

Summary

The effect of different planting methods and levels of gypsum, calcium, and phosphorus on the DM production and forage quality of the association *Brachiaria decumbens* cv. Basilisk-*Stylosanthes guianensis* cv. Mineirão was evaluated during two consecutive periods (1997-98 y 1998-99) in the field at the Universidade Federal de Viçosa, located at Viçosa (Minas Gerais, Brazil). Planting methods were (1) furrows spaced at 1 m, planted on one date; (2) furrows spaced at 1.5 m, planted on one date; (3) furrows spaced at 2 m, planted on two dates; (4) furrows spaced at 1 m, planted on three dates; and (5) furrows spaced at 1 m, planted on one date, plus one pass of the plow and harrow. The doses of calcium were 25, 50, 75, and 100% of requirements. Gypsum doses were 0, 230, 940, 1.880, and 2.820 kg/ha, and P_2O_5 doses were 50, 100, 150, 200, and 250 kg/ha, applied in the form of triple superphosphate. A uniform application was made in all plots of 40 kg/ha K_2O , 20 kg/ha $ZnSO_4$, 20 kg/ha borax, and 0.53 kg/ha Na_2MoO_4 , applied once or fractionated depending on the planting method. The effects of P, Ca, and gypsum were submitted to regression analysis and the establishment methods to the Tukey test. During the second year, the two-date planting method increased DM production and the number of tillers of Basilisk. During the first year, the IVDMD of Basilisk was higher in the two-stage planting method. The application of P_2O_5 increased DM production of Basilisk in the first harvest and decreased the DM production of yield of Mineirão in all harvests, reducing the percentage of legume in the pasture and the neutral detergent fiber (NDF) content in the grass. Gypsum increased the percentage of Mineirão in the pasture and the crude protein content of the legume, while decreasing the NDF in the grass.