in minor tracts. The migratory and radial distance covered by the flocks in a year is depicted in Figure 1.

**Table 1: Per cent distribution of flock size of Tiruchy Black sheep in the breeding tract**

Flock size	Tiruchy Black sheep flock (n= 71)
1 to 20	3.09 (3)
21 to 50	31.96 (24)
51 to 75	22.69 (22)
76 to 100	24.72(16)
>100	17.54 (6)



**Figure 1. Migratory routes of Tiruchy Black sheep\***

**\* Major migratory routes**

1. Marandahalli to Marandahalli (Via Denkanikottai-Kelamangalam-Royakottai)
2. Krishnagiri to Nallampalli
3. Krishnagiri (Via Panchapalli dam and Chinnar dam) to Denkanikottai and return back

**Minor migratory routes**

4. Nallampalli to Nagavathi dam
5. Indur to Chekkodi
6. Periyampatti to Thubalahalli dam
7. Krishnagiri to Gundrapalli
8. Pallapatti to Jarugu



**Figure 2. Flocks of Tiruchy Black sheep in migration**

The migratory flock owners preferred penning in Krishnagiri, Thali, Kelamangalam, Rayakottai of Krishnagiri district and Dharmapuri, Palacode and Nallampalli blocks of Dharmapuri district. Vast areas of coconut and mango farm gardens with no water logging uncultivated waste land, reserve forest and semi - rock terrains and water shed dams made it conducive to graze the sheep in these two districts. After winter season, the flocks migrate from Marandahalli to Denkanikottai and few numbers of flocks move to water catchment area of Panchapalli watershed dam and Chinnar dam in Dharmapuri district during the summer.

Between mid-November and February, most of the sheep flocks migrated to Kaveripattinam to Nallampalli in Dharmapuri district, where there was great demand for penning and night folding of sheep in coconut and mango farm gardens and where the private fields remain harvested and provide good grazing resources. (Figure1 and 2). The migratory sheep flocks comprise of six to eight sheep owners with the total number of 300-400 sheep. The total sheep (300-400 sheep) were covered continuous eight day penning were sufficient to enrich the one acre land. During penning, the flock pastoralists were paid cash (at the rate of Rs. 1 per night) of sheep penned or two times food from the land owners. Apart from migration,

the shepherds had taken the flocks around seven kilometer radial distance throughout year. The seasonal variation of grazing hours was also observed in Tiruchy Black sheep flocks. The grazing hours during summer were started from 9.00 am and halt in the shadow area at 12.00 am. Then they were continued the grazing from 4.00 pm to 6.00 pm and return back. During rainy and winter season, the grazing hours were varied according to the spring and weather condition (10.00 am to 5.00 pm without any halt). This was similar to the earlier reports on Coimbatore sheep (Devendran *et al.*, 2012; Kandasamy *et al.*, 2006) and also the migratory sheep production system in Tamil Nadu reported by Singaravadivelan *et al.*, (2019)

The socio-economic status based on family size, community, literacy level, land

holding capacity of the Tiruchy Black sheep owners in the breeding tract are furnished in Table 2.

The family size comprised of 2-5 numbers and both the genders were involved in the sheep rearing. In all the categories of the shepherd community, vast majority of them were most backward (72.16 per cent), followed by backward (22.37%) and others (5.47%). The majority of them belonged to the 'Kurumba Gounders caste (96.00 per cent) while the rest belonged to the Vanniyar caste (4.00%). Statistical analysis showed no significant relation among caste, community and land holdings.

The results of the present findings coincide with that of Kandasamy *et al.*, (2006), Tailor *et al.*, (2006), Kumaravelu

**Table 2: Socio-economic status of Tiruchy Black sheep owners**

Social Parameters	Category	Average/Percentage
<b>Family (number)</b>		
	Family size	3.27 (2-5)
	Male	2.14 (1-4)
	Female	1.32 (0-2)
<b>Community (%)</b>		
	Backward	22.37
	Most backward	72.16
	others	5.47
<b>Literacy rate (%)</b>		
	Male	42.14
	Female	31.32
<b>Land holding (%)</b>		
	Landless	14.25
	Marginal<2.5 acres	71.25
	Small>2.5 to 5 acres	11.25
	Medium>5 to 20 acres	3.25

\* Estimates from 71 flocks

(2007), Suresh *et al.*, (2008) and Devendran *et al.*, (2012), who had reported that sheep rearing was a traditional occupation for certain specific communities in different parts of Tamil Nadu. It was also observed that sheep rearing was a major occupation of socially backward classes and majority of the migratory sheep farmers belonged to the old age group (78 per cent), followed by the middle age (20 per cent) and young age group (2 per cent). Kumaravelu (2007) and Suresh *et al.* (2008) observed a similar trend with sheep farmers. The overall mean age of a sheep farmer was observed to be  $56.27 \pm 1.87$  years. Statistical analysis revealed no significant association between age group and flock size.

Since the flock owners wanted their children or youngsters of the family to opt for waged jobs in industries because of the state of Tamil Nadu is under rapid industrialization. The majority of the flock owners have made their sons and daughters educated in industrial training institutes, polytechnics and other colleges. This makes the educated youth to prefer the lucrative jobs than the traditional sheep rearing. Literacy level of the farmers was below 40 per cent which it leading to non adoption of new technologies in sheep rearing. Similar findings were reported by Tailor *et al.* (2006), Suresh *et al.* (2008) and Rajanna *et*

*al.* (2012) with sheep farmers in different parts of India.

Ownership status of migratory sheep was absolute in 98 per cent of sheep, followed by sheep taken for lease (2 per cent). Similar findings were recorded by Kandasamy *et al.* (2006) and Kumaravelu (2007) in Coimbatore and Ramnad White sheep respectively in Tamil Nadu.

Majority of the sheep rearers were marginal farmers (71.25 per cent) followed by the landless (14.25 per cent) whereas, Thiruvankadan *et al.* (2004) and Rajanna *et al.* (2012) found that the sheep framers were mostly small and marginal farmers. Also from the migratory sheep flock owners were not depend on agriculture for their main occupation was sheep rearing. The reduction in the size of land holdings is attributed to fragmentation of agricultural lands to the descendants of the farmers, sale of land for want of money, failure of seasonal rain, conversion of agricultural lands into residential and industrial plots, which has lead overall reduction of agricultural operations (Singaravadivelan *et al.*, 2019).

The cost and returns from migratory Tiruchy Black sheep are presented in Table .3

**Table 3: Cost and returns from migratory Tiruchy Black sheep farming**

Particulars	Amount(Rs)
<b>Cost</b>	
Deworming and Vaccination (Per sheep @ Rs 200 )	14,800.00
Treatment and miscellaneous (Per sheep @ Rs 300 )	22,200.00
Transport of lamb hut penning materials	5,000.00
<b>Total cost per flock</b>	<b>42,000.00</b>
<b>Returns</b>	
Sale of surplus lambs (Approximately 30.No. Lambs x Rs.4000 /annum	1,20,000.00
Sale of surplus adults (Approximately 7 lambs x Rs.6000)	42,000.00
Penning charges	15,000.00
Sale of manure	3,000.00
<b>Total returns</b>	<b>1,80,000.00</b>
<b>Net returns per flock</b>	<b>1,38,000.00</b>
<b>Net returns per sheep</b>	<b>1864.66.00*</b>

\*Average flocks size (n=74)

The flock owners were involved in grazing the sheep and there is not involved the on wages and food for shepherds. The cost recurring for health management care (vaccination, deworming and treatment) and transportation of lamb hut, penning materials, etc. between migrations. The income from sheep farming was obtained mainly through sale of surplus lambs, culled adults, penning charges collected and sale of manure. In the study area, majority of the sheep flock owners penned their sheep in coconut and mango gardens, harvested rain-fed, irrigated agricultural fields during night. The sheep farmers charged at the rate of Rs.1.00 sheep/night from the owners of the agricultural fields in lieu of fertilization of the land by penning the sheep flocks. The penning sites were changed daily to an adjacent site for uniform enrichment of soil.

The ram at age group of 3 to 6 months were sold for growing and fattening at the rate of Rs. 2000 to 4000 per animal. Stocks at the age group of 5 to 7 months were in demand for meat purpose at the rate of Rs.7000 to 8000 per pair.

Culled rams and ewes were sold at about six year of age for Rs. 7,000-8,000 and Rs. 5000- 6000 per sheep respectively. The present findings were in agreement with Devendran *et al.* (2012) in migratory Coimbatore sheep flocks and Suresh *et al.* (2011), Swarnkar and Singh (2012) in Rajasthan. The overall average annual net returns per flock and per adult sheep estimated were Rs.1, 38,000 and Rs. 1,864.86 respectively, which is lower than the findings of Singaravelan *et al.* (2019) in migratory sheep flocks of Tamil Nadu, Rajapandi (2005) and Devendran *et al.* (2012) in migratory Coimbatore sheep

flocks and Prabhu *et al.* (2009) in Ramnad White sheep flocks in Tamil Nadu.

### CONCLUSION

The results of the study revealed that majority of the Tiruchy Black sheep flock owners of Tamil Nadu were 'Kurumba Gounder's (96.00 per cent) community and belonged to an old age group (56 percent). The flock owners traditionally rear migratory sheep for many generations. Majority of the flock owners were marginal farmers followed by land less laborers. The overall average annual net returns per flock and per adult sheep estimated were Rs.1,38,000 and Rs. 1864.86 respectively. It is concluded that the Tiruchy Black sheep farmers followed the traditional migratory pattern over generations and it helps to improve their socio-economic status.

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