

Summary

Three field experiments were conducted on a dark-red clay Latosol at EMBRAPA-Cerrados, located in Planaltina, DF, Brazil. The objective was to study the individual effect of different levels of phosphorus (40, 80, and 120 kg/ha of P_2O_5), lime (1.6, 3.6, and 5.7 t/ha), and potassium (30, 60, and 120 kg/ha of K_2O) on the dry matter (DM) production of *Arachis pintoi* BRA-031143. The plots were arranged according to a randomized block design with four replications. Phosphorus applications of 120 kg/ha of P_2O_5 increased DM production by 190% compared with the check (0 kg/ha). The relationship of DM production and phosphorus levels in the youngest expanded leaf was linear. Maximum response to lime occurred with 4.8 t/ha of lime. However, 80% of the maximum yield (2568 kg/ha) was achieved with only 0.9 t/ha of lime. The application of K did not affect yields of *A. pintoi* BRA-031143.