

Summary

One c_4 grass (*Brachiaria dictyoneura*) and two c_3 forage legume species (*Arachis pintoii* and *Centrosema macrocarpum*) were evaluated in monoculture or in mixture cropping with two fertilization levels, at La Esperanza farm, located in the coffee-growing region of Mondomo, Department of Cauca, Colombia. Adaptation responses of plant materials during establishment were measured in terms of morphological characteristics; dry matter yield (DMY); leaf area index (LAI), and leaf:stem ratio (LSR). Harvest was carried out at 16, 29, 38, and

55 weeks after planting. An additional harvest was also conducted after 6 weeks of regrowth by mowing all plots at the end of the 55-week collection date. Dry matter yield was closely related to fertilization level, the highest yield being obtained with the highest fertilization rate. The C₄ grass *B. dictyoneura* alone recorded the highest DMY, followed by the two mixtures, *B. dictyoneura* + *C. macrocarpum* and *B. dictyoneura* + *A. pintoii*, which were more productive than the legumes in monoculture and the native vegetation. Growth analysis indicated that *B. dictyoneura* had the highest LAI at later harvests and with the high fertilization rate (6.61 at 38 weeks of age) and *A. pintoii* had the highest LAI at early regrowth and with the high fertilization rate (2.76 at 6 weeks regrowth). The LSR was not only higher in the grass than in the legumes, but also with the high fertilization level.