

Summary

Burning is common practice in the management of native savanna pastures. For that reason, species that are used to supplement or replace

savanna pastures must be able to tolerate the effects of fire. Although *Stylosanthes capitata* is well adapted to the eastern plains (Llanos Orientales) of Colombia, its resistance to burning is not yet well known.

In 1982, *S. capitata* was sown in rows 3.3 m apart into a native savanna pasture growing on an Oxisol at the National Research Centre, ICA-CIAT, Carimagua (latitude 4° 37' N, longitude 71° 19' W, altitude 165 m, rainfall 2163 mm). The legume persisted, and became widely dispersed throughout the savanna, of which the dominant species typically are *Trachypogon vestitis* (14%), *Axonopus leucostachyus* (9%), *A. purpussi* (7%), and *Paspalum convexum* (6%). In 1987, a study was carried out to examine the effects of burning in the early wet season on the survival of the legume.

The burns were carried out when the soil was drier (Q₁, three days after a rainfall of 54 mm), and when the soil was wet (Q₂, one day after a rainfall of 24 mm), compared with an unburned control. The treatments were arranged in randomized blocks with 3 replicates. The plots measured 20 x 10 m, and, within each 210 plants were selected according to the categories: tall (>50 cm), medium (25-50 cm), and short (<25 cm), both within the original rows, and in the savanna between them. Measurements were made of the number of plants that regrew, the number of shoots per plant (each week for 7 weeks after the fires), reserve of seed in the soil and its germinability (before and after the fire), and field germination (at the end of the experiment).

At the time of burning, the soil (0-10 cm deep) contained 15.9% of gravimetric water for Q₁, and 18.1% for Q₂. Mean temperatures, measured with thermal crayons, were 134 and 187 °C for Q₁ and Q₂, respectively, being higher for tall pastures (216 °C) and lower for short pastures (122 °C).

Seven days after the burn, the aerial parts of 98%-99% of the legume plants appeared to be totally or partially killed with no difference between plants of different heights, nor between Q₁ and Q₂. However, after 49 days, 74% of them had regrown, with a mean of 3.5 growing points per plant. Ninety-seven per cent of the regrowth was from the crown, and only 3% from aerial buds. There was no regrowth from the roots. The

burns reduced the soil reserve of seed from 156 to 84 seeds per square meter, but the number of germinating plants per square meter was 8.6 and 5.8 for Q_1 and Q_2 , compared with 3.7 for Q_0 .

The results showed that, in the savanna ecosystem, *Stylosanthes capitata* is resistant to burning, at least during the first part of the rainy season.