

1. INTRODUCTION

- The hillsides of Latin America are among the most fragile areas of the world. At the same time they are inhabited by the poorer parts of society, compounding to the combined effects of resource degradation and poverty.
- Stress tolerant forages, in particular legumes, can enhance sustainability of agricultural production systems, primarily through the improvement of animal production and resource conservation.
- Adoption of forage legumes has so far been limited, due to the use of inappropriate germplasm, lack of participation of farmers and/or bottlenecks in farmer seed supply.
- The present study integrates on-station with Farmer Participatory Research.



2. MATERIALS AND METHODS

- Location: Cauca region of Colombia; 1600-1800 mm/yr rainfall, up to 4 dry months; topography mountainous with slopes up to 50%.
- A stepwise procedure is employed: 1) Germplasm collections of potential forage species assessed on-station, with early feedback from farmers through organized visits. 2) Selected materials assessed using Farmer Participatory Research methods.
- Germplasm: 1) On-station: World collection of *Leucaena diversifolia* and the closely related *L. trichandra* (50 resp. 11 accessions) 2) On-farm: Annual/bi-annual green manure forages *Vigna unguiculata* 9611 (Cowpea), *Canavalia brasiliensis* CIAT 17009 (Canavalia) and *Lablab purpureus* CIAT 22759 (Lablab).

3. RESULTS

1) Assessing the diversity of *Leucaena diversifolia* and *L. trichandra*

Accession (CIAT No.)		DM (g/plant)		CP (%)	IVDMD (%)
		Wet	Dry	Mean Wet/Ddry	
Whole collection	Range	95 - 440	38 - 213	19 - 29	51 - 75
	Mean	259	127	24	56
Promising accessions	<i>Ld</i> CIAT 17271	440	159	23	53
	<i>Lt</i> ILRI 16507	357	174	25	51
	<i>Ld</i> CIAT 17249	336	182	25	70
	<i>Ld</i> CIAT 17248	323	170	23	69
	<i>Ld</i> K 779	306	208	20	56
	<i>Lt</i> CIAT 17268	217	213	22	66

- Based on the results available so far, accessions CIAT 17248 and CIAT 17249 are the most promising combining high DM yield and forage quality.

4. CONCLUSIONS

The approach of integrating Farmer Participatory Research with on-station research is proving an efficient way for the development and uptake of technological options. Genotype x Environment studies with the selected *Leucaena* accessions and efforts to facilitate farmer based seed production are expected to further enhance uptake of multipurpose forage options.

2) Participatory evaluation of fast growing legumes as green manures

- For smallholder farmers, cover (58.8%) was the most important selection criterion across the green manure species, followed by biomass (52.9%) and pest tolerance (47.1%), defining indicators for establishment and stability.
- For the succeeding maize crop, grain yield, plant height, stem diameter and leaf color were the criteria important for farmers to evaluate the green manure effect of legumes.
- A regression analysis was done showing diverse ranges of farmer acceptance and rejection of the green manure. As fallow had no green manure effect on the subsequent maize, it was consistently rated as having low acceptance. Canavalia, probably a result of its high biomass contribution, had the highest acceptance followed by Cowpea, with Lablab having intermediate acceptance.

