

Summary

In an Inceptisol of the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica, an experiment was carried out from January to July 1990 to evaluate the growth of *Brachiaria brizantha* CIAT 6780 and *B. dictyoneura* CIAT 6133 planted in monoculture or intercropped with soybean (*Glycine max*) cv. IAC-8 and cv. Jupiter .

The experimental design was a split plot in complete blocks with three replications in time. The main plot was the cropping system (grass intercropped with each soybean cultivar, grass monoculture grown under the simulated shade of each soybean cultivar, and grass monoculture), and the subplots (7.5 m x 3.0 m) were the factorial arrangement of the two grasses x planting material (gamic and vegetative). Data on growth were collected through a systematic sampling of the grass every 14 days. An analysis of variance was carried out for maximum total biomass yield in each plot. The growth rate estimates obtained for all treatments were compared using Friedman's chi-square nonparametric method. Also, different growth models were adjusted to the total aerial biomass in both grass species.

Brachiaria brizantha competed efficiently for light when intercropped with soybean, acting as the dominant crop in the mixture. When intercropped this species yielded 66% (251 g/plant) of that in monoculture (355 g/plant). In contrast, *B. dictyoneura* was not able to compete for light against soybean. When intercropped, its yield was 13% (23 g/plant) with respect to the monoculture (177 g/plant).

The growth curves differ between the two grasses, as an exponential and a logistic model showed the best fit to the data obtained for *B. brizantha* and *B. dictyoneura*, respectively. The responses detected in both grasses could be attributed to differences in growth type, which affected their ability to reach the light, and to compete with soybean for physical space and nutrients.