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Research Article

HABITAT AND DISTRIBUTION OF CHEVAADU SHEEP OF TAMILNADU, INDIA

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ABSTRACT
Chevaadu sheep is a lesser known hairy meat breed of sheep reared in Tamil Nadu. Absence of systematic studies on Chevaadu sheep in farmers flock is a lacuna in assessing the genetic potential. Hence, an investigation was carried out to study distribution of Chevaadu sheep in the breeding tract. The distribution of the sheep was determined by surveying 347 flocks in Tirunelveli and Thoothukudi districts of Tamil Nadu. The flock size and structure were studied in 22 villages selected randomly in the breeding tract.
Data on soil types and components of climate, and major vegetation were also collected to describe the habitat. Chevaadu sheep were predominantly distributed in Alangulam and Pappakudi Panchayat Union areas in Alangulam taluk; Manur Panchayat Union areas in Tirunelveli taluk; Melaneelithanallur and Kuruvikulam Panchayat Union areas in Sankarankovil taluk; Nanguneri Panchayat Union areas in Nanguneri taluk of Tirunelveli district. Chevaadu sheep were maintained either as pure flocks (72.33 per cent) or mixed flocks containing other breeds (27.67 per cent) in varying proportions. The size of pure flocks raged from 20 to 176 sheepwitha mean of 76.08 sheep. The structure of an average flock was 1.74 rams, 57 ewes, 4.69 ram lambs and 12.65 ewe lambs.

Key Words:

INTRODUCTION
Tamil Nadu ranks fourth in India with a total sheep population of 7.99 million, which constitutes 11.17 per cent of the total sheep population of the country. The sheep population of Tamil Nadu had increased from 5.53 million in 1982 to 7.99 million in 2007. The estimate of mutton production of the state is 15 thousand tonnes which is 5.01 per cent of the total mutton production of the country (Ministry of Agriculture, India, 2010). Tamil Nadu state is habituated with eight recognized breeds of sheep, of which five are meat type viz. Kilakarsal, Madras Red, Mecheri, Ramnad White and Vembur and three are wool type viz. Coimbatore, Nilagiri and Tiruchi Black. They are distributed in different agro climatic zones of Tamil Nadu (Ganesakale and Rathnasabapathy, 1973 and Acharya, 1982).
In addition to these breed farmers in Tamil Nadu developed a new mutton breed which is locally named as Chevaadu sheep. Absence of systematic studies on Chevaadu sheep in farmers flock is a lacuna in assessing the genetic potential. Hence, an investigation was carried out in Chevaadu sheep breeding tract to document the distribution areas.

MATERIALS AND METHODS
The survey on Chevaadu sheep was carried out in Tirunelveli and Tuticorin districts of Tamil Nadu from October 2010 to December 2012 to document the habitat, morphology and production and reproduction performances of the breed and the husbandry practices adopted by the farmers in the breeding tract.
The habitat and distribution of Chevaadu was ascertained by visiting 22 villages and observing 347 flocks and three weekly markets in Tirunelveli and Tuticorin districts. The borders of the breeding tract were

marked, where a considerable decline in number of breedable females and proportionate increase of other local sheep such as Vembur, Pattanam and Kilakarsal were encountered.

The environment of the breeding tract was studied through the data on soil, climate and vegetation. Data on soil type and the components of climate for 12 years (from 2001 to 2012) were collected from Institute of Agriculture Rice Research Station, Ambasamudram ($8^{o}42'$ N latitude and $77^{o}28'$ E longitude and 64.88 M above M.S.L.) whose climate is representative of the breeding tract. The meteorological data collected were air temperatures (°C), relative humidity (%), wind speed (m/sec), wind direction (deg), atmosphere pressure (hpa) and monthly rainfall (mm). Information on the natural vegetation and crops raised by the farmers was collected in various villages in the breeding tract.

RESULTS AND DISCUSSION

The sheep is popularly known as Chevaadu and the background for the name of this breed owes to its "Brown" coat colour. It is difficult to trace the origin of breed due to non-availability of documentary proof.

Based on the present survey, the breeding tract was very limited, distributed mainly in Tirunelveli district (Figure 1). The district is situated in the banks of the river "Thamiraparani" and having geographical area of 6759 sq.kms in the south eastern part of Tamil Nadu which is triangular in shape. Chevaadu sheep are predominantly distributed are Alangulam and Pappakudi Panchayat Union areas in Alangulam taluk; Manur Panchayat Union areas in Tirunelveli taluk; Melaneelithanallur and Kuruvikulam Panchayat Union areas in Sankarankovil taluk; Nanguneri Panchayat Union areas in Nanguneri taluk of Tirunelveli District. True to breed animals were generally found in Alangulam and Melaneelithanallur Panchayat Unions.

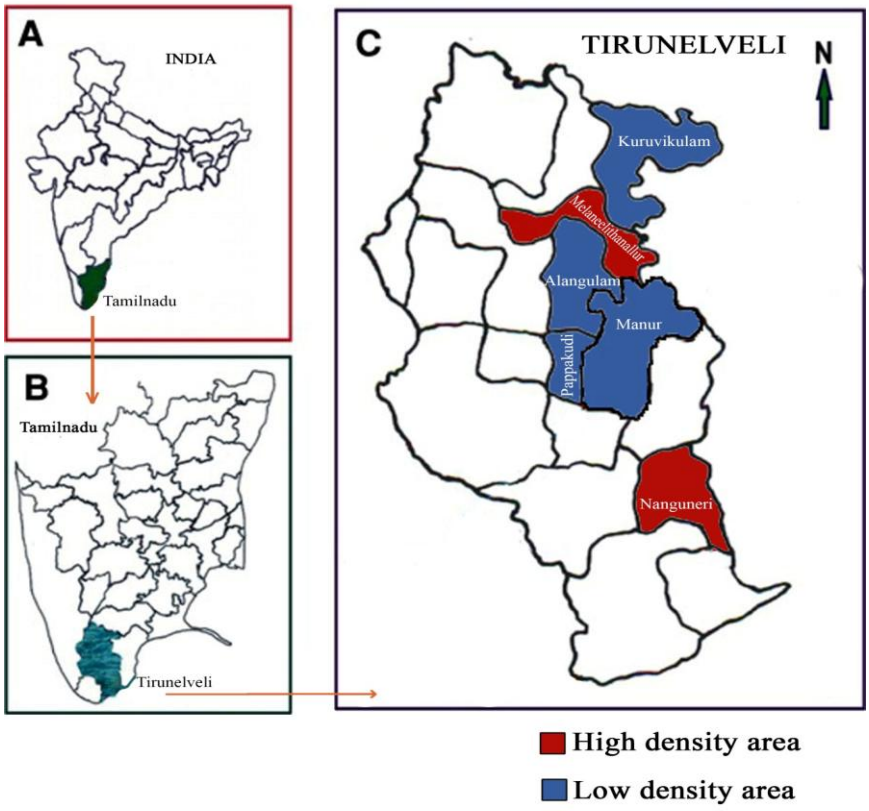

Figure 1: Home tract of Chevaadu sheep

Moreover, the population density was higher in Melaneelithanallur and Naguneri Panchayat Unions of Tirunelveli District. Sheep of similar phenotype characteristics, although in less pure form, are also found in Ottapidaram Panchayat Union areas of Thoothukudi District.

The approximate area of Chevaadu breeding tract is 2826 square kilometre which is located between 8°.05' and 9°.30' of the Northern latitude and 77°.05' and 78°.25' of Eastern longitude. The elevation of the tract ranges from 70 to 500 metres above mean sea level (M.S.L). Hubs of wind mills are found in some part of the breeding tract. Grasses, bushes and weeds found in this wind mill area are the main grazing source for Chevaadu sheep.

The area mostly consists of black and red soil. The breeding tract of Chevaadu lies in southern agro-climatic zone of Tami Nadu. The climate is generally hot and dry except monsoon seasons. The cold season is from December to February and is followed by hot season from March to May. Two monsoon seasons are south west monsoon (June to August) and north-east monsoon (September to November). Mean monthly maximum temperature (32.1°C) and minimum temperature (26.5°C) were found in April and January respectively and the area is exposed to hot-dry winds from May to September. The maximum (76.5%) and minimum (44.6%) relative humidity was found in October and May respectively. The average annual rainfall was 748.3 mm and peak rain was found in November.

The major native fodder grasses and weeds were *Cynodon dactylon* (Hariali grass), *Cyperus rotundus* (Nut grass), *Celosia argentea* (Quail grass), *Mimosa pudica* (Touch-me-not), *Vicoa indica* (Mookuti poondu), *Marsilea quadrifolia* (Araikeerai), *Digitaria ciliaris* (Arisipullu) and *Tianthema portulacastrum* (Saranai). The major fodder trees and shrubs were *Acacia nilotica* (Karuvel), *Acacia planifrons* (Kudaivel), *Tamarindus indica* (Tamarind), *Azadirachta indica* (Neem), *Albizia lebbek* (Vagai), *Ficus bengalensis* (Banyan), *Ficus religiosa* (Arasu), *Morinda tomentosa* (Manjanathi), *Prosopis juliflora* (Veli karuvel) and *Zizyphus maurtiana* (Elanthai).

Phaseolus mungo (Black gram), *Phaseolus aureus* (Green gram), *Cajanus cajan* (Red gram), *Dolichos biflorus* (Horse gram) and *Vigna sinersus* (Cowpea) were the main cultivated pulses. The main cultivated cereals were *Oryza sativa* (Paddy), *Sorgum vulgare* (Sorghum), *Zea mays* (Maize), *Eleusine coracana* (Finger millet), and *Pennisetum glaucum* (Bajra).

The origin of the Chevaadu sheep is not known and perusal of the literature did not provide any clue to their origin. During survey, it was recorded that the Hindus in the area preferred only brown coat colour ram especially for donation to the Goddess (which is known as *Koil Kida*). This paved the way for development of brown coat sheep by the farmers of Tirunelveli district from the existing sheep breeds. It is likely that the breed might have originated from Kilakarsal (a breed predominantly tan) due to the contiquity of the breeding tracts. Katchakatty breed is also likely to be one of the progenitors of the breed for similar reason. Alternatively both the breeds might have contributed to the evolution of Chevaadu sheep.

Ganesakale and Rathnasabapathy (1973) and Acharya (1982) have described the distinct geographical distribution, morphology and morphometric characteristics of the eight recognized breeds of Tamil Nadu viz. Madras Red, Tiruchy Black, Coimbatore, Mecheri, Nilagiri, Ramnad White, Vembur and Kilakarsal. However, the Chevaadu sheep finds no mention in the list of breed made by the above authors. But on personal interaction during the survey on Chevaadu sheep, it was revealed by the traditional sheep breeders of Tirunelveli district that Chevaadu sheep has found a pride of place in their flocks since long back. The wizened flock men mentioned that they have been rearing Chevaadu sheep generations together and its legacy was known to them for the past 50-75 years.

The distribution of Chevaadu observed in this study was wider than the earlier reports (Ravimurugan *et al*., 2009; Ravimurugan, 2010). Chevaadu sheep were also reared in parts of Kurivikulam and Nanguneri blocks of Tirunelveli district. However, the proportion of Chevaadu sheep in the flocks was less in these areas when compared to Manur block. Though majority of Chevaadu sheep flocks were maintained as pure, few were found to be mixed with other sheep breeds such as Kilakarsal and Vembur sheep.

Based on the sample survey per cent age wise and sex wise distribution of Chevaadu sheep in the selected villages were obtained. The age-wise and sex-wise distributions of Chevaadu are presented in Table 1. Out of the total 25726 Chevaadu sheep, 11.88 per cent sheep were lambs (up to 6 months), 9.73 per cent were Hogget (6 to 12 months), while 78.39 per cent were adults (1 year and above). Male to female ratio in the age group up to 6 months, 6 to 12 months and 1 year and above was 1:1.68, 1:5.53 and 1:43.37, respectively.

Table 1: Flock structure of Chevaadu sheep in the breeding tract

Age groups	Male	Female	Total
Up to 6 month	1142	1914	3056
	(4.44)	(7.44)	(11.88)
6-12 month	384	2119	2503
	(1.49)	(8.24)	(9.73)
1 year and above	476	19691	20167
	(1.85)	(76.54)	(78.39)
Total	**2002**	**23724**	**25726**

Figures in parentheses are the respective percentages to overall total

A total of 347 flocks were enumerated and found that Chevaadu sheep were maintained either as pure flocks (72.33 per cent) or mixed flocks containing other breeds (27.67 per cent) in varying proportions. The size of pure Chevaadu flocks ranged from 20 to 176 sheep. Average flock size of 76.08 sheep comprised 1.74 ram, 57 ewes, 4.69 ram lambs and 12.65 ewe lambs. There was major variation in composition of lambs depending on the season.

The average flock size of Chevaadu mixed with other breeds / population was 74.4 (range 22 to 184). Of this, the other breeds / population viz., Vembur, Kilakarsal and not true to any breed was distributed in an average of 8.96, 5.73 and 10.91 sheep respectively. Besides sheep, the Chevaadu sheep farmers also maintained Kanni Adu, Kodi Adu and non-descript goats in an average of 2.75, 5.14 and 5.91 goats respectively in their flocks.

The percentage of farmers keeping Chevaadu with a flock size of up to 25 to 50, 51 to 75, 76 to 100 and >100 were 11.53, 16.50, 22.42, 24.70 and 24.85 respectively. It was also found that 72.11 per cent of the Chevaadu sheep owners holding more than 50 sheep in their flocks.

The proportion of pure and mixed flocks found in the present study was within the range reported by Ganesakale and Rathnasabapathy (1973) for individual sheep holdings (5 to 200 sheep) in Tamil Nadu. The average size of pure flock of Chevaadu sheep (76.08) was higher than that reported for Vembur (38.6), Chokla (44), Munjal (53), and Coimbatore (60) of stationary flock (Chandran, 1998; Jain *et al*., 2009; Yadav *et al*., 2011 and Report, 2006). Generally, larger flock sizes were reported for Magra (150), Malpura (20-150), Ramnad White (200-600) and Coimbatore sheep (100-900) of migratory flocks (Report, 1993; Kumar *et al*., 2008; Mahendran, 2009 and Report, 2006). In general migratory flocks had larger flock size than the size of stationary flocks.

CONCLUSION

The breed is distinctly reared by smallholder farmers and known for their economical and cultural importance as it is considered as a ceremonial mutton breed. For sustainable and improved sheep breeding programmes, it is important to measure, observe the production environments and involve farmers for exploiting the existing breeding practices and management systems.

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REFERENCES
Acharya RM (1982). Sheep and Goat Breeds of India. FAO Animal Production and Health Paper No. 30. FAO, United Nations, Rome, Italy.
Chandran PC (1998). Characteristics and performance of Vembur sheep in the habitat. M.V.Sc. Thesis Submitted to the TamilNadu veterinary and Animal Sciences University, Chennai, India.
Ganesakale D and Rathnasabapathy V (1973). Sheep breeds of Tamil Nadu. *Cheiron* **2** 146-155.
Jain A, Singh G and Yadav DK (2009). Chokla-an endangered sheep genetic resource. *Indian Journal of Animal Sciences* **79** 1071–1072.
Kumar A, Singh U, Kumar S, Sharma RC and Arora AL (2008). Malpura: a mutton breed of sheep needs to be conserved. *Indian Journal of Animal Sciences* **78** 740–745
Mahendran M (2009). Phenotypic and Molecular Characterization of Ramnad White Sheep. M.V.Sc. Thesis. Tamilnadu Veterinary and Animal Sciences University, Chennai.
Ministry of Agriculture, India (2010). Basic Animal Husbandry Statistics-2010. Department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India, New Delhi, India. 48-54.
Ravimurugan T (2010). Chevaadu sheep of south Tamil Nadu. Proceedings of the National Symposium on Conventional and Modern Breeding Technology for Genetic Improvement of Livestock and Poultry in India, 22-23rd October, 2010, Pantnagar, Uttarakhand, India. 141.
Ravimurugan T, Senthilkumar S, Devendran P and Chellapandian M (2009). Indigenous sheep genetic resources in south Tamil Nadu. Proceedings of the National Symposium on Conventional and New Age Breeding Technology for Livestock Centric Growth and Livelihood Security, 27- 28th November, 2009, Madras Veterinary College, Chennai, India. 112.
Report (1993). Evaluation and genetic improvement of Magra sheep for carpet wool production in farmers' flock. Annual report 1992-93. Rajasthan Agricultural University, Department of Animal Breeding and Genetics, Bikaner 39-68.
Report (2006). Survey, evaluation and characterization of Coimbatore sheep breed. Final report. Tamil Nadu Veterinary and Animal Sciences University, Department of Animal Genetics and Breeding, Namakkal 23-28.
Yadav DK, Arora R, Bhatia S and Singh G (2011). Morphological characterization, production and reproduction status of Munjal - a threatened sheep population of North-West. *Indian Journal of Animal Sciences* **81**: 943–945