



Correlations between consumption, corporal and seminal features of water buffaloes (*Bubalus bubalis*)

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Introduction

The recent utilization of agro-industrial byproducts available in the Eastern Amazon, such as coconut meal (CM) and palm kernel cake (PKC), to compose animal rations may constitute a bioeconomic alternative to animal production, especially in critical periods of the year (1). Some of these byproducts are rich in lipids and may provide relevant zootechnical gains, but their effects on reproductive aspects need to be elucidated. Thus, this study aimed to evaluate correlations between lipid intake, body weight, scrotal circumference and semen quality in buffaloes supplemented with experimental diets containing CM and PKC-based.

Material and Methods

Fifteen buffaloes were divided into groups Control (n=5; conventional concentrate mixture for termination; 3.64% fat), CM-Base (n=5; coconut meal-based ration; 8.87% fat), and PKC-Base (n=5; palm kernel cake-based ration; 11.82% fat). Animals were maintained on grazing and received isoproteic supplementation during 252 days (~18% CP; 1% BW). Body weight and scrotal circumference were evaluated each 28 days. Semen collections were weekly realized and sperm evaluations (n=173) were performed according CBRA (2). Pearson's correlations were calculated using the *Statistical Analysis System* (SAS), with $P < 0.05$.

Results and Discussion

The correlation between body weight and scrotal circumference (Fig. 1) was positive and highly significant ($r=0.88$; $P < 0.0001$), in accordance with previous published data (3,4). The scrotal circumference also was positively correlated with sperm concentration (Fig. 2). Positive correlation was found between crude protein intake and sperm motility ($r=0.20$; $P < 0.0068$). According to (5), who evaluated higher (14.45%) and lesser concentration (8.51%) of crude protein in the concentrate, there is significant increase in sperm motility in bulls supplemented with higher protein level. Correlations between lipid intake and sperm motility ($r=0.34$; $P < 0.0001$) and lipid intake and plasma membrane integrity ($r=0.35$; $P < 0.0001$) were also relevant. Diet can alter the composition of semen, plasma membrane integrity and fertilizing sperm (6). Therefore, higher levels of lipid consumption could explain both the better motility observed and the higher levels of sperm membrane integrity.

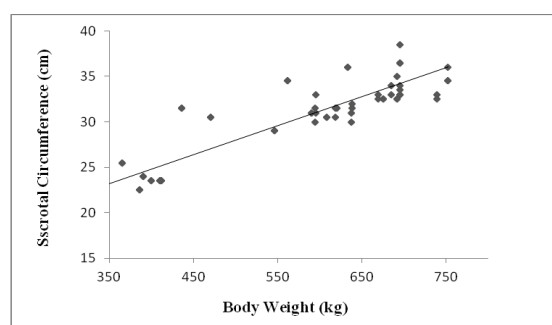


Figure 1. Correlation between body weight and scrotal circumference.

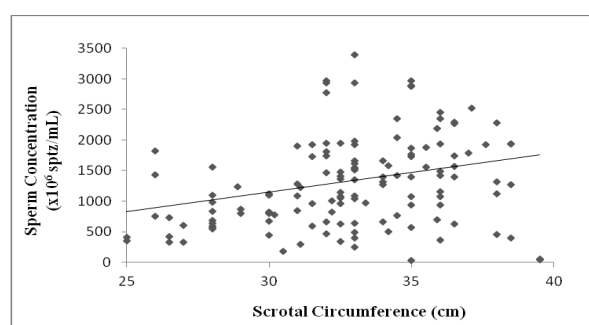


Figure 2. Correlation between scrotal circumference and sperm concentration.

References

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