

# Summary

The effect of continuous grazing and of establishment patterns on the persistence of the *Andropogon gayanus* cv. Carimagua 1/*Stylosanthes capitata* cv. Capica association was studied over three years. The trial was conducted at the Carimagua research station in the eastern plains of Colombia, on an Oxisol Typic Haplustox (pH = 4.9; 2.3 ppm of P; 0.15 meq of Ca, 0.8 meq of Mg, and 0.06 meq of K per 100 g of soil; 92% Al-saturation). The climate is characterized by 27 °C annual mean temperature, mean annual rainfall of 2163 mm, and four months of dry season between December and March.

The treatments were given according to a factorial arrangement of *S. capitata* cv. Capica (CIAT 10290) and its components (*S. capitata* CIAT 1315, 1318, 1342, 1693, and 1728). The establishment patterns consisted of: 1:1, 2:2, and 3:3 rows of grass and legume. The experimental design was split plot, that is, plots = pattern; accessions = subplots, with three replications over a total area of 3 ha. The whole area was continuously grazed by 6 animals (2 animals/ha) weighing between 250 and 400 kg.

Before grazing was initiated, the phenology of each *S. capitata* accession was evaluated. Presentation yield, survival of mother plants, seed reserves, and regeneration of seedlings were monitored during the experimental period. At the end of the experiment, grazing was suspended and the recuperation of *S. capitata* was assessed.

The results showed that all Capica components have well synchronized phenological characteristics. The survival rate of mother plants for all accessions of *S. capitata* was less than three years. Accessions *S. capitata* CIAT 1693 and 1728 showed the highest survival rate, seed reserves, and seedling regeneration rates. At first, esta-

Establishment patterns were observed to affect the *S. capitata* presentation yield, but the effects disappeared during the second year when the whole area was colonized by, mostly, seedlings of *A. gayanus*. The main effect of the establishment patterns was on the distribution of *S. capitata* seedlings—they concentrated in the rows where the mother plants were planted. The total seed yield, seed reserves, and number of seedlings per plot were not affected. Continuous grazing with 2 steers/ha imposed a high defoliation pressure on the highly palatable legume, resulting in a rapid decline of the *S. capitata* presentation yield. In spite of this, the legume rapidly recovered after four months of rest, independently of establishment patterns. Accession *S. capitata* CIAT 1315 showed a slightly lower rate of recovery, mostly because of its lower seed reserves and plant population.

This trial documents the nonperennial nature of *S. capitata* plants, but demonstrates that seed reserves and regeneration of seedlings are sufficient to maintain the legume population in the sward, even under continuous and high stocking rate. This trial also documents the ability of this legume to recover after a short rest period.