

Summary

The effects of soil fertility on the growth and dry matter (DM) production of *Andropogon gayanus* cv. Planaltina and *Brachiaria brizantha* cv. Marandú were studied, under greenhouse conditions, at the Soil Science Department of the Federal University of Lavras, Brazil. The soil used was a Latosol (Oxisol) from the Campos das Vertentes region of Minas Gerais. Its characteristics were as follows: 4.4% organic matter; a pH of 4.9, 1 ppm P; 72 ppm K, 3.7 ppm S; 0.5, 0.2, 0.3, and 0.4 meq/100 cm³ of Ca, Mg, Al, and H + Al; 0.3 ppm B; 1.9 ppm Cu, 10.3 ppm Mn, and 1.1 ppm Zn. The treatments were based on the missing element technique, as follows: (1) check (natural soil); (2) K, S, B, Cu, and Zn; (3) complete 1 (C1), consisting of liming + N, P, K, S, B, Cu, and Zn; (3) complete 2 (C2), consisting of C1 minus liming + Ca and Mg in sulphate form; (4) C1 minus liming (-Lim); (5) C1 minus N (-N); (6) C1 minus P (-P); (7) C1 minus K (-K); (8) C1 minus S (-S); (9) C1 minus B, Cu, and Zn (-Micro); (10) C2 minus Ca (-Ca); and (11) C2 minus Mg (-Mg). A completely randomized experiment design was used with 11 treatments, two forage grasses, and four replications. Four plants of each forage species were planted per pot. Three cuttings were performed at 45-day intervals to measure shoot DM of each grass species; root DM was measured at the last cutting. Results showed that the soil had limitations for plant growth, particularly regarding P and N, and, to a lesser degree, S and K. Liming was necessary at rates high enough to satisfy Ca and Mg requirements. *Brachiaria brizantha* showed the highest potential for this region because of its fast establishment and high DM production.