

Summary

The effects of cutting heights and N application on the accumulation rate of dry matter (ARDM), crude protein (CP) content, and of in vitro organic matter digestibility (IVOMD) of an *Andropogon gayanus* pasture were studied. The experiment was carried out in the Pascua Valley, Guárico State, Venezuela, (latitude 9°13' N and longitude 65°59' E) in soil with a pH value of 6.1 and 5.5, 3.8, and 0.78 meq/100 g of Ca, Mg, and K, respectively. The annual applications of N (main plots) were 0 and 75 kg/ha; cutting heights (subplots) were 15 and 30 cm above soil level; and cutting frequencies (sub-subplots) were 4, 6, 8, and 10 weeks. For each cut the ARDM, CP content, and IVOMD were measured. The results were analyzed over the total evaluation period of 38 weeks and during 20 weeks of maximum precipitation.

A significant correlation ($r = 0.57^*$) was found between soil humidity and ARDM of *A. gayanus*, producing an average of 7.72 kg/ha of dry matter per mm of water. The application of 75 kg/ha of N did not increase dry matter production, nor the quantity of stems, CP content, and IVOMD. Instead, it caused a reduction in leaf quantity and an increase in dead material. The interaction of N with the cutting height influenced ($P \leq 0.01$) the ARDM, resulting in yield reduction when the grass was cut at 15 cm above soil level and fertilized with 75 kg/ha of N. Cutting the grass at 30 cm above soil level favored the dry matter production and reduced the quantity of leaves. The maximum ARDM occurred when the cutting was performed every six to eight weeks.