Animal performance and productivity of new ecotypes of Brachiaria brizantha in Brazil

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Introduction Brazil has the competitive advantage of a very dynamic and cost effective animal production system on pastures over other countries. The pursuit for more productive forages that will result in higher quality beef at a lower cost is then justified. *Brachiaria* is the most important forage genus utilised in Brazil, thus an intense search for new cultivars amongst collected and introduced ecotypes from Africa is underway. Following agronomic evaluation of this material in plots, 8 pre-selected *Brachiaria* ecotypes were tested under intermittent grazing in paddocks (Euclides *et al*., 2001). Continuing on the process of cultivar development, two out of the eight, selected for superior agronomic characteristics were compared to the standard cultivar Marandu, under grazing and the results are presented in this paper.

Materials and methods The experiment was carried out at the National Beef Cattle Research Centre, Campo Grande, MS, Brazil, from March 2001 to February 2004. The *B. brizantha* selected ecotypes were Xaraés, Piatã, and the commercial cv Marandu was used as control. The experiment had a randomised block design with three treatments and two replicates. Six paddocks measuring 2 ha were divided in half and each was submitted to alternated grazing with a 28-day grazing and resting cycle. Three steers (testers) stayed in each paddock for a whole year, additional steers were allocated and removed according to forage availability, to assure the planned residues (3 t/ha of DM). All treatments received lime (2.25 t/ha) and 400 kg/ha of 0-20-20 NPK fertiliser at establishment. Maintenance fertiliser was 80, 60 and 60 kg/ha/year of N, P_2O_5 and K_2O, respectively. Forage samples, before and after grazing, were taken and liveweight gain was measured at 28-day intervals.

Results Steers grazing Piatã and Marandu pastures performed better than those grazing Xaraés; however, Xaraés pastures sustained a higher stocking rate than the others grasses (Table 1), which resulted in greater productivity (795, 715 and 670 LW kg/ha/year, respectively for Xaraés, Piatã and Marandu). The amount of total dry matter and green dry matter leaf percentage availabilities can explain these differences since there was no difference in nutritive value among the cultivars (Table 2). Differences ($P< 0.05$) between rainy and dry periods were also observed for all variables (Table 1 and 2). Dry matter availability after grazing, was always greater than 3 t/ha, indicating that this was not limiting animal performance, independently of the season of the year.

Table 1 Means for average daily gain (ADG, kg/steer per day) stocking rate (SR, steers/ha),over a period of 3 years

Cultivars	ADG	SR
Rainy		
Xaraés	0.718 [b]	6.85 [a]
Piatã	0.782 [a]	5.19 [b]
Marandu	0.770 [a]	5.07 [b]
Dry		
Xaraés	0.286 [b]	2.25 [a]
Piatã	0.349 [a]	1.82 [b]
Marandu	0.312 [b]	1.97 [b]

Means n the same column, within year period, bearing different superscript letters are different (P<.05), by Tukey.

Table 2 Means for herbage dry matter (DM, kg/ha) green dry matter (GDM, kg/ha) and percentages of leaf, crude protein (CP*), in vitro* organic matter digestibility (IVOMD), neutral detergent fiber (NDF) and lignin (Lig)),over a period of 3 years

	Rainy			Dry		
Cultivars	Xaraés	Piatã	Marandu	Xaraés	Piatã	Marandu
DM	4550 [a]	4050 [b]	4056 [b]	3830 [a]	3740 [a]	3640 [a]
GDM	3532 [a]	3355 [a]	2970 [b]	2120 [a]	1915 [ab]	1655 [b]
Leaf	51.5 [a]	51.5 [a]	48.4 [a]	25.1 [a]	24.8 [a]	19.6 [b]
CP	10,4 [a]	9.5 [a]	10.4 [a]	8.1 [a]	7.3 [a]	7.9 [a]
IVOMD	59.3 [a]	59.9 [a]	61.0 [a]	53.0 [a]	51.9 [a]	53.5 [a]
NDF	72.2 [a]	73.8 [a]	70.7 [b]	74.5 [a]	75.8 [a]	73.4 [a]
Lignin	2.52 [b]	2.79 [a]	2.46 [b]	2.88 [b]	3.10 [a]	3.00 [ab]

Means in the same row, within year period, bearing different superscript Letters are different (P< 0.05), by Tukey.

Conclusions Cultivar Xaraés was released by EMBRAPA Beef Cattle based on these results as a contribution to pasture diversification. Although this new cultivar had an inferior animal performance than cv. Marandu, it presented higher forage production, consequently sustaining higher stocking rate and greater productivity. These traits suggest it as a new alternative to be used under different production systems.

References

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