

Summary

Response to the application of N (80 kg/ha), P (18 kg/ha), and K (33 kg/ha) was evaluated in terms of DM production, growth, and nutritive value of *Andropogon gayanus* and *Digitaria swazilandensis*. The trial took place in the well-drained isohyperthermic savannas of the Venezuelan plains (170 m.a.s.l., 1050 mm annual precipitation) in an acid Haplustox (8 ppm of P, 0.2 meq/100 g of K, and 76% of Al).

After five cuttings every 42 days, it was found that the total biomass of *A. gayanus* did not vary with fertilization, but it did with *D. swazilandensis*. Likewise, absolute growth rate (AGR), leaf area index (LAI), effective leaf area (ELA), quotient of leaf area (QLA), and quotient of leaf weight (QLW) of *A. gayanus* were not affected by fertilization, but they were affected in *D. swazilandensis*. In *A. gayanus*, the average CP content was 7.3% and the IVDMD was 42%; in *D. swazilandensis*, these values were 8.8% and 47.1%, respectively. The results once again show the high potential of *A. gayanus* in marginal ecosystems.