EFFECT OF AGE ON POSTNATAL DEVELOPMENT OF BODY WEIGHT AND SCROTAL CIRCUMFERENCE IN ASSAM GOAT (*CAPRA HIRCUS*)*

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ABSTRACT

The present study was conducted on thirty Assam local goats divided into six age groups viz. group-I "(0" day), group-II (2 months), group-III (4 months), group-IV (6 months), group-V (8 months) and group-VI (10 months) consisting of five animals in each group. The mean body weight of the male kids ranged from 0.85 ± 0.03 kg at birth (group-I) to 11.26 ± 0.15 kg at the age of 10 months (group-VI). The variation in body weights were highly significant (P<0.01) between different age groups. The scrotal circumference ranged from 5.46 ± 0.27 cm at birth (group-I) to 16.96 ± 0.04 cm at 10 months of age (group-VI). The variations in values of scrotal circumference between different age groups was highly significant (P<0.01).

Key words: Body weight, Scrotal circumference, Postnatal development, Assam goat.

INTRODUCTION

A good number of research works have been directed towards improvement in productivity and understanding the domestic animals. There are variations in reproductive characteristics of the domestic animals even among the same species depending on different agro-climatic and diversified geographical conditions. The scrotal circumference is an important parameter in breeding bulls by virtue of its high correlation with sperm output in growing rams (Aire, 1973), semen quality (Kakoti, 1999), testis weight (Connel and Connel, 1977) as well as fertility (Mohan *et. al.*, 1980).The paucity of literature in respect of detailed postnatal study on body weight and scrotal circumference in Assam goat prompted this present work.

MATERIALS AND METHODS

The present study was conducted on thirty Assam local goats divided into six age groups viz. group-I "(0" day), group-II (2 months), group-III (4 months), group-IV (6 months), group-V (8 months) and group-VI (10 months) consisting of five animals in each group. Body weights and scrotal circumferences were recorded in each animal of all the age groups prior to sacrifice. The scrotal circumference was recorded at the largest diameter of the scrotum with the help of a scrotal tape. The data were subjected to standard statistical analysis (Snedecor and Cochran, 1994).

RESULTS AND DISCUSSION

The mean body weight of the male kids ranged from 0.85 ± 0.03 kg at birth (group-I) to 11.26 ± 0.15 kg at the age of 10 months (group-VI). Analysis of variance showed that the variation in body weights were highly significant (P<0.01) between different age groups. Also, the Critical Difference Test indicated that body weights differed significantly (P<0.05) between each age group. The mean body weight recorded in Assam goat kids increased from 0.85 ± 0.03 Kg at birth (group-I) to 11.26

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± 0.03 Kg in 10 months old goats (group-VI). Similar trend of growth in terms of body weight was reported in Assam local kids from birth to 3 months of age (Baishya *et al.*, 1987), in Moxoto male goats (Machado *et al.*, 1992) and in Assam hill goats (Das *et al.*, 1994). However, the values of body weight recorded in the present work were much lower than those reported in Malabari goats (Bilaspuri and Singh, 1992). The body weights of Assam goat kids increased significantly ($P<0.05$) with the advancement of age, which was in corroboration with the findings of Tandle *et al.* (1998) in bulls and Sarmah *et al.* (1998) in Assam local X Beetal bucks. Maximum rate of growth in terms of body weight in Assam goats was found in between 6 and 8 months (groups-IV & V) of age, which was comparable to the reports of Sarmah *et al.*(1998), who recorded a maximum increase of body weight between 6 and 7 month of age in Assam local X Beetal bucks.

The mean values of scrotal circumferences of the male Assam goats at various ages are. It ranged from 5.46 ± 0.27 cm at birth (group-I) and increased to 16.96 ± 0.04 cm at 10 months of age (group-VI). Analysis of variance revealed that the variations in values of scrotal circumference in Assam goats between different age groups was highly significant ($P<0.01$). Again, Critical Difference Test showed that the growth in scrotal circumference differed significantly ($P<0.05$) between each age group under study. The scrotal circumference of the Assam goat kids showed a consistent increase in values along with the advancing age of the kids. Further, the scrotal circumference increased significantly between each age group, which could be correlated with similar trend of growth in respect of testicular volume recorded in the present study. Lee *et al.* (1990) also reported a significant increase of scrotal circumference from 2 - 6 months of age in Dorsat, Hampshire and Suffolk rams. In contrast, Sarmah *et al.* (1997) observed a gradual non significant increase of scrotal circumference with increasing age in crossbred bucks. The mean value of scrotal circumference was recorded to be 16.96 ± 0.04 cm in 10 months old Assam goats which could be comparable to the same recorded in Saanen X Local kids (Bongo *et al.*, 1982), Malabari goats (Bilaspuri and Singh, 1992) and in Beetal X Assam local goats (Nath, 2001). However, the measurement of scrotal circumference recorded by Borgohain (1983) in Black Bengal bucks (20.70 ± 0.12 cm) was comparatively higher than the present value recorded in Assam goat at 10 month of age (11.26 ± 0.15).

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