

*Original Research***Characterization of Local Mahbubnagar Goat under Field Conditions****D. Anil Pavan Kumar, Sarin K. Kunnath*, K. Anil Kumar Reddy¹ and D. Sreenivas**Department of Animal Genetics and Breeding, College of Veterinary Science, Korutla,
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Abstract

Mahbubnagar goats, also known by local name of “Palamuru Mekalu” are found in areas adjoining the Srisailem Hydel Project and the Nallamala forest of the erstwhile Mahbubnagar district of Telangana state. They are medium sized and dual purpose strain of goat. A study was conducted to estimate morphometry and performance traits of local Mahbubnagar goats reared under field conditions. In total, flocks (n=2657) with 44 farmers distributed throughout the native tract were studied to measure the above said traits. The average flock composition ranged from 20-130 in size, with bucks constituting 10-85%, does between 10-25% and kids ranging between 8-37.5%. Ears were pendulous. Beard was present only in males while both the sexes had wattles. Both the sexes were horned with backward orientation. Body weight at birth ranged between 1.8-3.0 kg, at weaning (3 months) 7-14 kg, at 6 months of age 17-28 kg, at adult 26-40 kg. The weight of doe at first kidding ranged between 26-40 kg. With respect to body measurements in adult goats, the chest girth ranged between 58-105 cm, body length between 55-96 cm and height at withers between 58-103 cm. The total milk yield was between 22-60 litres per lactation, while lactation length was between 60-120 days. Age at first mating in males was between 360-540 days, while the same in females was between 320-380 days. Age at first kidding was between 520-600 days, while kidding interval was between 180-280 days. The average litter size was 2, while the no. of kid's lifetime ranged between 7-11.

Key words: Body Weight, Characterization, Goat, Flock Size, Milk Yield

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Introduction

Goat is known as “Poor Man’s Cow” or “Wet Nurse of Infant” owing to its ability to produce milk with compositions alike to human. They are also excellent source of animal protein. Goat is one of the smallest domesticated ruminants and can survive on shrubs, trees, desert scrubs and are even capable of thriving

under minimum housing inputs. As per 19th livestock census in India, Goat constituted about 26.40 % of total livestock population in India accounting for 13.51 crore in numbers, whereas goat population in the world is about 1 billion (FAOSTAT, 2013). India is bestowed with best of animal biodiversity and as of now about 28 breeds of goats has been registered, which are spread throughout various agro-climatic regions across the country. Mahbubnagar local goats also known by in local Telugu dialect name as “Palamuru Mekalu’ are found in and around the area adjoining Srisailem hydel project and the Nallamala forest in the erstwhile Mahbubnagar district of Telangana State. The local strain is known for its high prolificacy. This local strain of goat is reared by farmers in small size flocks formainly for meat. The present study was carried out to estimate the morphometrical and performance traits of local Mahbubnagar Goats under local field conditions.

Materials and Methods

The area adjoining the Srisailem project and the Nallamala forest where the population of this local strain is available and high were considered and about forty four farmers with a flock size of 20 and above goats were considered for this study. A questionnaire with emphasis on studying the biometry, physical and performance traits of Local Mahbubnagar goats was prepared. The area of study was designed statistically to avoid error and duplicity in results. In total 10 villages from four Mandals of erstwhile Mahbubnagar district namely, Uppanoonthala, Amrabad, Balmoor and Achampet were selected for the present study. Farmers from each pocket of selected area were subjected to set off questions pertaining to the details of performance of Local Mahbubnagar Goats present with them in different age groups. The measurements on goats for estimating the morphometrical traits were made according to standard procedure. The height at withers was measured using a standard measuring tape as the distance from the surface of a platform on which the animal stands to the withers. The animal is made to stand squarely on all 4 legs with legs equally spaced and height is measured. The chest girth was measured as the circumferential measurement taken around the chest just behind the front legs and withers. The body length was measured as the distance from base of tail to the base of the neck (first thoracic vertebrae).

Table 1: Body weight (Kg) at different age groups

Body weight at	Pooled		Buck		Doe	
	Mean	Range	Mean	Range	Mean	Range
Birth weight	2.76 ± 0.03	1.8–3.2	2.82 ± 0.04	2-3.2	2.74± 0.05	2-3.2
3 months	10.69 ± 0.14	7-14	11.09 ± 0.18	7-14	10.34 ± 0.21	7-13
6 months	16.70 ± 0.17	10-19	17.34 ± 0.22	10-18	16.20 ± 0.20	13-19
12months	24.93 ± 0.20	17-28	25.06 ± 0.22	20-28	24.20 ± 0.32	17-28
6-teeth Adult	30.92 ± 0.32	26-40	31.61 ± 0.44	27-40	30.06 ± 0.42	30-35

While measuring, care is taken to ensure that the backbone is straight. Body weights according to sex and also at birth, 3 month, 6 month, 1 Year, at first kidding and at 6 teeth adult age were recorded.

The goat were also reared for milk hence the data pertaining to daily milk yield (ml), total lactation milk yield (litre) and lactation length (days) were also recorded. Data pertaining to various reproductive traits like age at first mating, age at first oestrus, oestrus cycle duration, age at first kidding, kidding interval, service period, litter size and life time number of kidding were all recorded in days. The average flock composition with farmers was according to % of buck, doe and kids were studied. The physical characters like colour, coat type, head profile, presence or absence of beard, wattle and horns were also studied.

Table 2: Production (dairy) traits

	Mean	Range
Average milk yield per day (ml)	402.95 $\pm$ 14.79	50 to 250
Average total lactation milk yield (litre)	38.92 $\pm$ 2.18	12-60
Average Lactation length (day)	98.18 $\pm$ 2.64	60-120

Results and Discussion

As part of the study, forty four farmers were subjected to set off questions pertaining to the physical, performance, reproductive and dairy performance traits of Mahbubnagar goats. The pooled mean flock size of Mahbubnagar local goat among the farmers was 60.38 $\pm$ 2.90, while it ranged from 20-130. Thiruvankadan *et al.* (2000) reported a lesser value of 16.8 as average flock size in Kanni Adu goats and Ravimurgan *et al.* (2009) reported a value of 21.2 $\pm$ 3.8 in indigenous Pallai Adu goats in Tamil Nadu. The per cent of bucks in the farm was between 10-85, for doe it was between 7-70 and the same for kids was between 8-42.

Physical Characteristics

The skin coat of the local strain of goat was either full black, brown, white or combinations of these as bi-colour and tri-colour. Head profile was slightly convex, whereas ears were pendulous and wattles were present in both the sexes. Horns were present in both the sexes, with males measuring longer horns compared to females and were oriented in backward direction. Coat type was hairy with presence of beard in males.

Performance Traits

The pooled mean body weight at birth, 3, 6 and 12 months of age were 2.76 $\pm$ 0.03 , 10.69 $\pm$ 0.14, 16.70 $\pm$ 0.17 and 24.93 $\pm$ 0.20 Kg, respectively. While it ranged between 1.8–3.2, 7-14, 10-19 and 17-28 Kg at birth, 3, 6 and 12 months of age, respectively. The mean body weight at birth, 3, 6 and 12 months of age in males were 2.82 $\pm$ 0.04, 11.09 $\pm$ 0.18, 17.34 $\pm$ 0.22 and 25.06 $\pm$ 0.22 Kg, while the same in females

were, 2.74 ± 0.05 , 10.34 ± 0.21 , 16.20 ± 0.20 and 24.20 ± 0.32 Kg, respectively. The body weight at birth, 3, 6 and 12 months of age in males ranged between 2-3.2, 7-14, 10-18 and 20-28 Kg, while the same in females were between 2-3.2, 7-13, 13-19 and 17-28 Kg, respectively. The observations were in concurrence with findings of Meel *et al.* (2010), on Sirohi goats at farm conditions and in part accordance with findings of Rao *et al.* (2009), on Ganjam goats. The values obtained were higher than those reported by Ekambaram *et al.* (2010), on Local Mahbubnagar goats at farm conditions. Ravimurgan *et al.* (2009) reported a value of 1.82 ± 0.02 Kg in indigenous Pallai Adu goats. Pooled mean average body weight at 6-teeth adult age was 30.92 ± 0.32 Kg and ranged between 26-40 Kg. The average body weight at 6 teeth adult age was 31.61 ± 0.44 Kg and ranged between 27-40 Kg for bucks and while the average was 30.06 ± 0.42 Kg and ranged between 30-35 Kg for does. The average milk yield per day was 402.95 ± 14.79 ml and ranged between 250 to 500 ml, in accordance with reports of Verma *et al.* (2009) in Malabari goat. The average total lactation milk yield was 38.92 ± 2.18 litres and ranged between 12-60 litres and average lactation length was 98.18 ± 2.64 days and ranged between 60-120 days, partly in accordance with reports of Rao *et al.* (2009), in Ganjam goats.

Biometrical Measurements

The pooled mean chest girth, body length and height at withers were 80.78 ± 0.87 , 71.77 ± 0.84 and 79.39 ± 0.89 cm and the same ranged between 58-105, 54-96 and 58-103 cm, respectively.

Table 3: Biometrical measurements (cm)

	Pooled		Buck		Doe	
	Mean	Range	Mean	Range	Mean	Range
Chest girth	80.78 ± 0.87	58-105	82.00 ± 1.22	65-105	79.56 ± 1.24	58-95
Body length	71.77 ± 0.84	54-96	72.56 ± 1.17	57-89	70.97 ± 1.22	54-96
Height at withers	79.39 ± 0.89	58-103	81.31 ± 1.35	61-103	77.47 ± 1.11	58-89

The average mean chest girth, body length and height at withers in bucks were 82.00 ± 1.22 , 72.56 ± 1.17 and 81.31 ± 1.35 cm and ranged between 65-105, 57-89 and 61-103 cm, respectively. The average mean chest girth, body length and height at withers in does were 79.56 ± 1.24 , 70.97 ± 1.22 and 77.47 ± 1.11 cm and ranged between 58-95, 54-96 and 58-89 cm, respectively. The values obtained in the present study were higher than those values reported by Verma *et al.* (2010) in Sangamneri goat and Ravimurgan *et al.* (2009) in Pallai Adu goats, whereas higher values for the same were reported by Gopu *et al.* (2013) in Salem Black goat. Verma *et al.* (2009) reported much lower values for chest girth, height at withers and body length in Malabari goat.

Reproductive Traits

The average age at first kidding was 543.95 ± 6.03 days and varied highly between 340-600 days. The average age at first mating was 412.5 ± 4.66 days and ranged between 330-540 days among bucks, while the same was 354.65 ± 2.07 days and ranged between 320-380 days for does which were higher than the values reported by Thiruvankadan *et al.* (2000), in Kanni Adu goats while partly in accordance with values reported by Rao *et al.* (2009), in Ganjam goats. Verma *et al.* (2009) reported early maturity among does at an age between 8-10 months in Malabari goat.

Table 4: Reproductive traits

	Mean	Range
Average age at first Kidding(day)	543.95 ± 6.03	340-600
Average age at oestrus(day)	315.45 ± 2.42	270-350
Average oestrus cycle duration(day)	20.34 ± 0.08	12-20
Average service period(day)	117.5 ± 3.39	60-180
Average kidding interval(day)	262.55 ± 7.19	180-520
Average litter size	2.0	-
Average lifetime kindling	9.09 ± 0.12	7-11

The average age at oestrus was 315.45 ± 2.42 days and ranged between 270-350 days, while the average oestrus cycle duration was 20.34 ± 0.08 days and ranged between 12-20 days, the average service period was 117.5 ± 3.39 days and varied between 60-180 days. The average kidding interval was 262.55 ± 7.19 days and between 180-520 days, the average litter size was 2 and the average lifetime number of kindling was 9.09 ± 0.12 varied between 7-11. In partly accordance with reports of Thiruvankadan *et al.* (2000) in Kanni Adu, while Rao *et al.* (2009) reported higher values for kidding interval in Ganjam goats.

Conclusion

The present study revealed that the physical, performance, reproductive and dairy performance traits of the strain of local Mahbubnagar goats under the field conditions were reasonably distinct when compared to the other goats. Hence, further study needs to be carried out in depth at farm and regional level so that this unique germplasm can be fully characterized and be given the status of a breed of goat in Telangana, India.

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References

1. Ekambaram B, Ramesh Gupta B, Gnana Prakash M, Sudhaker K and Reddy VR. 2010. A Study on the Performance of Mahabubnagar Goats. *Indian Journal of Animal Research*. 44 (1): 48-51.
2. Gopu P, Raman KS, Thangaraju P, Saravanan R and Panneerselvam S. 2013. Breed characteristics of Salem Black goat of Tamil Nadu. *Shanlax International Journal of Veterinary Science* 1: 15-19.
3. Meel UK, Nagda RK, Sharma SK and Rajawat BS. 2010. Growth performance of Sirohi goats under field conditions. *Indian Journal of Small Ruminants*.16 (2): 246-248.
4. Rao PK, Dash SK, Singh MK, Rai B and Singh NP. 2009. Ganjam goat of Orissa and its management practices. *Indian Journal of Small Ruminants*. 15 (1): 44-50.
5. Ravimurugan T, Devendran P, Cauveri D and Balachandran S. 2009. Performance of Indigenous goat (PallaiAdu) under field conditions. *Tamilnadu J. Veterinary & Animal Sciences* 5 (5): 203-207.
6. Thiruvenkadan AK, Paneerselvam S and Kandasamy N. 2000. Distribution, characteristics and production performance of Kanni Adu goats of Tamil Nadu. *Indian Journal of Small Ruminants*. 70 (1): 723-727.
7. Thiruvenkadan AK, Paneerselvam S and Kandasamy N. 2000. Reproductive performance of Kanni Adu goats under field conditions. *Indian Journal of Animal Research*. 70 (7): 691-693.
8. Verma NK, Dixit SP, Dangi PS, Aggarwal RAK, Subodh K and Joshi B.K. 2009. Malabari goats: Characterization, management, performance and genetic variability. *Indian Journal of Animal Sciences* 79 (8): 813-818.
9. Verma NK, Dixit SP, Aggarwal RAK, Dangi PS and Joshi BK. 2010. Phenotypic and genetic characterization of Sangamneri goat breed. *Indian Journal of Animal Sciences* 80 (11): 1109-14.