Quality of Ram Semen in Relation to Scrotal Biometry

Authors : M. M. Islam, S. Sharmin, M. Shah Newaz, N. S. Juyena, M. M. Rahman, P. K. Jha, F. Y. Bari

Abstract : The aim of the present study was to select the high quality ram by measuring the scrotal biometry which has an effect on semen parameters. Ten rams were selected in the present study. Eight ejaculates were collected from each ram using artificial vagina method. Scrotal circumference was measured before and after semen collection on weekly basis using the Scrotal tape. Bio-metries of scrotum (scrotal length and scrotal volume) were calculated. Semen was evaluated for macroscopic and microscopic characteristics. The average estimated scrotal circumference (cm) and scrotal volume (cm3) in 8 different age groups were 17.16±0.05 cm and 61.30±0.70 cm3, 17.17±0.62 cm and 63.67±4.49 cm3, 17.22±0.52 cm and 64.90±4.21 cm3, 17.72±0.37 cm and 67.10±4.20 cm3, 18.41±0.35cm and 69.52±4.12cm3, 18.45±0.36cm and 77.17±3.81 cm3, 18.55±0.41 cm and 78.72±4.90 cm3, 19.10±0.30 cm and 87.35±5.45 cm3 respectively. The body weight, scrotal circumference and scrotal volume increased with the progress of age ($P < 0.05$). Body weight of age group 381-410 days (13.62+1.48 kg) was significantly higher than group 169-200 days (10.17±0.05 kg) and 201-230 days (10.42±1.18 kg) ($p < 0.05$). Scrotal circumference (SC) of age group 381-410 days (19.10±0.30 cm) was significantly higher ($p < 0.05$) than other groups. In age group 381-410 days, scrotal volume (SCV) (87.35±5.45 cm3) was significantly higher than other first five groups ($p < 0.05$). Both scrotal circumference and scrotal volume development was positively correlated with the increasing of body weight (R2= 0.51). Semen volume increased accordingly with the increasing of ages, varied from 0.35±0.00 ml to 1.15+0.26 ml. Semen volume of age group 381-410 days (1.15±0.26 ml) was significantly higher than other age groups ($p < 0.05$) except age group 351-380 days ($p > 0.05$). Mass activity of different age groups varied from 2.75 (±0.35) to 4.25 (±0.29) ml in the scale of 1-5. Sperm concentration, progressive motility (%),progressively improved according to the increasing of ages, but significant changes in these parameters were seen when the animals reaches the age 291 days or more ($p < 0.05$). However, normal spermatozoa (%) improved significantly from the age of 261 days or more. Mass activity (mass) was positively correlated with sperm concentration (R2=0.568) and progressive motility (%) (R2=0.616). The relationships of semen volume with body weight and scrotal measurements and sperm concentration indicate that they are useful in evaluating rams for breeding soundness and genetic improvement for fertility in indigenous ram.

Keywords : breeding soundness, ram, semen quality, scrotal biometry
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