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Introduction

Intensive grazing management has the potential to increase the output of many tropical forage-livestock systems. Selected plant resources have gained in importance in several areas where advanced producers are willing to explore the potential of the forage species using fine-tuned grazing management. It is believed that refined grazing management techniques may improve not only pasture productivity and nutritive value, but also persistence. The objective of this research was to understand organic reserves dynamics by studying total non-structural carbohydrate (TNC) and nitrogen reserves on shoots and roots of Xaraes palisadegrass (*Brachiaria brizantha* (A. Rich.) Stapf cv. Xaraes), under intermittent grazing, during two growing seasons.

Materials and Methods

-The trial was carried out in Piracicaba - SP, Brazil, from Sep. 2005 to Feb. 2006 and Sep. 2006 to Feb. 2007.

- Treatments corresponded to three grazing strategies, one of fixed rest period (28-d) and two with variable rest period:

- “target grazing” (TG) strategy: defined based on what would supposedly be a target, optimum interval, established so that the sward reached 95% light interception (LI);
- represent a condition where grazing is delayed, and defined as when LI by the pasture canopy was almost complete, in our case equal or above 97.5% in two consecutive, twice-a-week measurements.

- In each paddock, whenever the specific treatment condition was achieved, animals (2-6) were brought in and grazed until a 15-cm stubble was reached.

- The trial was set as a completely randomized design with three field replications.

Results and Discussion

Delayed grazed (DG) reduced plant density on pastures, due to longer rest periods which restricted light incidence at the base of the plants. As a consequence of longer rest periods and stem elongation, DG decreased residual LAI, and consequently reduced LI in summer. DG and 28-d resulted in higher post-graze forage mass, while TG, with shorter rest-periods, resulted in low forage mass and accumulation. Higher proportions of leaf were found in spring (13%) than in summer (8.9%) forage, while stem percentage was lower in spring (37.5%) and increased in summer (41.5%). All grazing strategies reduced stubble N from the first (12.5 g kg⁻¹) to the second year (7.7 g kg⁻¹). Target grazing resulted in higher TNC pool (238 g m⁻²), followed by delayed grazing (136 g m⁻²), and 28-d being similar to both (199 g m⁻²).

Table 1. Rest periods of Xaraes palisadegrass pastures under intermittent strategies

Year	Strategy			Standard Error
	28-d	TG	DG	
05/06	28.7 Ba	22.1 Cb	31.7 Ab	0.48
06/07	27.7 Ba	25.6 Ba	34.5 Aa	0.80

Means followed by the same lower-case letter in columns and the same capital letter in rows do not differ by Tukey test at 5%.

Table 3. TNC concentration and pools on root and stubble of Xaraes palisadegrass pastures

Plant part	Spring		Summer	Std Error
	TNC concentration			
Root	49.4 a	32.0 b	1.7	
Stubble	30.0	30.0	1.1	
	TNC pool			
Root	220 a	157 b	1.1	
Stubble	109 b	152 b	1.1	

Means followed by the same lower-case letter in rows do not differ by Tukey test at 5%.

Table 2. Variables of Xaraes palisadegrass pastures under intermittent strategies

Variables	Strategy			Std Error
	28-d	TG	DG	
Post-graze forage mass	3900a	3330b	4180a	130
Stubble -Stem (%)	40.4a	34.2b	43.8a	1.3
Root -TNC pool	199 ab	238 a	136 b	1.1

Means followed by the same lower-case letter in rows do not differ by Tukey test at 5%.

Table 4. Nitrogen concentration on stubble mass† of Xaraes palisadegrass pastures under intermittent strategies

Year	Strategy			Std Error
	28-d	TG	DG	
	----- g kg ⁻¹ -----			
05/06	10.4 Aa	13.5 Aa	10.7 Aa	0.7
06/07	7.6 Ab	7.9 Ab	7.6 Ab	0.3

†Forage mass bellow 15 cm stubble height. Means followed by the same lower-case letter in columns and the same capital letter in rows do not differ by Tukey test at 5%.

Conclusions

The results suggest a negative effect of longer regrowth periods of the delayed and 28-d strategies. Target grazing seems to be the most indicated strategy for intensive management of ‘Xaraes’ palisadegrass pastures.



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