

Weight gain of Nellore x Red Angus, Holstein x Zebu, and Nellore steers supplemented on *Brachiaria brizantha* cv. Marandú pasture

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Introduction Supplementation is a very efficient approach for improving animal performance and gain/ha in grazing systems in tropical conditions. However, care needs to be taken to avoid substitution effects (Moore *et al.*, 1999). Results may also depend on animal genetics and the availability and nutritional value of forage. This trial aimed to evaluate different levels of supplementation using steers from different genetic groups on palisade grass (*Brachiaria brizantha* cv. Marandú) pasture during the rainy season.

Materials and methods The trial was carried out at “Julio de Mesquita Filho” University (UNESP), São Paulo State, Brazil. Fifty-four steers from three genetic groups, Nellore x Red Angus (n=18), Holstein x Zebu (n=18) and Nellore (n=18) were evaluated on palisade grass pasture during the rainy season (from 10 Dec. 2002 to 30 March 2003) in a rotational system with 36 d of resting and 6 d of grazing. A put and take technique was used to maintain forage availability around 6.4% of dry matter in relation to body weight (BW) and stocking rate around 5.74 AU/ha. An oesophageal-fistulated animal was used for pasture sampling, and extrusa samples were analysed to determine crude protein (CP), neutral detergent fibre (NDF) and *in vitro* dry matter digestibility (IVDMD). Steers received a supplement (77.86% citrus pulp, 12.32% corn gluten meal, and 9.82% of cotton meal) with low protein degradability and containing 19.7% CP and 76.4% TDN, in individual pens at 08.00h. The treatments involved supplement offered at 0.2, 0.6 and 1.0% of BW. Starved weights were determined at 28-d intervals. Data were analysed according to a split plot design, considering treatments (genetic groups x supplement level) as the main plot, grazing time as the sub-plot and the three replicates (pastures).

Results and discussion During the experimental period, forage had 10.7% CP, 66.1% NDF, and 56.6% IVDMD. Supplementation increased ($P < 0.05$) weight gain (WG), however Nellore and Holstein x Zebu steers showed lower WG than Red Angus x Nellore (Table 1). Nellore x Red Angus and Holstein x Zebu steers maintained the same supplement intake during the whole grazing period, but Nellore reduced supplement intake during the second and third grazing days, particularly when offered at the highest level (Table 1) suggesting preferential consumption of the fresh grass.

Table 1 Weight gain of three genetic groups offered 0.2%, 0.6% and 1.0 % BW of supplement and intake of the highest level of supplement in relation to the period of occupation of a paddock

Genetic groups	Weight gain (kg/d)						
	Supplementation level						
	0.2 % BW	0.6 % BW	1.0% BW	Mean			
Nellore x Red Angus	0.81	0.98	1.03	0.94 A			
Holstein x Zebu	0.65	0.85	0.94	0.81 B			
Nellore	0.64	0.80	0.97	0.80 B			
Mean	0.70 c	0.88 b	0.98 a				
Supplement offered at 1.0 % BW							
Days from entering a paddock							
Genetic group	1	2	3	4	5	6	Mean
Nelore x Red Angus	0.90 Aa	0.90 ABa	0.92 Aa	0.92 Aa	0.92 Aa	0.93 Aa	0.92
Holstein x Zebu	1.00 Aa	0.99 Aa	0.99 Aa	1.00 Aa	0.99 Aa	0.99 Aa	0.99
Nelore	0.95 Aa	0.87 Bc	0.89 B bc	0.92 Aab	0.92 Aa	0.92 Aa	0.91
Mean	0.95	0.92	0.93	0.95	0.94	0.95	

Means followed by different capital letters within column and lowercase within line are different ($P < 0.05$) by Tukey test.

Conclusions Supplementation of tropical pasture during the rainy season increased steer live weight gains.

References

Moore, J.E., M.H. Brant, W.E. Kunkle & D.I. Hopkins (1999). Effects of supplementation on voluntary forage intake, diet digestibility, and animal performance. *Journal of Animal Science*, Supplement.2, 77, 122-135.