



Adaptability of grazing Bunaji and Gudali cattle to stall feeding in a tropical University environment

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Introduction

The changing dynamics in feed availability, herder conflicts, and increasing land pressure make a shift from traditional extensive cattle management systems increasingly necessary. This is more so, with the reported concerning decline in animal protein availability in Nigeria, prompting the need for more sustainably sufficient systems that shore up supply.

Materials & Methods

This study evaluated the adaptability of grazing cattle to stall feeding at the Teaching and Research Farm, University of Calabar, over seven weeks. Nine White Fulani (Bunaji) and Sokoto Gudali cattle were used in a longitudinal observational cohort design. Animals were fed Napier grass hay supplemented with *Nymphaea lotus* leaf meal (NLLM). Body weight (BW) was recorded weekly, while temperature and relative humidity (RH) were measured daily at 8 am, 11 am, 2 pm, and 5 pm. Temperature-humidity index (THI) was computed. Data were analyzed using repeated measures ANOVA and correlation analysis.

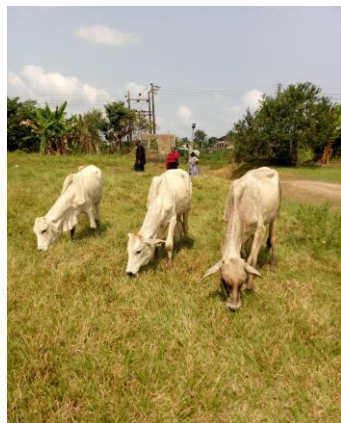


Plate 1. Gudali Cattle



Plate 2. Free stall Barn

Results

Body weight increased steadily from 178.74 kg (Week 2) to 199.63 kg (Week 7), indicating positive growth. Ambient temperature declined from 31.89°C (Week 2) to 29.04°C (Week 4), while RH increased from 70.25% to 80.75%. The highest THI (84.42) occurred in Week 2, coinciding with the highest temperature and lowest RH, when BW was lowest.

Table 1. Body weight, temperature and humidity dynamics

	Week							
Parameters	1	2	3	4	5	6	7	SEM
Body weight	180.19 ab	178.74 b	194.50 ab	196.60 ab	198.37 ab	199.19 a	199.6 3 ^a	2.43
Temperature	30.93 ^a b	31.89 ^a	30.65 ^a b	29.04 ^b	29.29 ^b	29.71 ^b	30.25 ab	0.26
R.H. %	75.58 ^b c	70.25 ^c	70.64 ^c	80.75 ^a b	81.86 ^a	78.21 ^a b	76.22 abc	0.80
THI	83.50	84.42	82.44	81.38	81.98	82.09	82.73	0.40

^{a,b,c}=mean with different superscripts on the same row differ significantly @ $p < 0.05$ SEM=Standard error of mean R.H=Relative humidity THI= Temperature-humidity index

Conclusion

The results showed that stall feeding supported weight gain and could serve as a viable alternative to extensive systems. However, heat mitigation strategies, such as shade, ventilation, and cooling, should be implemented, particularly between 2 pm and 5 pm, to reduce thermal stress and optimize productivity.