

Agronomic Evaluation of Tropical Forages: The Collection of *Cenchrus ciliaris* at CIAT – Colombia



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1. THE MESSAGE

- The potential of forages in improving the social, economic and environmental sustainability of smallholder production systems in the tropics is well recognized.
- The Tropical Forages Program of the International Center for Tropical Agriculture (CIAT) has been working for decades on the selection and breeding of forage germplasm, with the aim of expanding and improving forage options for tropical regions where livelihoods depend on livestock.



Picture 1. Initial establishment of materials in pots, in greenhouses and 2. Established in the field.

2. INTRODUCTION

- Perennial native to SE tropical Africa.
- The available information indicates that *Cenchrus ciliaris* is one of the most drought tolerant grasses among the commonly sown grass species. It grows naturally in areas with an average annual rainfall from 300 to 750 mm.



Picture 3. Panoramic trial.

3. METHODS

- A germplasm collection of 15 accessions was requested from the International Livestock Research Institute (ILRI). It is currently characterized and evaluated on soil classified as Mollisoles at CIAT Headquarters, Palmira, Valle del Cauca, Colombia.
- Plots of 3 x 2.5 m were established with 3 replications; agronomic evaluation included vigour, plant height, susceptibility to pests and diseases, nutrient deficiencies and dry matter yield, every 6-weeks regrowth; phenological and seed production observations in an additional replication.

4. RESULTS

- The accessions with the highest dry matter production were ILRI 16868, 16617 and 6645 with 57.3, 49.0 and 48.6 t/on ha⁻¹ per year respectively (Figure 1).
- All the accessions showed a significant (Duncan test) higher dry matter production than the control materials *Brachiaria brizantha* cv. Toledo with 35.2 t/on ha⁻¹ per year and *Brachiaria* hybrid cv. Mulato II with 27.9 t/on ha⁻¹ per year.

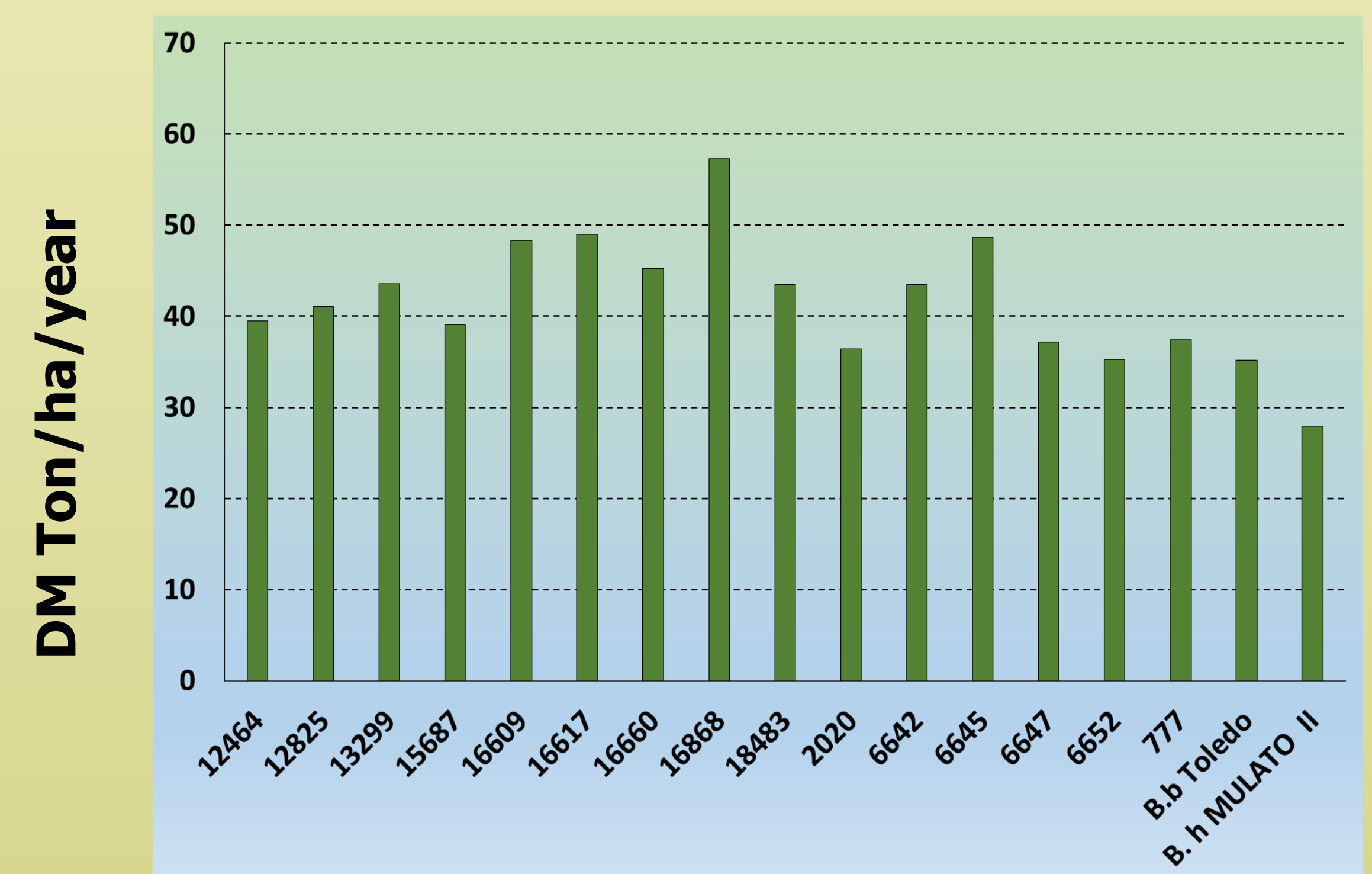


Figure 1. DM yield after of 6 week growth in the wet and dry season (mean of two cuts) of the *Cenchrus ciliaris* collection.



Picture 4. Agronomic evaluation.

5. CONCLUSIONS

- Initial results confirm the potential of *C. ciliaris* to be highly tolerant to prolonged periods of drought.
- Studies of nutritional quality and persistence of selected accessions under frequent cutting and under grazing are suggested.
- Regional testing of promising accessions of *C. ciliaris* germplasm is indicated.



Picture 5. Plant characteristics.