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The use of concentrate supplements to overcome seasonal shortages of grazed herbage in beef production systems

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Key words: *Brachiaria brizantha*, forage allowance, savanna, nutritive value

Introduction The Brazilian average slaughter age is presently close to 40 months of age. There is a major national initiative to decrease the slaughter age, and to improve production systems with greater efficiency, with good quality and low price. However, the seasonality of forage production and quality of tropical pastures is the major limitation to reduce slaughter age of the animals. Moreover, slaughter age has an important role in meat quality, since young cattle tend to produce tenderer meat. Thus, the objective was work to evaluate the efficiency of feed supplementation of steers grazing palisadegrass (*Brachiaria brizantha*) pasture during the dry season.

Table 1 Forage dry matter available (DM), allowance per day (FAD; kg of DM/ 100 kg of LW .day); leaf blade (LB) and stem (S) percentages, and percentages of leaf crude protein (CP), *in vitro* organic matter digestibility (IVOMD) and neutral detergent fiber (NDF).

	June	July	August	September
DM (kg/ha)	3,560a	3,120a	2,690b	2,600b
FAD	8.1a	6.6b	6.0b	6.9b
LB(%)	33.2a	24.7b	12.7c	5.1d
S (%)	26.5a	29.8a	22.8b	17.2c
CP (%)	5.8a	4.3b	3.7bc	3.1c
IVOMD (%)	45.2a	40.5b	40.1c	34.3c
FDN	77.7c	79.6b	79.1b	81.7a

Means followed by the same letter in row are not different ($P < 0.05$), by Tukey.

Materials and Methods The experiment was carried out at the National Beef Cattle Research Center, Campo Grande, Brazil. Six paddocks (1.5 ha each) of palisadegrass were deferred in March and grazed from June to October. Thirty steers approximately 18 months of age, with an average initial body weight of 380 kg were randomly assigned to each paddock, under the following treatments: a) 120 g of mineral salt plus starea (23% CP); b) supplementation at 0.6% of LW; and c) supplementation at 1% of LW. The supplement contained: 32.5% soybean meal, 32.2% corn, 29.8% soybean seed, 3.5% mineral mixture and 2% calcium carbonate. Forage samples were taken at 28-day intervals. The animals were weighted each 28 days and checked with respect to the end point (minimal 3mm of fat cover). Data was analyzed according to REG-SAS and GLM-SAS. Economic analysis was also performed.

Results Throughout the dry season, all pastures presented similar ($p > 0.05$) availability of forage, pasture structure and nutritive value assuring that the increase in average daily gains (ADG) were a result of the supplementation. Despite the decrease in forage allowance and nutritive value throughout the dry season (Table 1), there was a linear ($p < 0.01$) increase in ADG as the level of feed supplementation increased ($ADG = 420 + 610x$; $R^2 = 0.81$), where x is equal level of supplementation. Consequently there was an inverse relationship between supplementation level and time for reaching the predefined end point, being in average 21, 24 and 26 months of age, respectively for animals supplemented with 1% LW, 0.6% LW and salt-starea. The salt-starea resulted in the biggest operational margin (total revenue minus operational costs).

The second best result was from the treatment where supplement was provided as 0.6% of the live weight. The one which supplement level was 1.0% of the live weight showed the worst economic performance.

Conclusion It was possible to decrease steer slaughter age combining pasture deferred with feed supplementation. Even though economic results were not the most attractive, the feed supplementation using concentrate at a level of 1% LW might have some strategic use for attending specific markets or for providing pastures to be used for other animals, since the steers are ready to slaughter at the beginning of dry season.