INTER-RELATIONSHIP OF ENVIRONMENTAL, MANAGEMENTAL AND BULL PHYSIOLOGICAL PARAMETERS ON SEMEN EVALUATION

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ABSTRACT

Sri Lanka is being with the tropical and sub tropical nature and also the usage of cattle and buffalo for milk, meat and draught purpose is in an advance. Quality semen is the key indicator towards the successful breeding program (artificial insemination). The present study was designed to identify the effect of environmental (temperature, relative humidity, temperature humidity index and rain fall), management and bull physiological parameters (rectal temperature, pulse rate, respiration rate, age, weight, scrotal circumference and girth length) on semen evaluation (volume, concentration, motility and production). Four stud bulls (Friesian, Sahiwal, AFS and Murrah) have been used at the Artificial Insemination centre, Polonnaruwa, Sri Lanka. Semen from those stud bulls was collected twice per week using artificial vagina. Environmental temperature was ($p<0.05$) influenced with the relative humidity ($r = 0.7262$) and temperature humidity index ($r=0.7285$). Moreover, rectal temperature of Friesian ($r=0.5578$) and Sahiwal ($r=0.5707$) had the positive ($p<0.05$) influence with environmental temperature. Rectal temperature of the Friesian stud bull showed the ($p<0.05$, $r=0.5604$) relationship on its semen concentration. The mean volume (ml) of Friesian, Sahiwal, AFS and Murrah were 4.1 ± 0.87, 5.9 ± 2.04, 7.3 ± 3.28 and 3.9 ± 2.49, respectively. Mass motility of the fresh semen was 83.2 ± 2.5 %, 78.1 ± 13.9 %, and 70.9 ± 26.3 % and 72.7 ± 23.5 % for Friesian, Sahiwal, AFS and Murrah, respectively. The mean value of semen concentration was 1785.3, 1411.5, 438.1 and 735.0 million/ml for Friesian, Sahiwal, AFS and Murrah, respectively. The production performance of Friesian, Sahiwal, AFS and Murrah reached 183.8 ± 62.99 ml, 203 ± 93.20 ml, 105.6 ± 43.5 ml and 97.9 ± 81.3 ml, respectively which need to be enhanced with the best quality semen in future.

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