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INVESTIGATING MORPHOMETRIC CHARACTERISTICS AND BODY CONFORMATION OF PULIKULAM CATTLE IN ITS NATIVE TRACT

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Key words : Indigenous cattle, Jallikattu, Physical and Morphometric characters, Pulikulam cattle.

Abstract–This was aimed to investigate the morphometric characteristics and body conformation of Pulikulam cattle breed in its native tract Sivagangai and Madurai districts of Tamil Nadu, India. The Pulikulam cattle appeared strong and active with a compact body and short legs. The predominant coat colour was whitish grey (72%), followed by white (16%), black (8%) and brown (4%). Height at withers, Body length and chest girth were 119.3±1.25, 121.2±1.26 and 151.0±1.44 cm in its adult bull and 114.62±0.93, 115.62±0.65 and 141.2±0.95 cm in the adult cow. Horn length, ear length, face length and tail length were 30.85±1.05, 20.20±0.30, 42.10±0.50 and 74.60±1.26 cm in the adult bull and 39.43±0.69, 19.15±0.17, 41.06±0.30 and 68.92±0.55 cm in the adult cow. The finding in the study will be referral document for further studies.

INTRODUCTION

India owns 43 Cattle breeds (NBAGR), and among these, four breeds (Pulikulam, Bargur, Kangayam and Umblachery) belong to Tamil Nadu state. All four breeds are indigenous in nature and have excellent draught power ability, heat tolerance and resistance to many diseases (Singh *et al.*, 2012). Pulikulam cattle breed is, by nature, distributed in Sivagangai, Madurai, Theni and parts of Virudhunagar districts in Tamil Nadu and maintained under migratory (within the breeding tract) system of rearing. Livestock farmers gained revenue through the sale of excessive male and female calves, and they were paid for penning the animal in the agricultural field for manure. Konar and Maravar community peoples of Tamil Nadu state are maintaining this cattle breed (Singh *et al.*, 2012). Adult male animals were sportive in nature and used in bull-baiting (Jallikkattu, Manju virattu), which is a traditional sport of Tamil Nadu state, particularly in its breeding tract. The utility of male animals in sports leads to a huge demand for this breed. Considering the above situation, an

investigation was carried out to study the morphometric and body conformation parameters of Pulikulam cattle breed in its native tract.

MATERIALS AND METHODS

The present investigation was carried out in two districts of Tamil Nadu viz., Sivagangai and Madurai, which are the native breeding tract for Pulikulam cattle breeds. Morphometric characteristics like Coat colour, Muzzle colour, Horn pattern, Udder shape, Teat shape and Hoof colour were recorded by direct observation. Body conformation traits like Height at withers, Body length, Chest girth, Horn length, Face length, Ear length and Tail length were recorded in centimeters. Animals were classified according to age and sex, namely, adult bull and cow (above three years of age), young male and female (1 to 3 years of age) and calves (below one year of age). The NBAGR guidelines were followed to record the morphological and body conformation traits. The data were analyzed as per the standard statistical procedure.

(Associate Professor)

RESULTS AND DISCUSSION

The morphometric characters of Pulikulam cattle are listed in Table 1. The investigation revealed that the Pulikulam cattle breed appeared strong and active with a compact body and short legs. The predominant coat colour was whitish grey (72%), followed by white (16%), black (8%) and brown (4%). These animals appeared with short and stout necks. Horns were wide apart and directed outward, upward and inward. Hump was small to moderate size in cows and well developed in bulls. Hooves and eyelids were black. The udder was tucked up in nature with small, pointed teats which were well set apart. The body conformation characters like Height at withers, Body length, Chest girth, Horn length, Face length, Ear length and Tail length are listed in Table 2. The statistical analysis revealed that the most of the characters were not significantly differed between age groups and between the sex of the animals.

The hooves and eyelid of the Pulikulam cattle were black coloured, and this was in agreement with the findings of Singh *et al.* (2012) in Pulikulam cattle breed and as like as Umbalachery cattle by the

report of Praveen (2018) and Rajendran (2007). The body conformation characters of Pulikulam cattle in this study was in agreement with the findings of Singh *et al.* (2012) with minor difference in few traits like tail length and face length. The results could compare the Pulikulam cattle breed to be a bit smaller than Kangayam cattle, another indigenous draught cattle breed of Tamil Nadu as per the reports of Height at withers, body length, chest girth was higher (139.8, 144.9, 175.9, 20.3 and 55.3 for adult bulls and 124.9, 131.2, 156.8, 19.3 and 45.14 cm for adult cows) (Kandasamy., 2001). This Pulikulam cattle had higher body length than that (99.7 and 109.2 cm for adult male and female) of Burger cattle breed (Pundir *et al.*, 1997), and also higher height, body length and chest girth than that (117, 119 and 151 cm in bulls and 105, 109 and 135 cm in adult cows) of Umbalachery cattle breed (Praveen, 2018). In conclusion, Pulikulam cattle having an excellent draught power ability with heat tolerance and the present finding will be a useful reference for the researchers for further research on this breed.

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Table 1. Morphometric characteristics

Sl. No	Morphometric characteristics	Observation
1	Coat colour	Whitish grey (72%) followed by white (16%), black (8%) and brown and others (4%).
2	Muzzle colour	Black
3	Horn shape	Curved and straight
4	Ear orientation	Horizontal
5	Basic temperament	Tactile
6	Udder shape	Not well developed and tucked up with the abdomen
7	Teat shape	Small, pointed and well set apart
8	Colour of Eyelid	Black
9	Colour of the hooves	Black

Table 2. Body conformation traits of Pulikulam cattle

Parameters	Bull (Above 3 years) (N=20)	Cow (Above 3 years) (N=47)	P-value	Young male (1-3 Years) (N=24)	Heifer (1-3 years) (N=35)	P-value	Calves (N=54)
Height(in cm)	119.3±1.25	114.62±0.93	0.006	91.67±1.65	93.46±1.23	0.379	71.33±0.83
Body Length(in cm)	121.2±1.26	115.62±0.65	0.000	95.17±1.43	99.77±1.17	0.015	76.09±0.80
Chest girth(in cm)	151.0±1.44	141.21±0.95	0.000	108.38±0.78	112.49±0.59	0.000	79.33±0.55
Horn length(in cm)	30.85±1.05	39.43±0.69	0.000	11.21±0.68	12.17±0.63	0.310	8.91±0.32
Ear length(in cm)	20.20±0.30	19.15±0.17	0.002	18.08±0.27	16.86±0.25	0.002	14.51±0.17
Face length(in cm)	42.10±0.50	41.06±0.30	0.070	34.17±0.44	36.0±0.30	0.001	25.26±0.21
Tail length(in cm)	74.60±1.26	68.92±0.55	0.000	58.29±0.75	60.06±0.70	0.100	43.91±0.49

** P<0.01; *P<0.05; NS – Not significant;



Fig. 1. Pulikulam Cattle herd

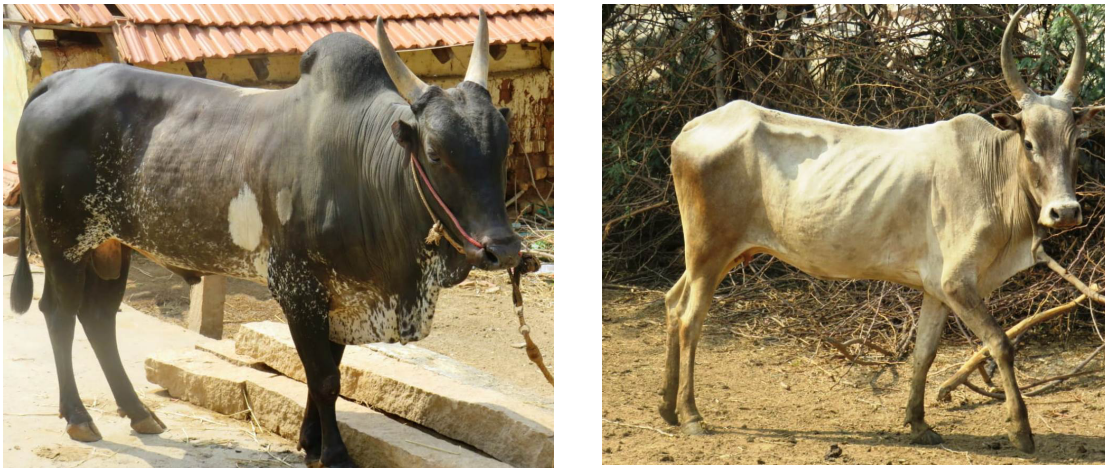


Fig. 2. Pulikulam cattle [Bull (Left) and Cow (Right)]

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