

## 1. THE MESSAGE

- Drought tolerant legume shrubs can enhance the sustainability of smallholder production systems in the tropics through the provision, year-round, of high-quality feed and through their positive effect on soil.
- *Desmodium velutinum* (Willd.) DC. is considered a promising shrub species, and the genetic diversity and agronomic variability in the now available germplasm collection need to be assessed in order to describe the range of the species and further explore its potential.



## 2. INTRODUCTION

- Perennial native to SE Asia and tropical Africa.
- One of the few shrub species that have been identified as (1) well adapted to acid tropical soils and (2) of good nutritive value.
- Only few studies mostly restricted to one or few accessions are available.



## 3. METHODS

- World germplasm collection of 137 accessions held at CIAT is currently characterized and evaluated on an acid Ultisol at the CIAT-Quilichao Experiment Station, Cauca, Colombia.
- Possible relationships between accession origins, morphological-agronomic characteristics, and molecular marker-based genetic diversity are assessed.
- A core collection will be identified and promising accessions selected.

## 4. RESULTS

- Data from the first two years of the experiment indicate a considerable range in morphology, dry matter (DM) production across seasons and nutritive value in terms of crude protein (CP) content and *in vitro* dry matter digestibility (IVDMD) (Table 1).
- Assessing 20 selected accessions, *D. velutinum* was found to be free of tannins (data not shown).

**Table 1.** Herbage (edible = <5 mm stem diameter) DM yield of 8-week regrowth in the wet (mean of 2 cuts) and dry season (2 cuts), CP content and IVDMD of the *D. velutinum* world collection.

Accession (CIAT No.)		DM (g/plant)		CP (%)	IVDMD (%)
		Wet	Dry		
Whole collection	Range	18 - 320	11 - 219	17.2 - 26.1	58.9 - 76.2
	Mean (SD)	147 (62)	95 (50)	21.3 (1.5)	67 (3.7)
Promising accessions	CIAT 33443	320	218	19.5	68.9
	CIAT 13953	308	198	21.1	70.5
	CIAT 23996	275	219	21.1	68.5
	CIAT 23981	274	201	22.1	68.2
	CIAT 23985	269	177	20.2	70.7
	CIAT 13218	301	142	21.1	65.8



## 5. CONCLUSIONS

- Initial results confirm the potential of *D. velutinum* as a high-quality shrub legume adapted to acid soils and with good potential as protein and energy supplement to the diet of livestock in the tropics.
- Studies to assess the persistence potential of selected accessions under frequent cutting and under grazing are suggested.

