

**SEASONAL VARIATION OF *Brachiaria* spp. QUALITY IN THE PANTANAL OF
MATO GROSSO DO SUL, BRAZIL**

S.M.A.Crispim¹, E.L.Cardoso¹, F.A.Fernandes¹

Embrapa Pantanal, P.O.Box 109, Corumbá, MS, Brasil, 79320-900; scripim@cpap.embrapa.br

Abstract

This study aims to evaluate the dry matter yield and the crude protein (CP) of *Brachiaria decumbens* and *Brachiaria humidicola* and soil covering by these species, considering stand lasting age and hydrologic cycle periods in the Pantanal, from November 1996 to November 1997. Dry matter yield presented differences between hydrologic cycle periods and age, and their interactions. *B. decumbens* and *B. humidicola* over 10 years comparison yielded the largest amount of dry matter yield, observed in February. *B. humidicola* growth rate was slower than *B. decumbens*. Pastures stand ages did not cause differences in crude protein, but differences have been observed when considered different species, hydrologic cycle periods and also the interaction of hydrologic cycle periods with age. *B. decumbens* presented the highest values of CP contents. There were differences of soil covering within hydrologic cycle periods.

Keywords: *B. decumbens*, *B. humidicola*, crude protein, dry matter yield, soil cover.

Introduction

The Pantanal is located between the parallels 15°30' and 22°30'S and the meridian 54°45' and 58°30' W. Cattle raising is the principal economic activity. Nhecolândia, one of the biggest subregions in the Pantanal (26,921 km²) (Vila da Silva and Abdon, 1998), concentrates the largest herd.

The cattle food is based exclusively on native pastures. To increase the animal production in the last 20 years, the foraging establishment has been used with the introduction of exotic grass. This procedure aims at increasing the amount of food in critical periods. *Brachiaria decumbens* and *Brachiaria humidicola* have been the most utilized species.

Works conducted in the Pantanal found values of DM from 18.2 t ha⁻¹ to 12.0 t ha⁻¹ in *B. decumbens*. In *B. humidicola* these values ranging from 24.4 t ha⁻¹ to 13.0 t ha⁻¹, cultivated without fertilizers (Comastri Filho & Pott, 1996). In another subregion of Pantanal they found contents of crude protein (%) from 3.6 and 4.4 in *B. decumbens* and *B. humidicola*, respectively (Comastri Filho, 1994).

This work has aimed at evaluating the dry matter production and the crude protein in *Brachiaria decumbens* and *Brachiaria humidicola* and the soil cover by these species, considering the age and hydrologic cycle periods in the Pantanal.

Material and Methods

This study was conducted at three ranches in the Nhecolândia subregion of the Pantanal, from November 1996 to November 1997, in 13 paddocks, with an average area of 114 ha⁻¹.

The samples were obtained with the use of exclusions. The exclusions (cages) were made of steel, measuring 1.0 m² each. In each paddock five exclusions were used, randomly distributed, after a uniformization cut. The pastures were evaluated according to hydrologic cycle periods, in the following months: February (end of rains), April (flood), June (end of flood),

September (dry) and November (beginning of rains), and the age classes: 0-2 years, 5-10 years and over 10 years. The exclusions were laid in November 96 (beginning of rains) and the pastures were evaluated in the following period, February 97, and continued in the other months mentioned above. The samples were cut within the iron frames measuring 0.25 m² located at the center of each exclusion, to suppress the effect of the bordering. The samples of *B. decumbens* were cut up to 5 cm to the soil and for *B. humidicola* were cut close to the soil. In April, the 0 to 2-year-old pastures were not cut, because there wasn't sufficient time to grow up. All the vegetal material was packed in paper bags and was placed in an air forced oven at 65 °C till constant weight of dry matter was obtained. After this, the samples were taken for the crude protein analysis. The whole plant was considered in the crude protein analysis.

The visual method was used to quantify the soil covering, where the observer registered the percentage of soil which was covered in each exclusion.

A General Linear Model analysis of variance was used to test differences in species, hydrologic cycle periods, age and their respective interactions. For the statistical data analysis SAS (SAS Institute 1990) was used.

Results and Discussion

There were differences ($P < 0.05$) between hydrologic cycle periods and age, and their interactions ($P < 0.05$) in the results of dry matter production. *B. humidicola* grew more slowly than *B. decumbens*. Over 10 years old, they showed the largest amount of DM in the same hydrologic cycle periods, in February, while *B. decumbens* 3.627 kg ha⁻¹ and *B. humidicola* 6.275 kg ha⁻¹ (Fig.1). The largest amount in February was attributed to the period of rains. Older pastures were more productive, according with studies from others regions of Brazil (Mitidieri, 1988).

There were not differences in age ($P<0.05$) for the crude protein, but there were differences between species and hydrologic cycle periods, and also in the interaction between hydrologic cycles periods and age ($P<0.05$). *B. decumbens* showed the largest contents of CP, ranging from 4.4% to 8.7%. In *B. humidicola*, values from 3.6% to 7.4% were observed (Fig. 2). According to the National Research Council (1976) CP requirements for beef cattle is 7.0%. Then, *B. decumbens* supplied the minimum requirements for beef cattle in April, June, September and November, especially when they were over 10 years old.

There were differences for soil cover in hydrologic cycle periods ($P<0.05$), but there were not any interactions ($P<0.05$). The results of 0 to 2-year-old species weren't considered, because these two species were seeded together. In *B. humidicola* a maximum value of 100% and a minimum value of 93% were observed. The results of *B. decumbens* showed a variation between 91% and 99%. Considering these results, both species of *Brachiaria* were very efficient for soil cover. Similar results were presented in other papers (Ghisi, 1991; Comastri Filho and Pott, 1996).

Brachiaria humidicola out yielded *Brachiaria decumbens*, but both species provided efficient soil covering.

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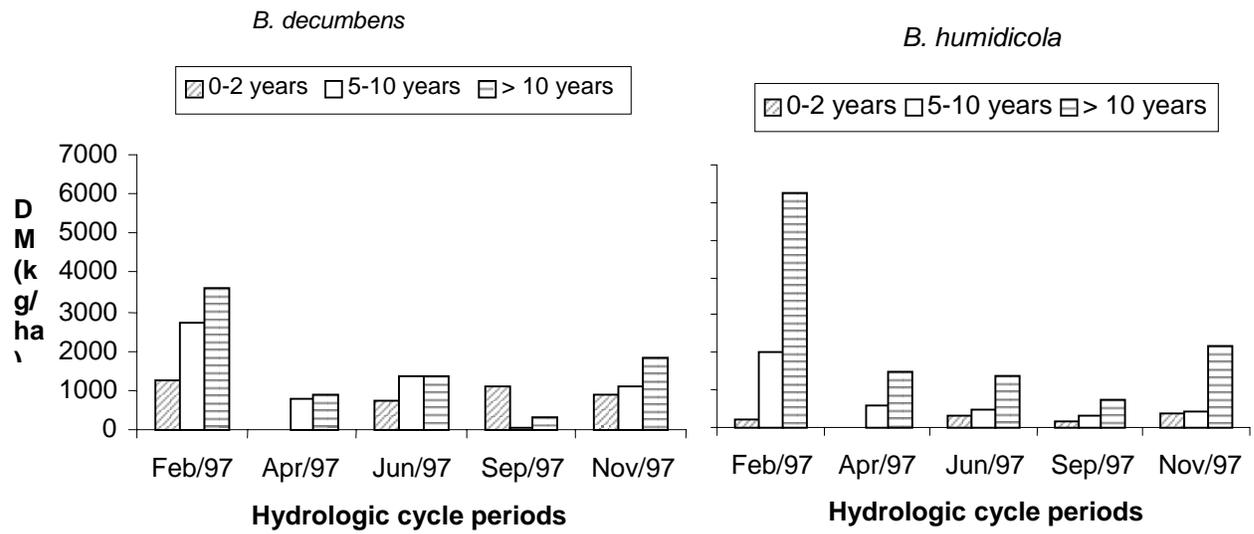


Figure 1 - Variation of dry matter production DM kg ha⁻¹ according to age and hydrologic cycle periods the species *B. decumbens* and *B. humidicola*, February/November-97, Pantanal, Brazil.

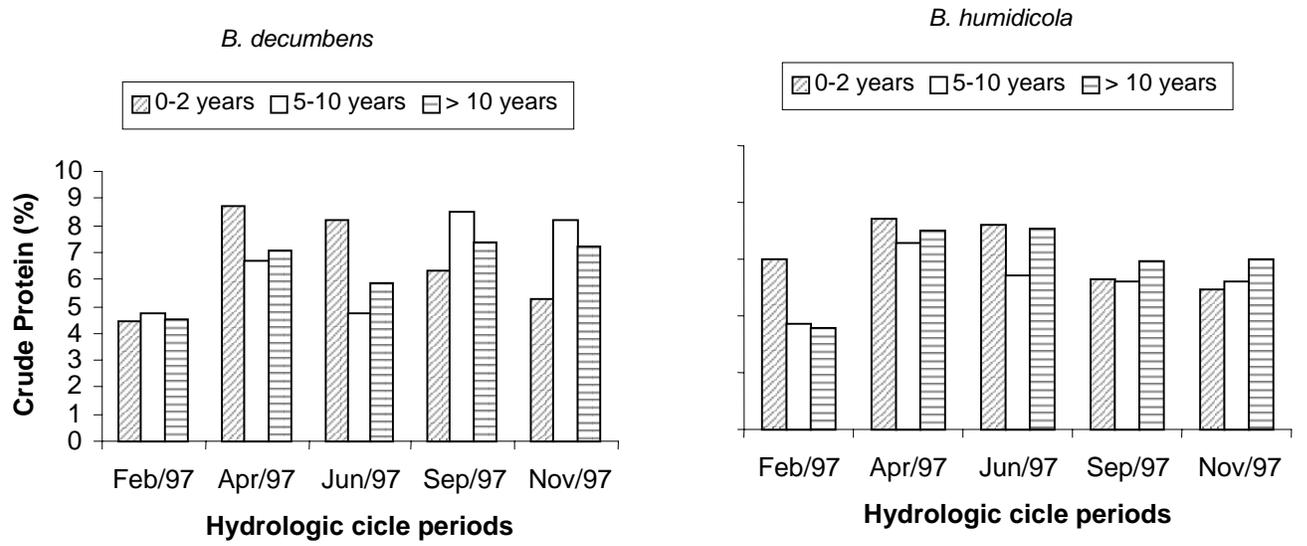


Figure 2 - Contents of crude protein (%) according age and hydrologic cycle periods the species *B. decumbens* and *B. humidicola*, February/November-97, Pantanal, Brazil.