



Pre-Weaning Morpho-metric Measurements and Body Weights of Chhotanagpuri Sheep in its Breeding Tract

Maroof Ahmad, D K Singh and R S D Barman

Krishi Vigyan Kendra, Tepla, Ambala -133 104 (Haryana)

ABSTRACT

Data on 142 Chhotanagpuri lambs (62 males and 80 females) belonging to Deoghar district of Jharkhand were used for the present investigation. The mean body length, height at withers, chest girth, paunch girth, ear length and tail length were estimated to be 28.06 ± 0.36 , 24.84 ± 0.38 , 27.61 ± 0.41 , 26.37 ± 0.42 , 7.28 ± 0.16 and 7.97 ± 0.16 cm respectively for male lambs. The corresponding values for female lambs were 27.77 ± 0.34 , 24.72 ± 0.29 , 25.95 ± 0.38 , 25.08 ± 0.38 , 7.15 ± 0.15 and 7.96 ± 0.12 cm respectively. The mean of above body bio-metric at the age of 3-months were recorded as 39.48 ± 0.59 , 38.61 ± 0.76 , 42.72 ± 0.64 , 43.91 ± 0.74 , 10.83 ± 0.36 and 11.82 ± 0.39 cm for male lambs and 38.60 ± 0.53 , 38.46 ± 0.61 , 40.41 ± 0.63 , 42.15 ± 0.72 , 9.71 ± 0.34 and 10.63 ± 0.28 cm respectively for female lambs. The mean body weight of male lambs at birth, 1-month, 2-months and 3-months were estimated to be 1.82 ± 0.05 , 3.49 ± 0.10 , 5.36 ± 0.23 and 7.62 ± 0.34 kg, respectively. The corresponding values for females lambs were 1.71 ± 0.04 , 3.11 ± 0.12 , 5.01 ± 0.21 and 6.72 ± 0.32 kg, respectively.

Key Words: Pre-Weaning, Measurements, Body weight, Chhotanagpuri Sheep, Breeding.

INTRODUCTION

Chhotanagpuri is well defined breed of sheep found in Jharkhand. The breed is distributed in the entire area of Jharkhand and adjoins districts of West Bengal (Purulia, Western part of Bankura and west of Medinapur district). The breed is mostly reared by weaker sections of the society specially schedule caste and schedule tribes. The breed is in small size and having straight nose, short drooping or horizontal ears and short tail. The utility of the breed is solely for mutton production. They produce coarse wool of poor quality, which may be utilized for carpet manufacturing. The information on Morpho-metric measurement and growth parameters on Chhotanagpuri under field condition is scanty. Growth performance is a key production indicator. It has implications in the reproductive efficiency of sheep. Fast growth performance allows sheep to breed early and contribute more lambs in their lifetime. Fast growth rate entails reaching market weight early and brings a quicker income to the farmer. Hence, this study was conducted to

estimate the pattern of growth in Chhotanagpuri sheep under prevailing natural and ecological conditions of Jharkhand, India.

MATERIALS AND METHODS

Data on 142 Chhotanagpuri lambs (62 males and 80 females) belonging to Deoghar district of Jharkhand were considered for the present study. The district extends from $24^{\circ} 03'$ and $23^{\circ} 38'$ N latitude and $86^{\circ} 28'$ and $87^{\circ} 04'$ E longitude. The average elevation of the district is 247 m above msl. Average annual rainfall is 1239 mm, mean summer maximum temperature is 43°C and mean winter minimum temperature is 8°C . The data was generated during survey of Mega Sheep Seed project of ICAR at Birsa Agricultural University, Ranchi, Jharkhand.

The Morpho-metric measurement and body weights were recorded. Six different body measurement and birth weight of the lambs were recorded immediately after the lambing and thereafter at monthly intervals up to the age of

three months. The body measurements recorded included body length (BL), height at withers (BH), chest girth (CG), pouch girth (PG), ear length (EL) and tail length (TL). The body measurements were taken for various age groups with a standard measuring tape of 1 mm accuracy after the animals were allowed to stand squarely on an even ground.

The weight was recorded with the help of 25 kg weighing balance with 50 g accuracy. All the observations were taken in the morning before grazing or being allowed feed or water to the animals. The season was divided into three: the main winter (November to February), summer (March-June) and monsoon (July-October). The animals were maintained only on grazing and allowed for 6-7 hours during day on natural grasses and shrubs. The data collected were analyzed by least-squares method (Harvey, 1990).

RESULTS AND DISCUSSION

Morpho-metric measurement of Chhotanagpuri lambs

The mean \pm SE of morpho-metric measurement for various traits under the study have been presented in the table. The body measurements indicate the skeletal growth of the animals. Body length and height at withers are the measures of bone growth while chest girth is a measure of development of muscles, bones and fat and it had close relationship with the live weight (Pomeroy, 1955). The mean \pm SE of body length, height at withers, chest girth, paunch girth, ear length and tail length were estimated to be 28.06 ± 0.36 , 24.84 ± 0.38 , 27.61 ± 0.41 , 26.37 ± 0.42 , 7.28 ± 0.16 and 7.97 ± 0.16 cm respectively for male lambs. The corresponding values for female lambs were 27.77 ± 0.34 , 24.72 ± 0.29 , 25.95 ± 0.38 , 25.08 ± 0.38 , 7.15 ± 0.15 and 7.96 ± 0.12 cm respectively.

Table 1. Mean \pm S.E. of Morpho-metric measurements (cm) and body weights (kg) of Chhotanagpuri sheep under field conditions.

Traits	Sex	BL	BH	CG	PG	EL	TL	BW
At Birth	M	28.06 ± 0.36	24.84 ± 0.38	27.61 ± 0.41	26.37 ± 0.42	7.28 ± 0.16	7.97 ± 0.16	1.82a ± 0.05
	F	27.77 ± 0.34	24.72 ± 0.29	25.95 ± 0.38	25.08 ± 0.38	7.15 ± 0.15	7.96 ± 0.12	1.71b ± 0.04
At one month	M	32.16 ± 0.38	33.39 ± 0.31	34.50 ± 0.45	34.44 ± 0.67	9.01 ± 0.20	9.92 ± 0.20	3.49a ± 0.10
	F	31.86 ± 0.36	32.26 ± 0.39	32.62 ± 0.39	31.75 ± 0.45	8.57 ± 0.15	9.38 ± 0.17	3.11b ± 0.12
At two month	M	37.25 ± 0.54	38.28 ± 0.46	40.66 ± 0.58	41.92 ± 0.62	10.67 ± 0.25	11.39 ± 0.42	5.36a ± 0.23
	F	36.18 ± 0.48	36.37 ± 0.51	38.16 ± 0.57	39.07 ± 0.75	9.30 ± 0.22	10.46 ± 0.27	5.01b ± 0.21
At three month	M	39.48 ± 0.59	38.61 ± 0.76	42.72 ± 0.64	43.91 ± 0.74	10.83 ± 0.36	11.82 ± 0.39	7.62a ± 0.34
	F	38.60 ± 0.53	38.46 ± 0.61	40.41 ± 0.63	42.15 ± 0.72	9.71 ± 0.34	10.63 ± 0.28	6.72b ± 0.32

Number of observations: male (62) and female (80) lambs

a, b mean values differ significantly ($p < 0.05$)

Body Weights of Chhotanagpuri Sheep

7.15 ± 0.15 and 7.96 ± 0.12 cm respectively for above mentioned traits. The mean ± SE for body measurements at the age of one month were found to be 32.16 ± 0.38, 33.39 ± 0.31, 34.50 ± 0.45, 34.44 ± 0.67, 9.01 ± 0.20 and 9.92 ± 0.20 cm for male lambs. However, the corresponding values for female lambs were observed as 31.86 ± 0.36, 32.26 ± 0.39, 32.62 ± 0.39, 31.75 ± 0.45, 8.57 ± 0.15 and 9.38 ± 0.17 cm respectively. Likewise at the age of two months for male and female lambs were estimated as 37.25 ± 0.54, 38.28 ± 0.46, 40.66 ± 0.58, 41.92 ± 0.62, 10.67 ± 0.25 and 11.39 ± 0.42 cm and 36.18 ± 0.48, 36.37 ± 0.51, 38.16 ± 0.57, 39.07 ± 0.75, 9.30 ± 0.22 and 10.46 ± 0.27 cm respectively. The mean ± SE of body length, height at withers, chest girth, paunch girth, ear length and tail length were found to be 39.48 ± 0.59, 38.61 ± 0.76, 42.72 ± 0.64, 43.91 ± 0.74, 10.83 ± 0.36 and 11.82 ± 0.39 cm for male lambs and for female lambs it was observed as 38.60 ± 0.53, 38.46 ± 0.61, 40.41 ± 0.63, 42.15 ± 0.72, 9.71 ± 0.34 and 10.63 ± 0.28 cm respectively.

Body weights of Chhotanagpuri lambs

The body weights of Chhotanagpuri lambs at various stages have been presented in the table 1. The body weights of lambs differ significantly at all stages. The mean ± SE of body weight male lambs at birth, 1 month, 2 months and 3 months were estimated to be 1.82 ± 0.05, 3.49 ± 0.10, 5.36 ± 0.23 and 7.62 ± 0.34 kg, respectively. The corresponding values for females were 1.71 ± 0.04, 3.11 ± 0.12, 5.01 ± 0.21 and 6.72 ± 0.32 kg, respectively. The lower values for body weights in Chhotanagpuri lambs were reported by Thanesh (2013) under farm conditions. Higher body weights at various stages were reported by Das et al (2002), Pattanayak et al (2003), Raman et al (2003) in different Indian breeds of sheep.

CONCLUSION

The present study was carried out in the breeding tract of Chhotanagpuri sheep. The mean body length, height at withers, chest girth, paunch girth, ear length and tail length were recorded as 28.06 ± 0.36, 24.84 ± 0.38, 27.61 ± 0.41, 26.37 ± 0.42, 7.28 ± 0.16 and 7.97 ± 0.16 cm respectively for male and 27.77 ± 0.34, 24.72 ± 0.29, 25.95 ± 0.38, 25.08 ± 0.38, 7.15 ± 0.15 and 7.96 ± 0.12 cm respectively for female lambs. The mean body weight of male at birth, 1-month, 2-months and 3-months were estimated to be 1.82 ± 0.05, 3.49 ± 0.10, 5.36 ± 0.23 and 7.62 ± 0.34 kg, respectively and 1.71 ± 0.04, 3.11 ± 0.12, 5.01 ± 0.21 and 6.72 ± 0.32 kg, respectively for female lambs. Significant effect of sex was observed in Chhotanagpuri lambs. Selective breeding may be followed for genetic improvement of Chhotanagpuri sheep in the breeding tract.

REFERENCES

- Das P., Sil B K and Samanta R (2002). Reproductive performance of Muzafarnagri X shahabadi cross- breed sheep under deep litter system of management . *Enviorn and Ecolo* **20**(4): 806-809.
- Harvey W R (1990). User guide for LSMLMW pc-1 version mixed model least-squares and maximum likelihood computer program. Columbus, Ohio, USA.
- Pattanayak G R, Patro B N, Das S K and Nayak S. (2003). Survey and performance evaluation of Ganjam sheep. *Indian J Small Ruminant* **9**(1): 47-49.
- Pomeroy R W (1955). *Progress in the Physiology of Farm Animals*. Vol.2: 395-429. Butter Worths Scientific Publication, London.
- Raman K S, Sundaraman M N, Haribhaskar S and Ganesakale D (2003). Biometrics and breed characteristics of Madras red sheep. *Indian J Small Ruminant* **9**(1): 6-9.
- Thanesh Oraon (2013). *Genetic architecture of Chhotanagpuri sheep in context of fecundity gene*. M.V.Sc. Thesis submitted to Birsa Agricultural University, Ranchi, Jharkhand.

Received on 30/09/2016

Accepted on 25/01/2017