

Summary

The study was carried out at São Jorge farm located in the Ferreira Gomes district, Amapá, Brazil, from February 1979 to December 1980.

The objective was to determine the response of a *Brachiaria humidicola* pasture to increasing phosphorus levels. The soil is a highly acid, low-fertility Yellow Latosol. The climate is rainy tropical (Köppen classification) with maximum precipitation between January and June and minimum precipitation between July and December. Average annual precipitation is 2500 mm, with average annual temperature of 26 °C and relative humidity above 80%. A randomized complete experimental design with 3 replications and 13 treatments was used. Dry-matter (DM) production was measured by cutting every 60 days during maximum rainfall and every 90 days during minimum rainfall. The results did not show a significant effect of phosphorus levels on DM production. However, *Brachiaria humidicola* grass responded better to the level of 11 kg/ha of P, resulting in an increase of 264% in DM production.