



***Panicum maximum* genotypes yield under integrated crop-livestock-forest system in the Brazilian Cerrado**

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Introduction

The trial was carried out to evaluate yield of four cultivars and one access of *Panicum maximum* grass under integrated crop-livestock-forest system (ICLF), with Eucalyptus, in the Brazilian Cerrado.

Material and Methods

The area is located at Embrapa Beef Cattle research station in Campo Grande-MS (20°27'S and 54°37'W; mean altitude of 530 m). Experimental design was randomized blocks in split split plots with two replicates. Plots corresponded to the forages: *Panicum maximum* cultivars Massai, Mombaça, Tanzânia and BRS Tamani (hybrid), and *P. maximum* access PM44 (hybrid). Split plots corresponded to sample points (A, B, C, D, E and F) and the split split plots to harvesting period in 2014 (February, 34 days of regrowth, April, 50 days of regrowth, and June, 60 days of regrowth). The ICLF system is based on single row (22 m distance) Eucalyptus trees with 227 trees ha⁻¹ planted in 2009. Pastures are kept for three years, followed by one season soybeans. A similar system with no trees was seeded as reference. Forages evaluated were seeded in October 2013, in 20 x 1.5 m plots with 0.25 m spaced rows, receiving 50 kg ha⁻¹ NPK 0-20-20 at seeding and 90 kg ha⁻¹ in April 2014, after the second harvest. Seeding rates were adjusted for 200 pure viable seeds ha⁻¹. Forage samples were taken at five equidistant points (A, B, C, D and E) between Eucalyptus rows. Point F was located in the reference system. Plants were cut close to the ground, weighted and dried in forced-air oven at 65°C until constant weight was reached. Photosynthetically active radiation (PAR) was also measured in these points using a portable ceptometer in the morning and afternoon, being used the daily average figures for comparisons. Analysis of variance was performed and means were compared through Tukey test (p<.05).

Results and Conclusions

PAR in grass canopy at sampling points A, B, C, D, E and F averaged 302; 599; 538; 591; 365 and 1,027 $\mu\text{m}^2 \text{s}^{-1}$, respectively. The percentage of shade in relation to full sun was 69%; 47%; 52%; 48%; 63% and 0% on sampling points, respectively, what reflected in forage yield, showing higher average dry matter yield in point F (7,308 kg ha⁻¹) than in point E (4,774 kg ha⁻¹). But these points did not statistically differ between the points A (5,962 kg ha⁻¹), B (6,400 kg ha⁻¹), C (6,574 kg ha⁻¹) and D (5,191 kg ha⁻¹). Average dry matter yield of the forages was higher in June (7,089 kg ha⁻¹) and February (6,139 kg ha⁻¹), followed by April (4,876 kg ha⁻¹). Grasses BRS Tamani and Mombaça showed higher average dry matter yield than the access PM44 (Table 1), showing to be more adapted to shading.

Table 1. Dry matter yield (DMY, kg ha⁻¹) of *Panicum maximum* genotypes (average of three cuts).

Variable	Massai	Mombaça	Tanzânia	PM44	BRS Tamani
DMY	6,156 ab	7,176 a	5,474 ab	4,008 b	7,360 a

Means followed by the same letter do not differ by Tukey test (p>.05).

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Embrapa, Unipasto.