

Summary

The effect of two sources of phosphorus on DM production of *Brachiaria decumbens* was evaluated in an Ultisol at Huimanguillo, Tabasco, Mexico (17° 47' N, 93° 38' W; 60 m.a.s.l.; 2200 mm; 26.5 °C), from October 1987 to December 1992. One source was rock phosphorus (RP) from San Juan, Costa Baja, California Sur, with 13% of total P and an industrial granulometry of -35% + 150%. The other source was triple superphosphate (TSP), with 20% P. Phosphorus was applied at 15, 30, 60, and 120 kg/ha before planting, as bands (B) and broadcast and incorporated (BI), and, after planting, broadcast but not incorporated (BN).

A complete random block design was used, with a factorial arrangement of 2 x 4 x 3 and four repetitions. A control with no P, together with a treatment of 30 kg/ha of P as TSP, was also used. After each cut, 25 kg/ha of nitrogen was applied to the grass and DM production measured 30 to 60 days later, depending on the season.

The initial effect of RP on DM production in *B. decumbens* was less than that of TSP, but its agronomic efficiency increased over time and yields reached those obtained with TSP. The largest DM production in *B. decumbens* was obtained with 80 and 100 kg/ha of P as RP and TSP, respectively. Only in the first year was the BI method more effective than the BN method.