Summary

Adaptation and dry-matter (DM) production of 18 grass accessions and varieties and 30 legume accessions were evaluated in an Entisol of San Carlos, Costa Rica (10° 20' N, 84° 34' W, 3062 mm, and 26.7 °C) within the tropical rain forest between June 1988 and October 1989. Dry-matter production was measured every 3, 6, 9, and 12 weeks in maximum and minimum rainfall periods. *Brachiaria humidicola* CIAT 6369 showed slow establishment, with 27% soil coverage at 12 weeks after planting. At this same age, *B. brizantha, B. decumbens*, and *P. maximum* showed 100% soil coverage. In general, the legumes showed slow establishment; this was, on the average, 30% at 9 weeks.

In the minimum rainfall period, the highest daily rates of DM production, up to 9 weeks of growth, were obtained with *Andropogon gayanus* CIAT

6053 (52.4 kg/ha) and *Panicum maximum* CIAT 622 (39 kg/ha). At 12 weeks, in this same period, the highest daily rate of DM production was reached with *A. gayanus* CIAT 621 (77 kg/ha).

The legumes did not recover in time for cutting at 3 weeks. At 12 weeks of growth, *Stylosanthes guianensis* CIAT 184 showed the highest daily rate of DM growth (35 kg/ha); the rest of the accessions produced, on the average, 19 kg/ha of DM/day.

In the maximum rainfall period, the highest daily rates of DM production occurred at 9 weeks of growth with *Hemarthria altissima* (local variety) and P. maximum CIAT 673 (90 kg/ha). *Andropogon gayanus* and *Setaria sphacelata* showed root rot and pathogen attack. In this period, the high rainfall affected the daily rate of DM production of the legumes, and only *Desmodium ovalifolium* CIAT 350, 3788, and 3793 (24 kg/ha of DM), *Pueraria phaseoloides* CIAT 9900 (15 kg/ha of DM), and *Centrosema macrocarpum* CIAT 5740 (7.5 kg/ha of DM) persisted.