

# Summary

The response of *Brachiaria decumbens* cv. Australiana, *B. brizantha* cv. Marandu, *B. humidicola*, and *Andropogon gayanus* cv. Planaltina to five rates of phosphorus (0, 30, 60, 90, and 120 kg/ha of  $P_2O_5$ ) was studied in an Allic red-yellow Latosol at the experiment station of the Centro de Pesquisa Agropecuária do Meio-Norte of the Empresa Brasileira de Pesquisa Agropecuaria (EMBRAPA). The experiment station is located in Teresina, Piauí (5° 5' S and 49° 48' W, 72 m.a.s.l.), with an average temperature of 27.4 °C and 1360 mm rainfall. A randomized split-plot design was used, the grasses composing the main plots and the P rates, the subplots. Four cuts were made during the dry season (every 12 weeks) and four cuts during the rainy season (every 8 weeks). The growth of *B. humidicola* was slow during the first year but then became highly productive. All grasses responded to P. maximum DM production during the dry season was obtained with the application of 90 kg/ha of  $P_2O_5$  and, during the rainy season, with 68.8 kg/ha of  $P_2O_5$ .