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AS Selvaramesh
Associate Professor and Head, Department of Animal Genetics and Breeding, Veterinary College and Research Institute, Udumalpet, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Tamil Nadu, India

T Vasanthakumar
Assistant Professor, Veterinary University Training and Research Centre, Karur, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Tamil Nadu, India

Corresponding Author:
AS Selvaramesh
Associate Professor and Head, Department of Animal Genetics and Breeding, Veterinary College and Research Institute, Udumalpet, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS), Tamil Nadu, India

Thanjavur kuttai- A miniature type cattle in Thanjavur district- Status and its phenotypic characterization

AS Selvaramesh and T Vasanthakumar

Abstract
Present study was the first line data about Thanjavur kuttai cattle in Tamilnadu state, India. Due to cross breeding and less economic returns many indigenous cattle were neglected and the population numbers got decreased and slowly vanished from their native tracts without being recognized as a breed. Thanjavur kuttai cattle was one among the cattle known popularly for its miniature type reared by interested or traditional farmers in Thanjavur and adjacent districts. It can be raised in low or zero input system and found with multi colored. Mainly four different varieties found based on the coat color. Due to short type more number of animals can be accommodated in less space and these animals are being well maintained by the women for their livelihood. By sale of milk, dung major income for their survivability is ensured. But in the last few decades finding these animals is a very rare incident even in its native breeding tracts. Thanjavur kuttai cattle should be conserved and its numbers should be increased by proper breeding plans. More research studies should be taken up to identify the exact numbers its distribution and conservation measures to safe guard this valuable germplasm for the future generations.

Keywords: Thanjavur kuttai cattle, utility, phenotypic characterization, conservation

1. Introduction
India holds rich and diverse genetic resources in livestock sector. The Exotic/Crossbred and Indigenous/Non-descript cattle population in the country reported was 51.36 million and 142.11 million respectively. As per the livestock census report of 2019 the total cattle population in India was 193.47 millions in which 83% of the cattle population (166 million) was non-descript or indigenous type cattle and there was a 6% reduction of indigenous cattle population than the previous census. (20th Livestock Census, 2019) [1]. Comparing with the previous livestock census the overall cattle population was increased by 7.4% in Tamil Nadu state. This is mainly the increase of cross bred population due to the farmer's preference in rearing of cross bred population for better economic returns. But indigenous cattle population is reduced from 2.46 million to 1.8 million from the years 2012 to 2019. Over the years it was found that the population of indigenous cattle is decreasing at a faster rate all over the world. This is mainly due to the preponderance of crosses of indigenous cattle with exotic/temperate high producing cattle for improved milk production. (Sujith Kumar Sarang *et. al* 2024) [2] Due to increase numbers of cross breed population certain native type cattle are being neglected by the farmers and its numbers are getting decreased day by day in a particular area and the number of certain unique breed is in alarming state. Due to less numbers, these animals are unable to get a proper attention or listed in breed category and slowly it is getting eroded from their breeding tracts. Because of these difficulties, many indigenous or non-descript cattle conservation efforts may not be properly initiated and the numbers of certain indigenous animals are still going down and due to less numbers these animals are unnoticed. One among the cattle unnoticed in Tamilnadu state is Thanjavur Kuttai cattle.
Thanjavur kuttai cattle are very less in numbers, since these animals are very short, handling of these animals are much easier than other type of cattle by any one. More number of animals can be accommodated with minimal available space. Majority of indigenous livestock around the world are bred locally and kept by small-scale livestock keepers. (Ahlawat, *et al*., 2015) [3]. Hence, there is a need to promote local indigenous livestock species, as they represent

a genetic resource that is relatively resilient to great changes have occurred in livestock management in recent decades that have been due to increased specialization and mechanization. In combination with a strong focus on high-yielding breeds and breeds that mainly offer provisioning ecosystem services, these changes have led to a considerable decline in the diversity of indigenous livestock breeds. The cultural benefits provided by locally adapted breeds and their genetic diversity have mostly been neglected. But Indigenous livestock breeds act as a indicators for cultural ecosystem. Thomas Marsoner *et al.*, (2018) [4] the non-material benefits generated by local breeds, such as their socio cultural importance and educational and recreational contributions, have gained recognition in recent decades (Hoffmann *et al.*, 2014) [5]. Mostly in southern parts of India, farmers use to hold cross bred animals for milk production and some non-descript type animals for their livelihood. These non-descript animals are low milk yielders and mostly of draught type. Due to mechanization in farmer's field slowly these indigenous cattle numbers are getting reduced day by day and increasing cost of maintaining these animals and man power requirements leads to slow reduction and vanishing of certain indigenous cattle in its breeding tracts. This resultant in the genetic dilution of indigenous animals with taurine breeds. But due effort was made by the conservationist in the last two decades there is an interest created among the farmers to conserve this indigenous animals. FAO (2015) [6]. With this available information this study was undertaken to identify the breeding tract of thanjavur kuttai cattle and its distribution, morphological traits, production ability and usefulness of Thanjavur kuttai cattle for the support of farmers rearing this cattle for their livelihood security or interest to conserve this breed.

2. Materials and Methods

2.1 Description of the study area

Thanjavur kuttai cattle is reared by the farmers in and around Thanjavur, Pattukottai, Pudhukottai, Dindigul, Trichy and Sivagangai districts of Tamil Nadu state. Thanjavur and adjacent districts are taken up for carrying out the study. Thanjavur district is known as rice bowl of Tamil Nadu state and most of the farmer's major income comes through farming activity and livestock rearing. Paddy cultivation is the main and predominant crops grown throughout the year. For ploughing and other agricultural operations farmers rely on native cattle rearing. Since indigenous breeds possess superior qualities such as climatic adaptability and tolerance to heat and harsh climates, resistance to various diseases, ability to flourish with limited and available fodder and feed. These cattle are mainly reared by the landless farmers for their livelihood security with zero input system with better economic return.

2.2 Sampling Design and Framework

Thanjavur Kuttai cattle are one of the threatened indigenous cattle. Even many people in Thanjavur do not know about these Thanjavur kuttai cattle. But interestingly these animals are being reared by very few farmers in a particular area and hence the study was carried out in farmer's field and farmers were chosen randomly those who are rearing Thanjavur kuttai cattle.

2.3 Phenotypic characterization

Thanjavur Kuttai is a very small size miniature type of cattle which is very tiny in nature and if it is compared with other native cattle even the well grown adult animals looks like a calf only.

2.4. Territory and Distribution

Exactly the total size of the population is not known so far by any research study or not mentioned in any literature and more over detailed studies are not taken by any researchers due to its less numbers with more distance between one individual or herd to another individual/herd. This is the main reason for difficulty in finding the breeding males and it may be the main cause of forced this population towards unnoticed and. if there is no proper popularizing of this cattle or awareness among the farmers these animals may be eroded at a faster rate. These cattle are considered culturally important by the farmers who are rearing this cattle in its native tract and due to the major interest by the cattle conservationist, these animals are safe guarded till date.

2.5 Eco types or variety

Based on the coat color different varieties of thanjavur kuttai cattlle were observed in the field. Animals having complete white coat (called mayilai in local language), white with black shadow (called karu mayilai), brown colour with white patches (called chemmmarai), and kaari also available and different varieties were reared by the farmers. Few people thought that rearing these animals are giving positive energy and bring prosperity

Fig 1: Different color pattern in Thanjavur kuttai cattle.

2.6 Morphological Traits

The distinctive morphological feature of these cattle is its coat color, color of the eye lashes, muzzle color. Due to non availability of breeding bulls in the rearing area, these animals are being bred with the locally available short type bulls from punganur or vechur cattle. Due to these problems finding the originality of the breed is a big and tough challenge for the farmers who want to raise a pure type of these cattle. The height of the adult animal varies by the age factor. After attaining the age of 2-3 years there is not so much increase in growth. The height varies from 45 centimetre to 80 centimetre height.

Fig 2: Height of the well grown adult Thanjavur kuttai cattle

2.7 Production traits

Even though these animals are very short in nature, the cows use to give 1.5 to 3.0 Litres of milk per day. The milk are being sold by the farmers for their livelihood and for their household use. Minimum of three to a maximum of 15 numbers of animals are being maintained by a single family. From the farmers field it was reported that each animal use to produce a minimum of 10 to maximum of 13 calvings and more. The lactation length is varying between animals and it depends on the numbers of calvings by each animals.

2.8 Utility: Mainly these animals are being reared by the farmers for its milk and the other major source of income is generated by sale of dung voided by the animals and this is mainly used for agricultural operations (Köhler-Rollefson, 2003) [7]. Few animals are being used for rekhla race. They play an important role in sustenance of rural farmers especially for the women in the Cauvery delta region because of easy handling of more number of Thanjavur kuttai cattle by single women with minimal space.

2.9 Livelihood security

These animals are being traditionally reared by some interested people in cauvery delta region without any profit motive or economic returns. Maintaining more number of animals in less space with zero input system is the main factor for rearing these animals in the breeding tract.animal rearing ensures and supports better economic returns especially for the women in rural household.

3. Conclusions: Genetic characterisation is the first and foremost important tool for any new animals should be identified in the field and applying suitable conservation strategies to safe guard the valuable germplasm. During recent decades the idea of conservation of animal genetic resources has become more and more established in animal breeding, both in theory and practice, conservation helps the future reserve supplies of livestock for mankind. Otherwise it would be rapidly consumed and exhausted. (Bodo. I, 1985) [8] Conservation includes characterization, valuation, and documentation of valuable germ plasm. Information on the

genetic merit of endangered livestock breeds generally is lacking. (Rex. L. powell and H. duane Norman) [9] More than 30% of breeds are estimated to be at risk of extinction, and many more, particularly in developing countries, are threatened by inefficient utilization. (James stuart F barker, 1999) [10]. Thanjavur kuttai cattle numbers can be increased by identifying the constraints faced by the farmers in the field and conservation efforts should be taken by implementing suitable conservation programmes. So that the rare germ plasm can be conserved for the future generations.

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