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TESTICULAR MORPHOMETRY OF KANO BROWN BUCKS AS AFFECTED BY SEMI-ARID DRY SEASON TEMPERATURE AND FEEDING REGIME

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ABSTRACT

The research was aimed at determining the effects of semi-arid dry season temperature and feeding regime on testicular morphometry of Kano brown bucks. The study was conducted for a periods of 84 days (March – June, 2016). Sixteen (16) buck were randomly allotted to four dietary treatments with four animals each per treatment, 10 – 12 month of aged, with average initial live weight of 15 kg were used for this study. Three bucks from each treatment groups were randomly selected and orchidectomised for the determination of testicular morphometry. The result shows that, seasonal temperature significantly affect feed intake and subsequently affect the testicular morphometry of Kano brown bucks. Animals in treatment three recorded the highest mean values of testicular morphormetry compared to its counterpart. It can be concluded that feed intake increases testicular weight and shape.

Key word: Testicular, Morphometry, Kano Brown Bucks, Semi-arid Dry Season Temperature

INTRODUCTION

Seasonal effect of temperature and humidity significantly affect the reproductive potentials of farm animal especially when associated with poor nutritional status (Ganong, 2005). Feed consumption could be reduced significantly when the environmental temperature is relatively high, as a result of these simultaneous changes year in year out, meat, milk and other animals byproducts is reduced. Factors such as nutrition, genetic and environment influence the reproductive parameters of goats. Ambient temperature is the most common climatic indicator used, most likely because of its ease of measure. When the ambient temperature approaches or exceeds the animal's body temperature, the animal must escape, or increase its active cooling by evaporation of water from the respiratory tract or from the skin by sweating (Blackshaw *et al.,* 1994). Ambient temperature is the most common climatic indicator used, most likely because of its ease of measure. When the ambient temperature approaches or exceeds the animal's body temperature, the animal must escape, or increase its active cooling by evaporation of water from the respiratory tract or from the skin by sweating (Blackshaw *et al.*, 1994).

MATERIAL AND METHODS

Study area

The study was carried out at the University Teaching and Research Farm and Laboratory of the Department of Animal Science, new site of Bayero University, Kano. Kano is located within the longitude $9^0$30 and $12^0$30 North and the latitude $9^0$30 and $8^0$42 East in Sudan Savannah region of Nigeria. The annual temperature and relative humidity ranged between 38^0C to 43^0C and 40 to 51.3%, respectively (Olafin, 2007). The region is characterized by tropical wet and dry climate; wet season (May to September) and dry season (October to April) with annual rainfall that ranges between 787 - 960mm (KNARDA, 2001).

Treatments	**Feeding regime**
Treatment I:	Browsing only (zero supplementation)
Treatment II:	Supplementation in the morning with browsing
Treatment III:	Supplementation in the morning and in the evening with browsing
Treatment IV:	Supplementation only (Zero browsing)

Statistical analysis

Data collected were subjected to analysis of variance (ANOVA) using general linear model (GLM) procedure of SAS (2009 version 9.1) in a randomized complete block design, where significance differences observed means were separated using Fishers Least significance Difference (LSD)method of analysis.

RESULTS

The study on semi-arid dry season and nutritional effects on *epididymides* of Kano Brown bucks are presented in Table 1. The mean values of epididymides differed significantly (P<0.05) among the treatments. Treatment one had the lowest mean values of (2.96g) for right *caputepididymides* whereas treatment three recorded the highest values (12.71g). Left *cauda epididymides* weight shows that treatment one was the lowest mean values (1.98g) whereas treatment three (5.91g) ranking the highest. Table 2 shows the results of seasonal effects and feeding regime on *epididymides* length (cm) of Kano Brown bucks. Significant (P<0.05) difference was observed among the treatment groups studied. Similarly, treatment two had the highest values (48.90 cm) for left *corpus epididymides* whereas treatment one recorded the lowest means values (29.97). Right and left *cauda epididymides* length (cm) showed that treatment three recorded the highest mean values (40.44 cm) for right *cauda epididymides* and (51.84 cm) for left cauda *epididymides* while treatment four (24.54) and treatment one (21.46) were the lowest mean values. The results of nutritional and seasonal effects on testicular weight (g) and length (cm) of Kano Brown bucks are presented in Table 3 of the present study. Parameters studied differed significantly (P<0.05). Treatment three (73.74g, 73.54g and 47.49g were the highest mean values for right, left and paired testes weight (g) whereas treatment two (22.90g, 21.95g and 44.84g) recorded the lowest mean values respectively.

Table 1: Seasonal and nutritional effect on epididymidal morpometry (g) of Kano Brown bucks.

	Treatments				
Parameters	T_1	T_2	T_3	T_4	SEM
Right caput epididymides	2.96^{c}	3.88^{b}	12.71^{a}	2.31^{d}	0.07
Left caput epididymides	3.10^{c}	3.68^{b}	4.73^{a}	2.42^{d}	0.16
Right capus epididymides	1.32^{b}	0.98^{c}	2.17^{b}	1.34^{b}	0.10
Left Capus epididymides	1.43^{d}	1.65^{c}	2.28^{a}	1.88^{b}	0.29
Right cauda epididymides	3.34^{b}	4.00^{a}	4.18^{a}	2.10^{c}	0.07
Left cauda epididymides	3.54^{c}	3.87^{b}	5.91^{a}	1.98^{d}	0.14

^{abc} means within the same rows with different super script are significantly different (P<0.05). SEM standard error of means.

Table 2: Seasonal and nutritional effect on epididymides length (cm) of Kano Brown bucks.

	Treatments				
Parameters	T_1	T_2	T_3	T_4	SEM
Right caput epididymides length	23.55^{c}	33.47^{a}	28.32^{b}	21.50^{d}	0.31
Left caput epididymides length	18.70^{c}	28.92^{a}	18.70^{c}	20.70^{b}	0.07
Right capus epididymides length	32.60^{d}	42.25^{b}	59.86^{a}	37.25^{c}	0.21
Left Capus epididymides length	29.97^{d}	48.90^{a}	32.72^{c}	43.78^{b}	0.37
Right cauda epididymides length	28.54^{c}	29.98^{b}	40.44^{a}	24.54^{d}	0.07

Left cauda epididymides length	21.46[d]	35.67[b]	51.84[a]	26.63[c]	0.1

[abcd] means within the same rows with different super script are significantly different (P < 0.05). SEM standard error of means.

Table 3: Seasonal and nutritional effect on testicular weight (g) and length (cm) Kano Brown bucks.

	Treatments				
Parameters	T_1	T_2	T_3	T_4	SEM
left testis weight	39.60[b]	36.82[c]	73.74[a]	22.90[d]	0.01
Right testis weight	37.23[b]	35.90[c]	73.54[a]	21.95[d]	0.17
Paired testis weight	91.73[b]	72.78[c]	147.49[a]	44.84[d]	0.41
Right testis length	90.94[b]	88.30[b]	90.00[a]	75.98[d]	0.16
Left testis length	9158[b]	87.20[c]	102.07[a]	73.38[d]	0.1
Paired testis length	181.72[b]	175.63[c]	198.45[a]	149.38[d]	0.27

[abc] means within the same rows with different super script are significantly different (P<0.05). SEM standard error of means.

DISCUSSION

Epididymides weight (g) and length (cm) of Kano Brown bucks differed significantly (P < 0.05) among the treatments this could be due to differences in testicular weight (g) and length (cm). The values obtained in the present study agreed with the findings of Nasir *et al.*, (2014) who reported that epididymides weight has relation with testicular weight. Red Sokoto bucks and the values were at variance with the findings of Oyeyemi and Obiogoro (2005). Left epididymides weight (g) was found to be heavier compared to its counterpart in this study. Similar findings was reported by Raji *et al.*, (2008) who reported that left epididymides are heavier in Red Sokoto bucks of less than one year of age. This report concurred with the findings of Oyeyemi *et al.* (1998) while the length (cm) of epididymides significantly (P<0.05) differed among the treatments. Animals in treatment three tend to have the highest mean values of epididymides length (cm) as the case observed in testicular length (cm) and weight (g) of this study, the result obtained in this study was confirmed by the report of Kessler (1992). Similar observation was made on testicular morphometry of rabbits fed cotton seed cake Amao *et al.* (2012). The study reveals that testicular weight (g) and length (cm) of Kano Brown bucks were affected by nutrition and season. Left testis had the highest mean value and this is in agreement of the findings of (Dunn 1980; Oyeyemi *et al*., 1998) who reported that left testis weighing more than the right testis. This statement is also supported with the findings of (Mac Millan *et al.*, 1969; Ahmad 1984; Puberty and Choudhury 1985; Ali, 1989; and Siddiqui *et al.*, 2005).

CONCLUSION

Based on the result of the findings, it could be concluded that seasonal temperature changes and feeding regime significantly affect testicular morphometry of Kano brown bucks, increased in nutritional diets increases testicular weight (g) and length (cm) respectively.

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