



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII
International Rangeland Congress

Grazing Intensity and Frequency Effects on Herbage Accumulation and Nutritive Value of Tifton 85 Bermudagrass (*Cynodon* sp.)

Kesi Liu
University of Florida

Lynn E. Sollenberger
University of Florida

U. Renée White
University of Florida

Y. C. Newman
University of Florida

Joao M. B. Vendramini
University of Florida

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/15-2/21>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Grazing intensity and frequency effects on herbage accumulation and nutritive value of Tifton 85 Bermudagrass (*Cynodon sp.*)

Kesi Liu, L.E. Sollenberger*, U. Renée White, Y.C. Newman, and J.M.B. Vendramini.
 Department of Agronomy, University of Florida, Gainesville FL, * E-mail: lesollen@ufl.edu

Key points: Tifton 85 bermudagrass (BG) response to grazing management was studied in northern Florida, USA. Herbage accumulation (HA) generally was greatest with short stubble height (SH) and long periods between grazings (GC) or short GC and taller SH. Herbage crude protein (CP) and in vitro digestion (IVDOM) were most affected by GC and were greatest with shorter GC.

Key words: Tifton 85, bermudagrass, grazing management

Introduction Tifton 85 BG has achieved wide acceptance for a range of livestock uses in warm climates because of high HA and forage quality (Hill et al., 2001). Data assessing the impact of different grazing management practices on Tifton 85 are lacking. Our objective was to evaluate HA and nutritive value responses of grazed Tifton 85 BG to grazing intensity (SH) and frequency (GC).

Materials and methods This study was conducted in 2006 and 2007 on Tifton 85 BG pastures at the University of Florida Beef Research Unit. Treatments were the nine factorial combinations of three post-graze SH (8, 16, and 24 cm) and three lengths of GC (14, 21, and 28 days) arranged in two replicates of a randomized complete block design. All the treatments received a total of 250 kg N fertilizer ha⁻¹ yr⁻¹ in five equal applications. Pasture size was 400 m², and pastures were rotationally stocked from June through October each year.

Herbage accumulation was measured using double sampling. Herbage nutritive value was determined using pre-grazing hand-plucked samples; only 2006 nutritive value data are presented. Data were analyzed using PROC MIXED of SAS.

Results and discussion

Herbage accumulation There was SH × GC interaction for HA in both years. Increasing GC resulted in greater HA when SH was 8 cm, but when SH was 24 cm, HA tended to decrease with increasing GC (Table 1). This response is similar to results of Pedreira et al. (1999) with Florakirk BG.

Herbage nutritive value For herbage CP, there was interaction of SH and GC (Table 2). Greatest CP was achieved with 14-day GC and 8-cm SH and lowest with a 24-cm SH and 28-day GC. Herbage IVDOM decreased linearly from 630 to 601 g kg⁻¹ as GC increased from 14 to 28 days. Mandebvu et al. (1998) found similar digestibility trends for Tifton 85.

Table 1 Stubble height (SH) × grazing cycle (GC) interaction for herbage accumulation (HA; Mg ha⁻¹) in 2006 and 2007.

SH (cm)	Year	GC (d)			PC†
		14	21	28	
8	2006	11.4	11.3	15.4	L,Q
	2007	9.1	10.9	10.7	NS
16	2006	13.1	11.0	14.5	L,Q
	2007	9.9	8.1	7.9	L
24	2006	14.2	12.8	11.9	NS
	2007	9.1	7.6	6.4	L
PC†	L (2006) NS (2007)	L,Q (both years)	L (both years)		

†Polynomial contrast; L=linear and Q=quadratic effects ($P \leq 0.10$); NS=Not significant ($P > 0.10$)

Table 2 Stubble height (SH) × grazing cycle (GC) interaction for herbage crude protein (CP; g kg⁻¹) in 2006.

SH (cm)	GC (days)			PC†
	14	21	28	
8	149	128	129	L,Q
16	133	125	111	L,
24	136	133	108	L,Q
PC†	L,Q	NS	L,Q	

†Polynomial contrast; L=linear and Q=quadratic effects ($P \leq 0.10$); NS=Not significant ($P > 0.10$)

Conclusions Other than the 24-cm SH, Tifton 85 responded well to grazing across the range of treatments. Greatest HA was obtained with infrequent grazing to a short SH, while nutritive value was greatest with frequent defoliation.

References

- Hill, G.M., R.N. Gates, and J.W. West. 2001. Advances in bermudagrass research involving new cultivars for beef and dairy production. *J. Anim. Sci.* 79 :E48-E58.
- Mandebvu, P., J.W. West, G.M. Hill, R.N. Gates, R.D. Hatfield, B.G. Mullinix, A.H. Parks, and A.B. Caudle. 1998. Comparison of Tifton 85 and Coastal bermudagrasses for yield, nutrient traits, intake, and digestion by growing beef steers. *J. Anim. Sci.* 77 :1572-1586.
- Pedreira, C.G.S., L.E. Sollenberger, and P. Mislevy. 1999. Productivity and nutritive value of Florakirk bermudagrass as affected by grazing management. *Agron. J.* 91 :796-801.