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Agronomic Evaluation of a Collection of *Cenchrus ciliaris* under Tropical Dry Forest Conditions

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Abstract

Cattle farming is one of the main agricultural activities in Colombia and the main source of income for many farmers. In order to make the cattle sector more productive and resilient to, there exists a need to explore new forage options responding to adverse and changing climates in the warm regions of the country and more general in the Latin American tropics.

With the aim to evaluate the agronomic adaptation and response of a collection of *Cenchrus ciliaris* during the establishment phase and production, plots of 9 m^2 were planted under a randomized complete block design, with four replications, and using for control commercial materials previously evaluated in the region (e.g. *B. brizantha* cv. Toledo). The research was carried out in the Patía Municipality of the Cauca Department, an inter-Andean valley located in the south of Colombia at an altitude of 608 m asl, characterised by tropical dry forests with soils of medium fertility and long dry periods.

Once the collection of 20 accessions was established, the agronomic evaluation was started using the methodology of the International Network for the Evaluation of Tropical Pastures (RIEPT), which takes into account variables such as vigor, coverage, height, incidence of pests and diseases, flowering, green forage and dry matter production.

The evaluations were carried out in two years during periods of maximum and minimum precipitation, which allowed to observe the performance of the materials and to pre-select the following ones according to the dry matter production when compared with the best control materials: *B. brizantha* cv. Toledo had a yield of 43.3 t ha^{-1} $year^{-1}$; *B.* hybrid cv. Cayman 40.31, and Panicum maximum cv. Mombasa 31.98, respectively. The genotypes evaluated with best yields were the accessions 6642, 15687 and 13299, with an average production of 39.59, 37.33 and 36.50 t ha^{-1} $year^{-1}$, respectively. These results show that, despite of having a lower forage production than the control materials of *Brachiaria* and *Panicum*, the evaluated materials can be an excellent alternative for the potential adaptation to the evaluated agro ecological conditions.

Keywords: Forage production, germplasm

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