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## Studies on seasonal variation of scrotal parameters in Ganjam buck

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#### Abstract

The present study was undertaken on the scrotal parameters of 120 Ganjam bucks divided into six age groups, viz. 1.5 (B1), 2(B2), 2.5 (B3), 3.5 (B4), 4 (B5), 4.5 (B6) years. The parameters were recorded by using flexible measuring tape in the bucks of all the age groups in the month of July to August (season 1) and October to November (season 2). Significant ( $p<0.05$ ) variations were recorded in between the seasons with respect to the scrotal parameters under study.

**Keywords:** Ganjam buck, season, scrotal parameter and variation

#### Introduction

Goat farming is a reliable source of revenue for farmers and serves as an auxiliary to agriculture<sup>[1, 2]</sup>. Goats make up 26.40% of the animal population. According to the 20<sup>th</sup> livestock census, there are 148.88 million indigenous goats in India, of which 26.97% are pure breed, 11.77% are graded breed, and the remainder 61.26% is non-descript breeds. Goat farming provides the sole source of income for 25% of the rural population in the state of Odisha. The Ganjam goat, also known as the lanka, golla, or dalua, is a medium-sized animal that is mostly reared for meat. The medium-sized animal, pendulous ears are drooping and the coat colour is predominantly brown or black. The measurement of male fertility parameters is crucial for estimating the breeding performance of any species since males contribute 50% of the reproductive efficiency. So, the present study was undertaken on the seasonal variation of scrotal parameters of Ganjam buck that could be correlated with the breeding efficiency of this breed<sup>[3, 4]</sup>.

#### Materials and Methods

A total of 120 Ganjam bucks of different age groups reared by the local farmers of Rambha, Khalikote and Chhatrapur areas of Ganjam district were used for the scrotal morphometric study. A total of six healthier bucks of age 1.5 (B1), 2 (B2), 2.5 (B3), 3.5 (B4), 4 (B5) and 4.5 (B6) years were procured from the Farmers for the experimental purpose in collaboration with DST (Odisha) Project on "Selection of Breeding Bucks through Semen Evaluation for improving fertility in Ganjam goats" and maintained by uniform feeding, housing and other management practice. The parameters were recorded by using flexible measuring tape in the bucks of all the age groups in the month of July to August (season 1) and October to November (season 2). All the data generated in the above experiments were statistically analyzed using SPSS (1996) computer package.

#### Results and Discussion

The scrotal length, scrotal width and scrotal circumference of each experimental bucks were measured (in cm) using a flexible measuring tape and the Mean values $\pm$  S.E. are presented in Table 1.

#### Scrotal length

The scrotal length of the Ganjam bucks ranged from 11 cm to 17 cm. A mean value of 11.33 $\pm$ 0.21, 14.92 $\pm$ 0.24, 14.75 $\pm$ 0.17, 12.17 $\pm$ 0.17, 13.33 $\pm$ 0.21 and 15.08 $\pm$ 0.39cm were recorded for bucks B1 to B6, respectively in season 1.

The corresponding values in season 2 were 13.50±0.50, 16.33±0.17, 15.50±0.22, 13.67±0.33, 14.83±0.17 and 16.92±0.08 cm, respectively, which were found to be significantly larger than corresponding recordings in season 1.

### Scrotal width

In the present experiment, average scrotal width of the six Ganjam bucks during season 1 were 7.58±0.27, 8.00±0.34, 9.50±0.22, 9.33±0.33, 10.00±0.45 and 10.75±0.21cm, respectively and 9.25±0.17, 10.67±0.42, 12.00±0.17, 10.00±0.12, 11.00±0.11 and 12.16±0.21 cm, respectively in season 2. In every buck, viz. B1, B2, B3 and B6, the scrotal width was significantly higher ( $p < 0.01$ ) in season 2 than season 1. Buck B5 recorded significantly higher ( $p < 0.05$ ) scrotal width in season 2 than season 1, whereas buck B4 did not show any significant difference between the two seasons

with respect to scrotal width.

**Scrotal circumference:** The mean scrotal circumference recorded for the different bucks were 21.42±0.78, 22.33±0.42, 23.83±0.48, 22.33±0.21, 23.33±0.21 and 25.42±0.20cm, respectively in season 1 and 24.25±0.31, 26.00±0.52, 26.17±0.17, 24.67±0.49, 25.00±0.26 and 27.25±0.31, respectively, in season 2. The mean scrotal circumference of each of six bucks was significantly higher ( $p < 0.01$ ) in season 2. The present results could not be discussed due to the availability of scanty literature in this field. The scrotal parameters in the Ganjam bucks were found to be significantly higher ( $p < 0.05$ ) during October to November (season 2) as compared with the season 1, i.e. during July to August, which signified that the bucks were sexually more active in the season 2 as compared to the season 1.

**Table 1:** Seasonal variation of scrotal parameters of Ganjam buck

Parameter	Season	B1 (6)	B2 (6)	B3 (6)	B4 (6)	B5 (6)	B (6)
Scrotal length	1	11.33 <sup>a</sup> ±0.21	14.92 <sup>a</sup> ±0.24	14.75 <sup>a</sup> ±0.17	12.17 <sup>a</sup> ±0.17	13.33 <sup>a</sup> ±0.21	15.08 <sup>a</sup> ±0.39
	2	13.50 <sup>b</sup> ±0.50	16.33 <sup>b</sup> ±0.17	15.50 <sup>b</sup> ±0.22	13.67 <sup>b</sup> ±0.33	14.83 <sup>b</sup> ±0.17	16.92 <sup>b</sup> ±0.08
	p-value	0.003	0.001	0.024	0.002	<0.001	0.001
Scrotal Width	1	7.58 <sup>a</sup> ±0.27	8.00 <sup>a</sup> ±0.34	9.50 <sup>a</sup> ±0.22	9.33±0.33	10.00 <sup>a</sup> ±0.45	10.75 <sup>a</sup> ±0.21
	2	9.25 <sup>b</sup> ±0.17	10.67 <sup>b</sup> ±0.42	12.00 <sup>b</sup> ±0.17	10.00±0.12	11.00 <sup>b</sup> ±0.11	12.16 <sup>b</sup> ±0.21
	p-value	< 0.001	0.001	< 0.001	0.073	0.049	0.001
Scrotal Circum-ference	1	21.42 <sup>a</sup> ±0.78	22.33 <sup>a</sup> ±0.42	23.83 <sup>a</sup> ±0.48	22.33 <sup>a</sup> ±0.21	23.33 <sup>a</sup> ±0.21	25.42 <sup>a</sup> ±0.20
	2	24.25 <sup>b</sup> ±0.31	26.00 <sup>b</sup> ±0.52	26.17 <sup>b</sup> ±0.17	24.67 <sup>b</sup> ±0.49	25.00 <sup>b</sup> ±0.26	27.25 <sup>b</sup> ±0.31
	p-value	0.007	< 0.001	0.001	0.001	0.001	0.001

Means with different superscripts (a, b) differ significantly in columns ( $p < 0.05$ )

### Conclusion

It was found that the scrotal length, width and circumference of the Ganjam bucks were significantly higher ( $p < 0.05$ ) during October to November (season 2) as compared with the season 1, i.e. during July to August.

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