Summary

The effect of different levels of phosphorus (P) on the forage production of *Panicum maximum* cv. Tobiatã and the amount of accumulated P was evaluated over a 15-month period in a yellow Latosol in the municipality of Terra Alta (Para, Brazil). Soil characteristics were pH = 5.5; Al, Ca and Mg = 0.4, 0.6, and 0.1 meq/100 ml, respectively; K = 16 ppm; and P = 2 ppm. Prevailing climate was type Ami, with an average annual rainfall of 2000 mm and an average temperature of 26 °C. Levels of P applied were 0, 22, 44, 66, and 88 kg/ha, in the form of triple superphosphate, natural North Carolina phosphate rock, and natural Arad phosphate. Six cuttings took place. A randomized split-plot block design was used. Phosphorus was applied alone or with a basic fertilization of 60 kg N, 60 kg K, and 30 kg S/ha, with or without dolomitic lime (500 kg/ha) as source of Ca and Mg.

Phosphorus application, without basic fertilization, did not produce differences in dry matter production among sources of P. On the contrary, when P was applied, production was higher ($P<0.05$) with TSP (15.9 t/ha) than with North Carolina phosphate rock (14.2 t/ha) or Arad phosphate (13.8 t/ha). After 15 months, residual phosphorus (6 ppm, Mehlich I) was less with 88 kg P/ha applied as TSP + basic fertilization and lime than when North Carolina rock phosphate (18 ppm) or Arad phosphate (20 ppm) were applied.