Agronomic evaluation of a collection of *Cenchrus ciliaris* under tropical dry forest conditions

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Introduction

Cattle farming is one of most important agricultural activities in Colombia and the main source of income for many farmers. In order to make the cattle sector more productive and resilient, there is a need to explore novel forage options that respond to adverse and changing climates in the tropics of Latin America and the Caribbean, in particular in warm dry environments.

Photo 1: Aerial photography of the trial

Objective

Evaluate the agronomic performance of a collection of *Cenchrus ciliaris* under dry tropical forest conditions.

Methodology

Altitude
500-800 masl

Average temperature
30-32° C

Rainfall
1,200 mm/year

Once the collection of 20 accessions was established, an agronomic evaluation was carried out 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.

Photo 2: Plot of *Cenchrus ciliaris* (left). Aerial view of the plot (right).

Photo 3: Randomized complete block design, with four replications, and using for control commercial materials previously evaluated in the region (e.g. *Brachiaria brizantha* cv. Toledo).

Results

The evaluations were carried out in two years during periods of maximum and minimum rainfall, which allowed to observe the performance year round resulting in the pre-selection of the following materials based on their dry matter production. The selected materials are complementary to the best control *Brachiaria brizantha* cv. Toledo which had a yields 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.
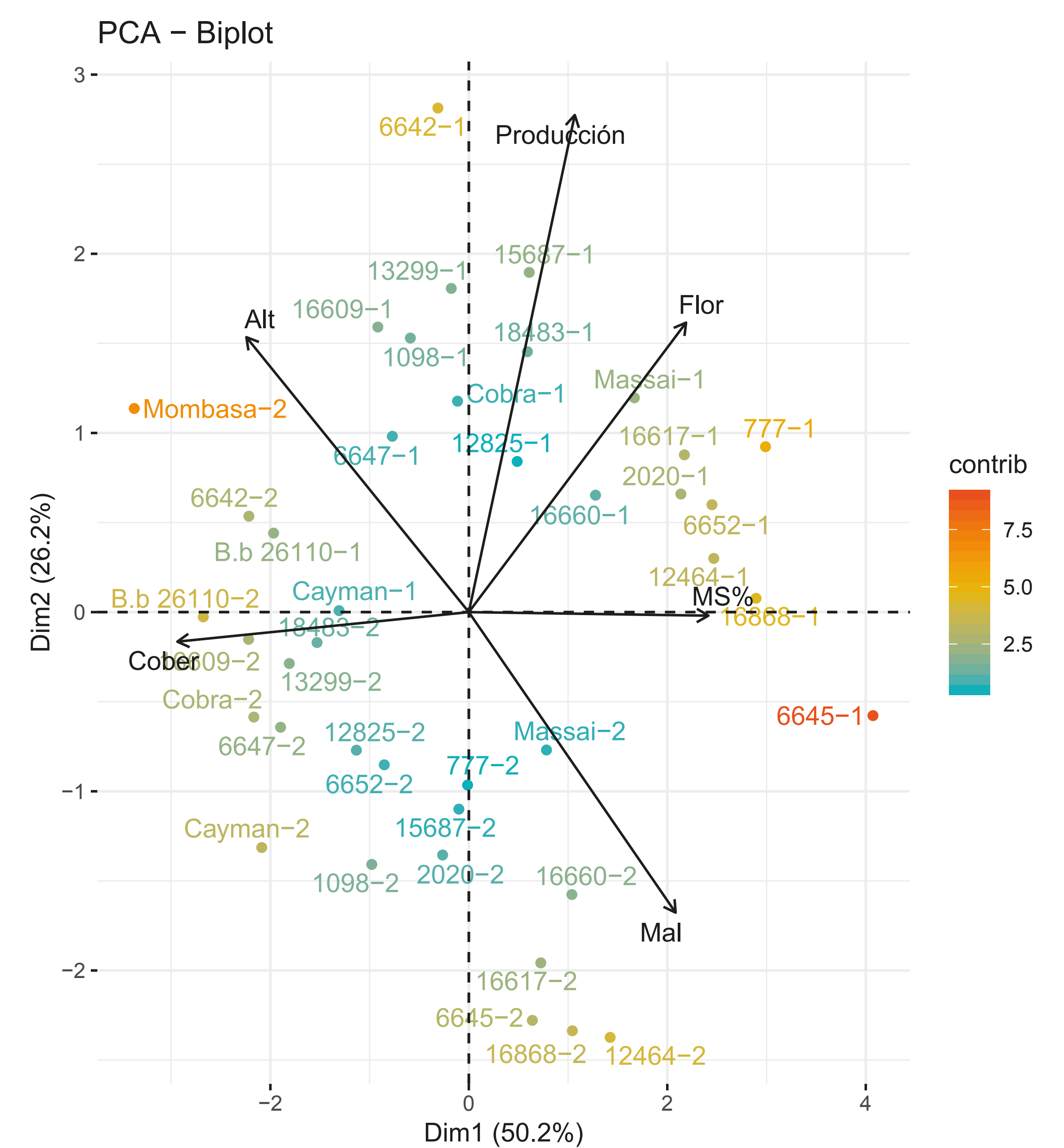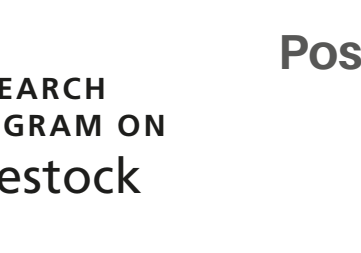

Figure 1: Performance of the materials taking into account the variables evaluated under the RIPET methodology.

Conclusions

The novel forage options selected are an excellent alternative for the dry tropical forest conditions and will allow diversification of options available to farmers, contributing to sustainable intensification and increased resilience.

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