

# Summary

In 1996, 215 accessions of *Calopogonium mucunoides* were introduced in the Brazilian Cerrados for agronomic evaluation. After 3 years of evaluation, 15 accessions were selected for their quality, resistance to drought, and dry matter (DM) and seed production. These accessions were subsequently evaluated in an Oxisol of the Agricultural College of Brasilia, which is located in Planaltina, DF, at 15° 35' S, 47° 42' W, and 1,000 m.a.s.l. Average annual temperature is 21.9 °C, and average annual precipitation is 1,540 mm, distributed between November and March. Before seeding, 300 kg/ha of lime (PRNT 100%) were broadcasted and incorporated into the soil to increase base saturation to 25%; 60 kg/ha of P and 20 kg/ha of trace elements (FTE-BR12) were also applied. Noninoculated seed was mechanically scarified for planting, at 3 kg/ha of pure seed. Plots were 12.5 m<sup>2</sup> and consisted of 4 rows/plot, spaced at 0.5 m.

The percentage of mulch was determined at 4, 8, 15, and 30 weeks after planting, and at 6, 9, 12, and 29 weeks during the second rainy period. Total DM production, dry green matter (DGM), and dry dead matter (DDM) were measured in the middle of the first dry period, and DM production was again measured at the end of the second and third years of accumulated growth.

Seed production during the first year was measured in the total area of each plot, and the seeds in pods and on the ground were collected and processed. The maximum amount possible of seed was collected to estimate production potential, minimize as much as possible natural replanting, and also estimate the useful life of original plants. A randomized experiment design was used with three replications.

The percentage of soil mulch of the assessed accessions was similar ( $P > 0.05$ ) at 4 (10%), 8 (33%), and 15 (84%) weeks. At 30 weeks, 87% of the accessions covered 100% of the plots, except *C. mucunoides* CIAT 18107 and 20709, which covered 72% and 63% of the area, respectively.

During the second rainy period, the percentage of soil mulch differed ( $P < 0.05$ ) at 6, 9, 12, and 29 weeks after the accessions were cut for uniformity (Table 1). At 29 weeks, however, the differences in mulch were small, except for *C. mucunoides* CIAT 18107 that did not persist and for *C. mucunoides* CIAT 20709 that barely covered 37% of the area.

Total DM production after 219 days of growth and 1,212 mm of accumulated precipitation, ranged between 2 and 8 t/ha, being higher ( $P < 0.05$ ) in the late-flowering (> 150 days) accessions *C. mucunoides* CIAT 822 and 884 and lower ( $P < 0.05$ ) in the early-flowering (between 80 and 100 days) accessions, such as *C. mucunoides* CIAT 8513 that yielded 5 t/ha.

Average total DM production of the 15 accessions decreased from 6 t/ha to 3 t/ha between the first and second years, and from 3 t/ha to 1 t/ha between the second and third years of evaluation. The agronomic performance of *C. mucunoides* in the Cerrados ecosystem, despite being considered as a perennial legume, is similar to that of an annual or biennial legume, depending on the climatic conditions prevalent during the dry period.

Seed production in evaluated accessions ranged between 118 and 860 kg/ha (Table 4). Early-flowering

accessions produced more seed ( $P < 0.05$ ) than late-flowering accessions and several intermediate-flowering ones.

Results obtained in the present study confirm the usefulness of *C. mucunoides* because of its tolerance to drought and its potential use as green manure, cover crop, or differed forage or hay for critical periods.

*Calopogonium mucunoides* accessions CIAT 822, 884, 887, 7722, 8404, 9111, 9450, 18065, 19519, and 20676 maintain an acceptable percentage of green leaves until the middle of the dry period, their annual DM production is higher than 5 t/ha, and they present natural resowing because of their high seed production and quality.