

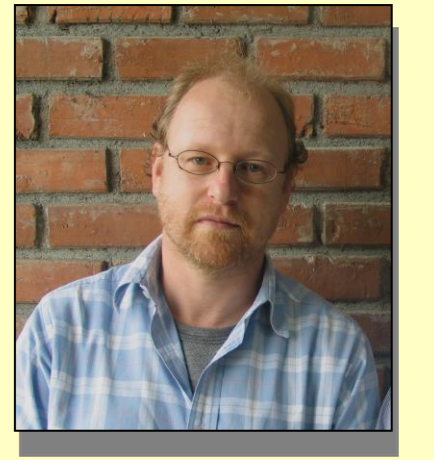
Canavalia brasiliensis – a multipurpose legume for the sub-humid tropics



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1. THE MESSAGE

Canavalia brasiliensis (Fig. 1) has the potential to enhance crop-livestock systems of smallholders in the sub-humid tropics through its high dry season tolerance (Fig. 2), robust adaptation to a wide range of soils and climates, and its high biomass production.



Fig. 1: *Canavalia brasiliensis* inflorescence



Fig. 2: *C. brasiliensis* plots during the 6-month dry season at San Dionisio, Nicaragua

2. INTRODUCTION

- *C. brasiliensis* Mart. ex Benth. is a weakly perennial, prostrate to twining herbaceous legume which develops a dense and extensive, deep-reaching root system.
- Due to medium biomass decomposition, nutrient release from its green manure has the potential to synchronise well with nutrient demand of succeeding crops.
- Anti-nutritive substances and toxic amino-acids so far are only known in seeds of *C. brasiliensis*.
- To further describe the potential of the species for crop-livestock systems, germplasm characterisation and on-farm experimentation are indicated.

3. METHODS

Germplasm characterisation:

- The available collection of 53 accessions of *C. brasiliensis* was sown at the onset of the rainy season 2004 in Santander de Quilichao near Cali, Colombia (Fig. 3).
- Parameters of evaluation include ease of establishment (soil cover, vigour), DM yield and forage quality across seasons; herbage of selected accessions will also be analysed for canavanine content.



Fig. 3: *C. brasiliensis* collection planted at CIAT's research station Quilichao, Colombia, in 2004



Fig. 4: *C. brasiliensis* established after maize harvest at the end of the rainy season

On-farm work:

- Accession CIAT 17009 was sown in experimental plots in 3 replicates at the end of each rainy season in 2001, 2002 and 2003 in San Dionisio, Nicaragua, to allow for total plot cover before the onset of the 6-month dry season (Fig. 4).
- In each subsequent rainy season, plots were slashed and maize was planted into the *C. brasiliensis* mulch. Maize yields and other crop parameters were compared with traditionally fertilised and fallowed maize plots.

4. RESULTS

- Preliminary evaluation data indicate several *C. brasiliensis* accessions as very promising with soil cover $\geq 85\%$ after 3 months and herbage dry matter digestibility $\geq 80\%$ (16 weeks after sowing).
- Maize yields after *C. brasiliensis* were significantly higher than those after traditional fallow, and slightly higher than those obtained with traditional fertilisation (Fig. 5).

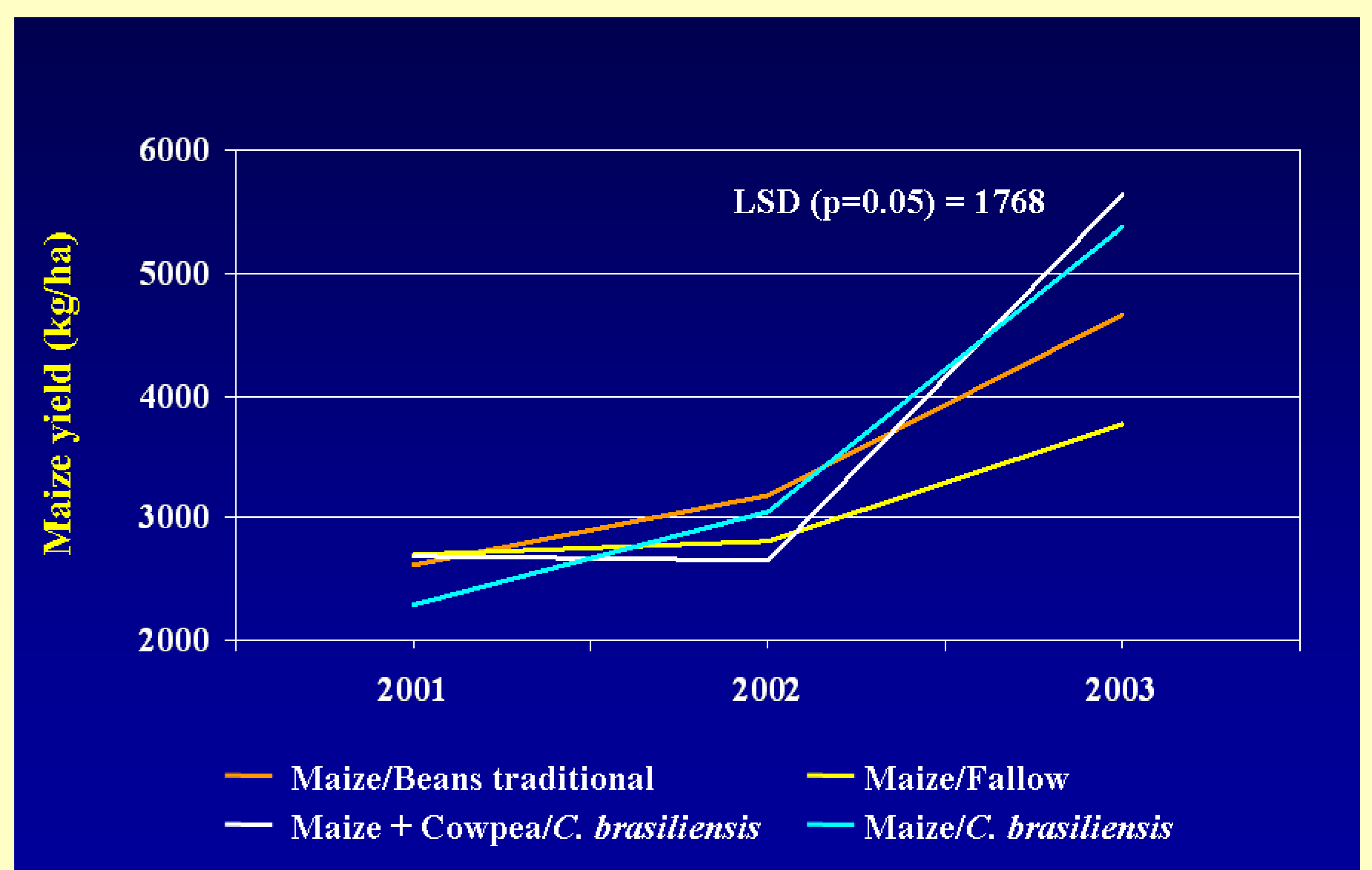


Fig. 5: Maize yields of four crop rotations in San Dionisio, Nicaragua

5. CONCLUSIONS

- *C. brasiliensis* is a promising species with high potential as green manure and dry season feed resource.
- Due to its dry season tolerance the legume opens a significant time window for soil improvement without affecting grain production during the rainy season.
- To confirm its suitability for crop-livestock systems further analyses of feed value are necessary.
- Preliminary germplasm characterisation work shows high diversity within available collection.