Cirad-Persyst
UPR Systèmes cotonniers

# CLASSIFICATION OF MOCÓ CULTIVARS AND THE RACE MARIE-GALANTE AND THEIR POTENTIAL USE FOR UPLAND COTTON IMPROVEMENT

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Beltwide Cotton Conferences 2008

# CONTENTS

- **Introduction**
- **Materials and Methods**
- **Results for molecular marker**
- **Results for phenotypical observations**
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# INTRODUCTION

- **Mocó cvs and the wild race Marie-Galante are perennial cottons that are grown in many Central and northern South American areas.**
- **They present substantial genetic variability.**

# INTRODUCTION

- **Mocó cvs (arbóreo type) was important to the economy of smallholders cropping cotton in the North-eastern region of Brazil**
- **Today less than 10 000 ha are still cropped with Mocó cultivars**

# INTRODUCTION

- **In the past, some authors classified Mocó type in *Gossypium barbadense, others in G. hirsutum*, with the assumption of possible introgressions between both species (or from *G. mustelinum*)**
- **On their side, Brazilian scientists more precisely have classified the Mocó in the race Marie-Galante.**

# INTRODUCTION

- **The objectives of this study were:**
- **to determine the position of some Mocó and Marie- Galante accessions within the tetraploid cotton classification using microsatellite marker variability and**
- **to evaluate their potential use for the improvement of cultivated Upland cotton.**

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# MATERIALS AND METHODS

- **MOLECULAR MARKERS**
  - **48 tetraploid genotypes: 5 *barbadense*, 2 *darwinii*, 2 *tomentosum* and 39 *hirsutum* (3 Mocó, 8 Marie-Galante, 3 *yucatanense*, 4 *richmondi*, 3 *punctatum*, 2 *palmeri*, 4 *morrilli*, 4 *latifolium* and 8 modern cvs)**
  - **320 mapped simple sequence repeats (SSRs)**

# MATERIALS AND METHODS

- **DARWIN4:**
- **Statistical analysis based on genetic dissimilarities (distance method)**
- **Unweighted Neighbor-Joining Tree (NJTree)**
- **Factorial analysis: Principal Coordinate Analysis (PCoA) which is a variant of the Principal Component Analysis (PCA)**

# MATERIALS AND METHODS

- **PHENOTYPICAL OBSERVATIONS**
- **20 Mocó cvs and 486 Marie-Galante accessions from a total of 2030 *hirsutum* accessions from the CIRAD collection were evaluated to determine their agronomical and technological characteristics during seed rejuvenation.**

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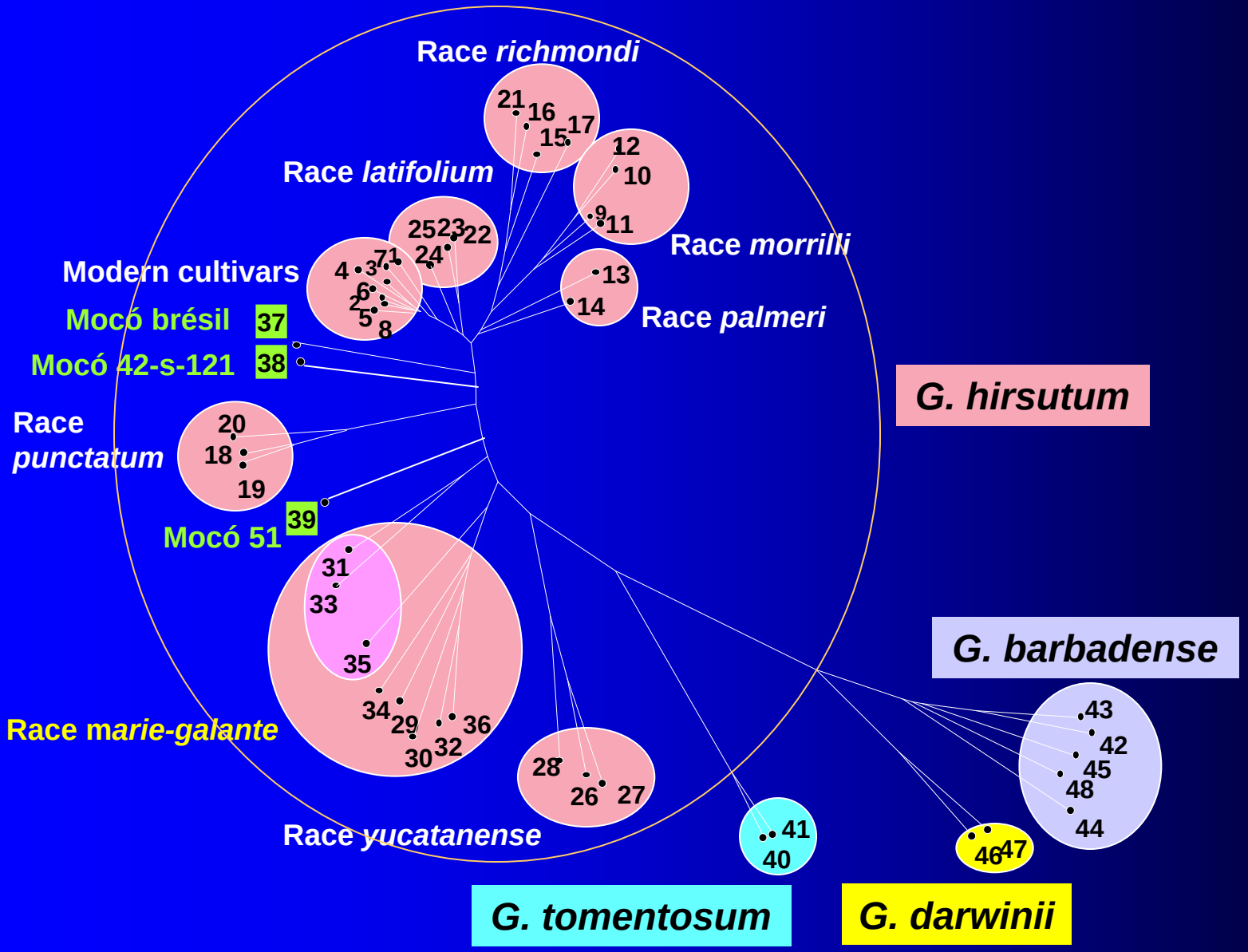
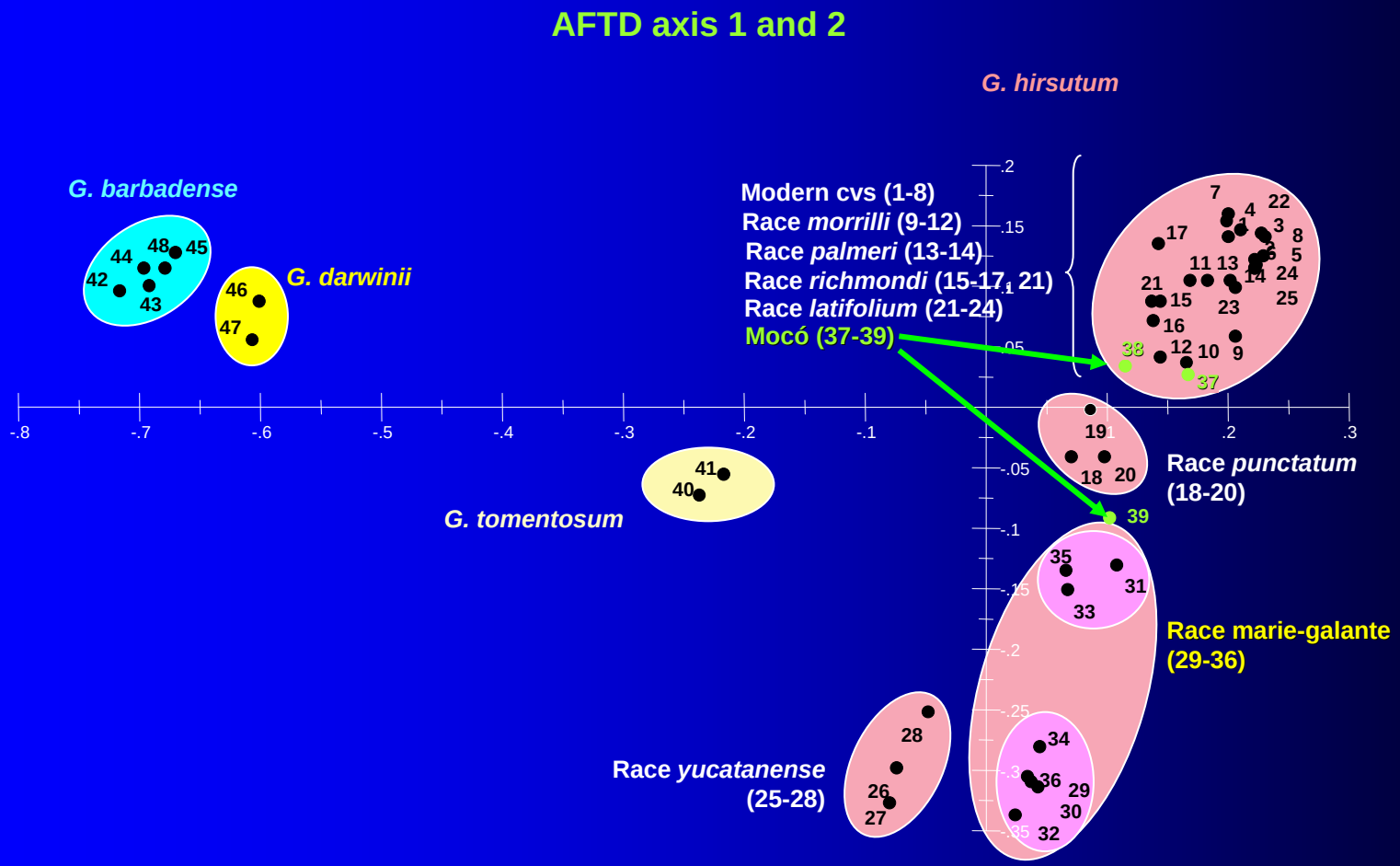
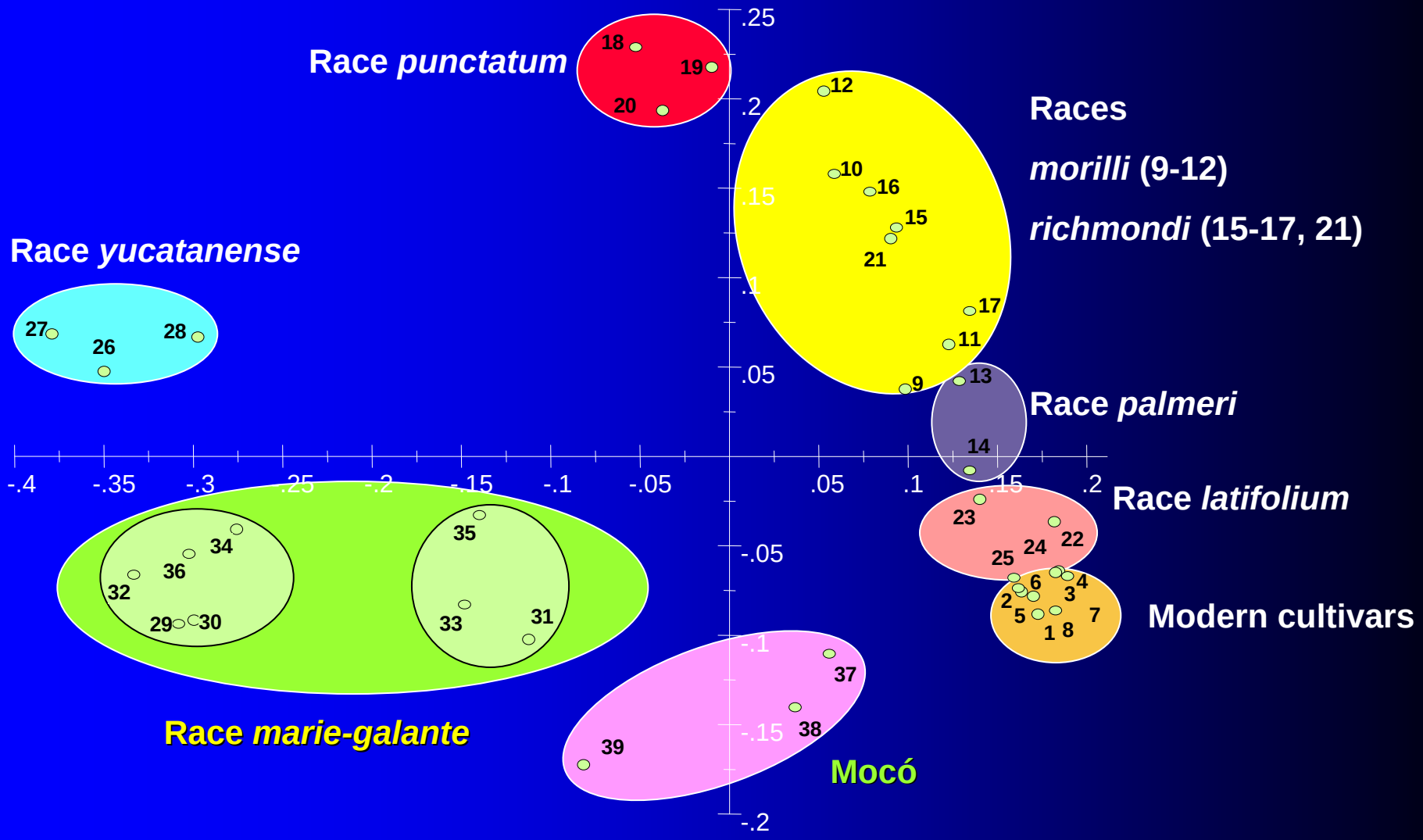
# UNWEIGHTED NJ TREE



# PCoA TETRAPLOID



# PCoA *HIRSUTUM*



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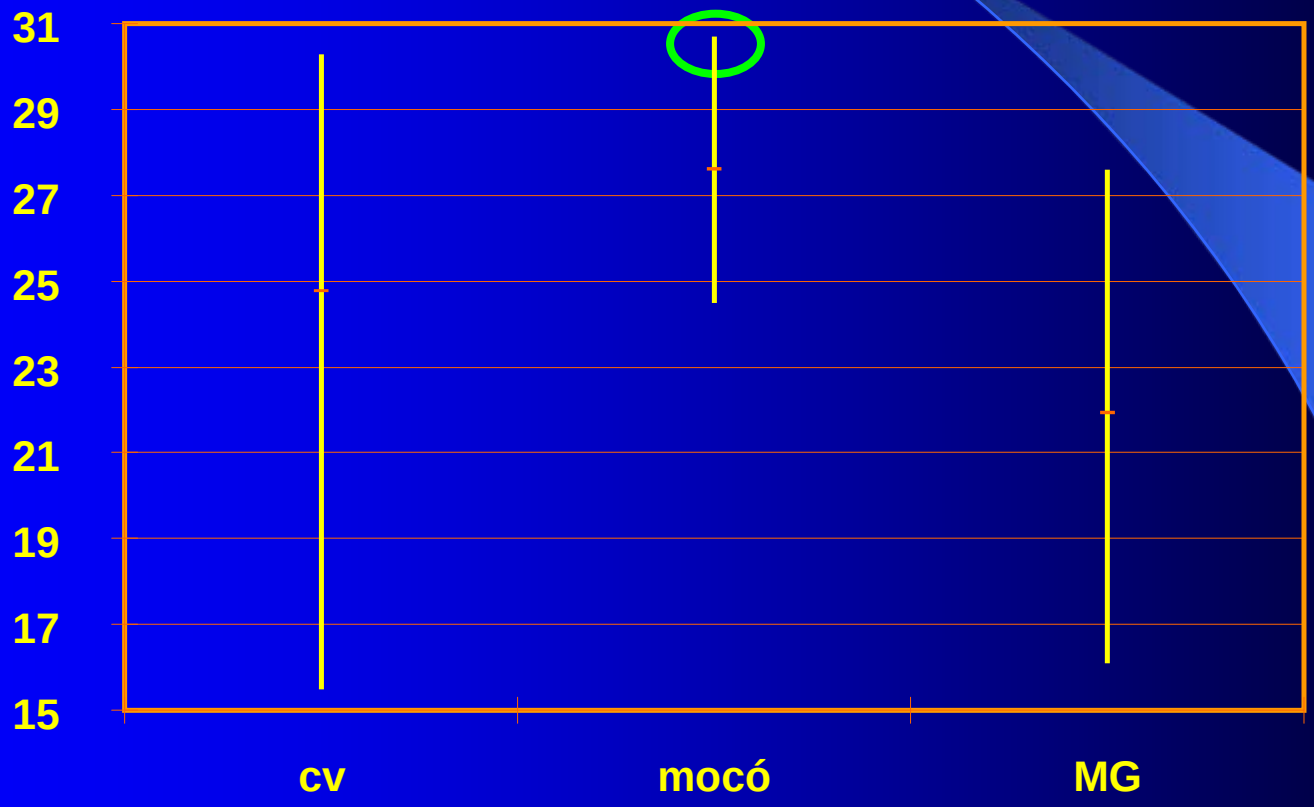
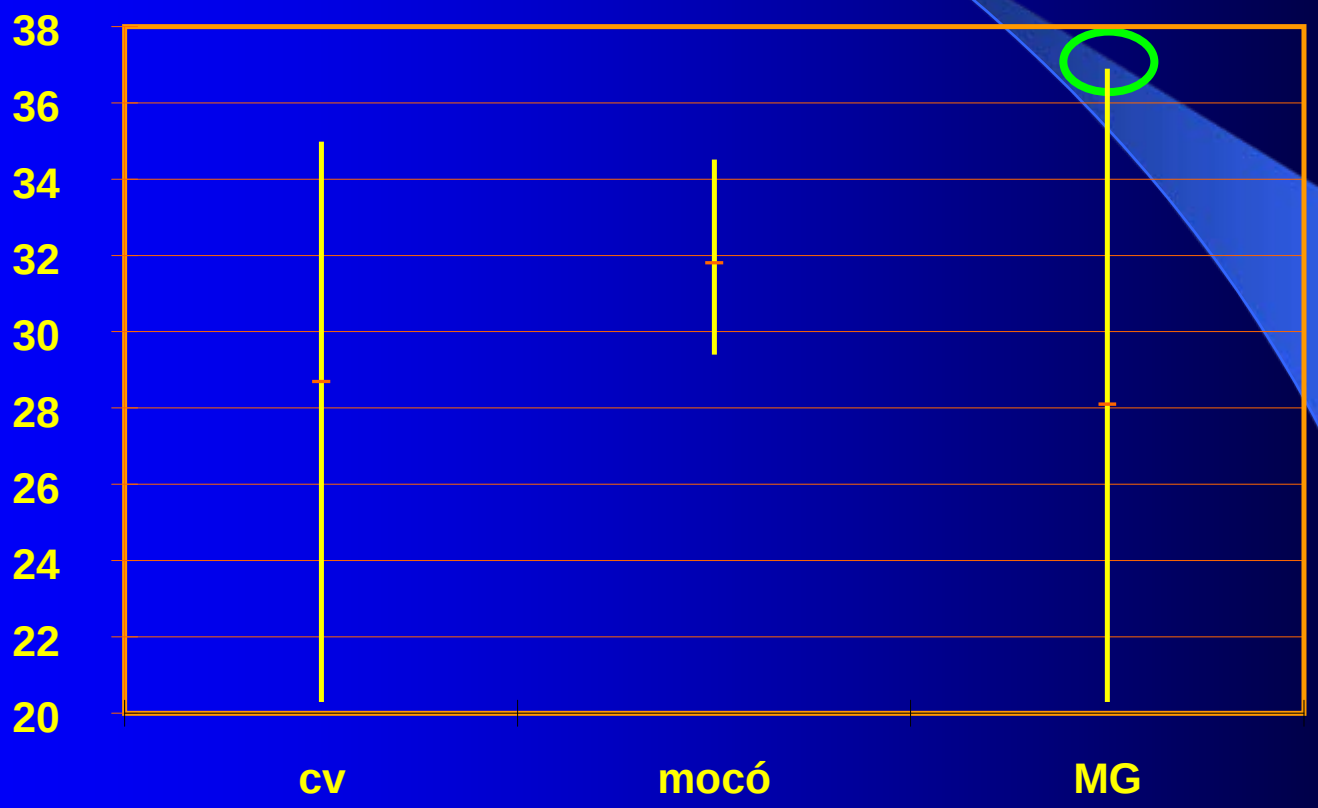
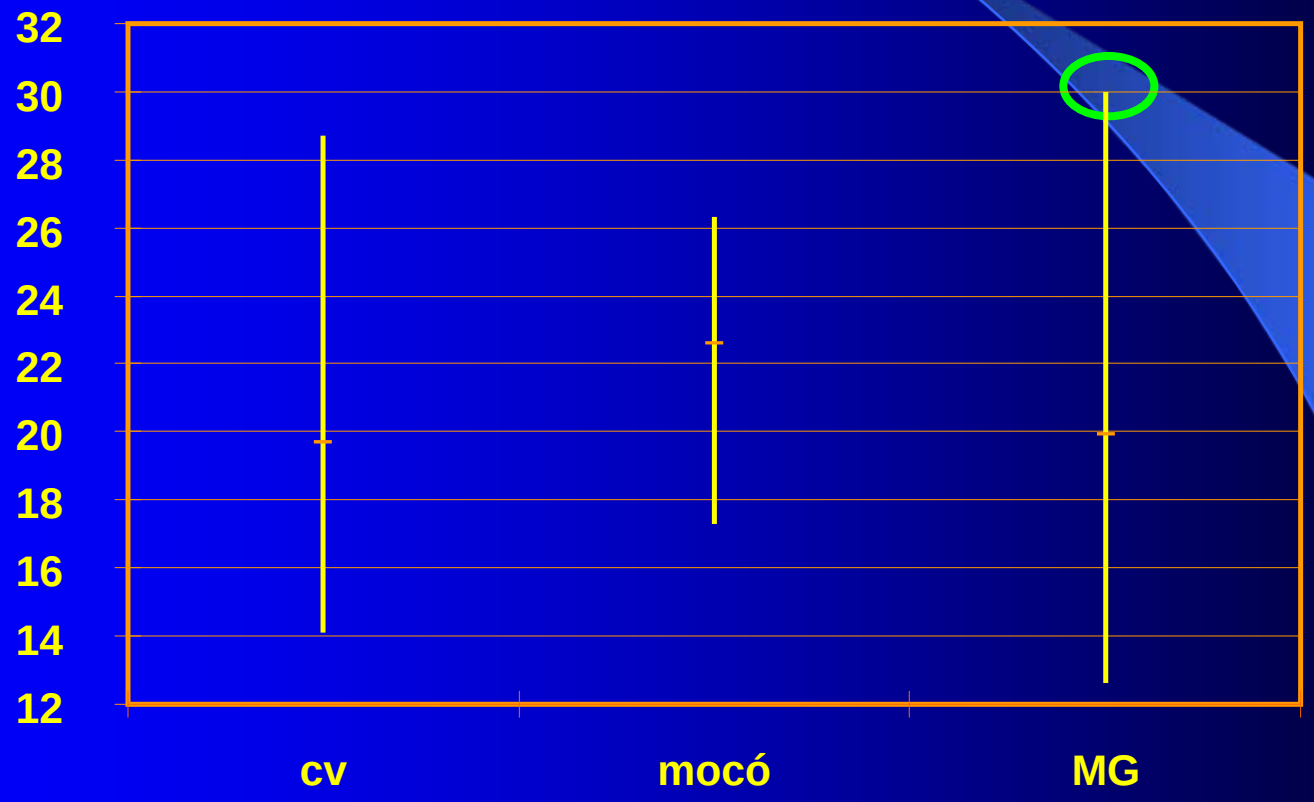
# OIL PERCENT



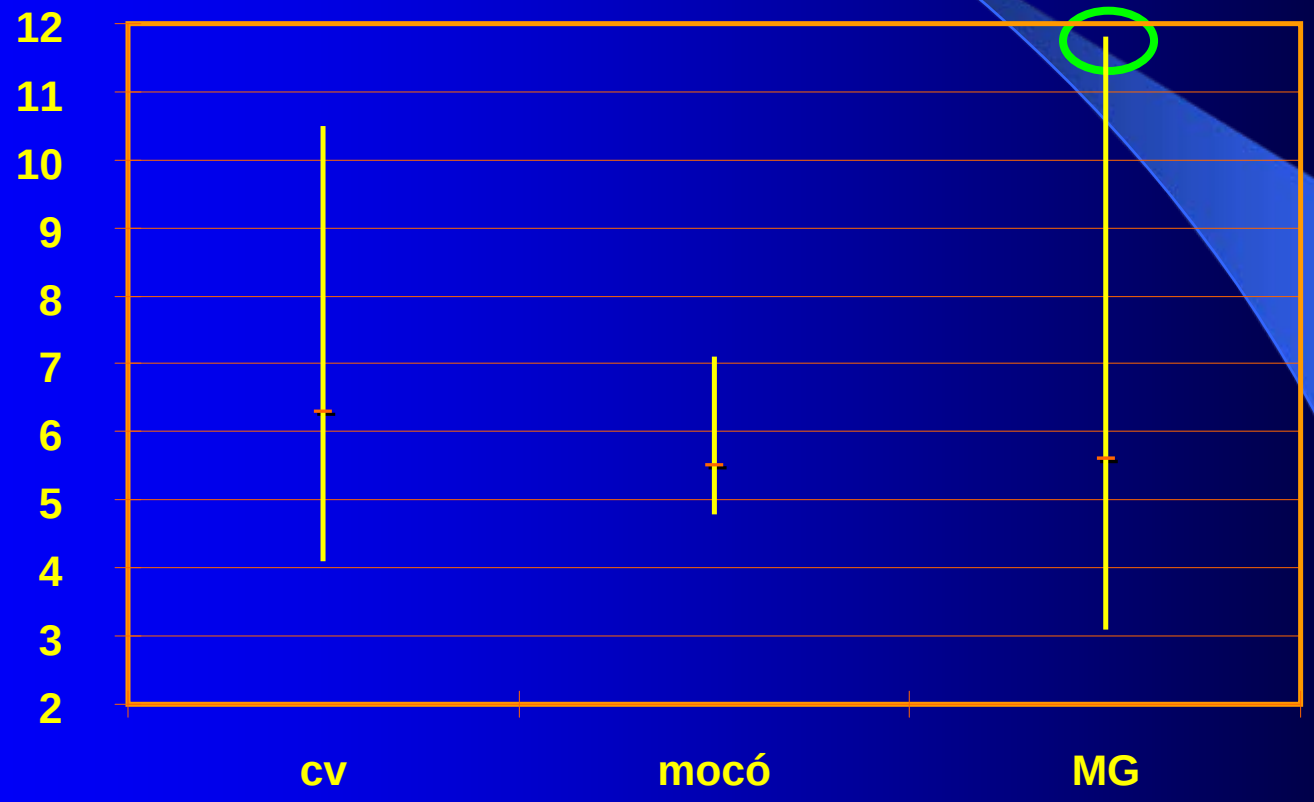
# LENGTH SL2.5



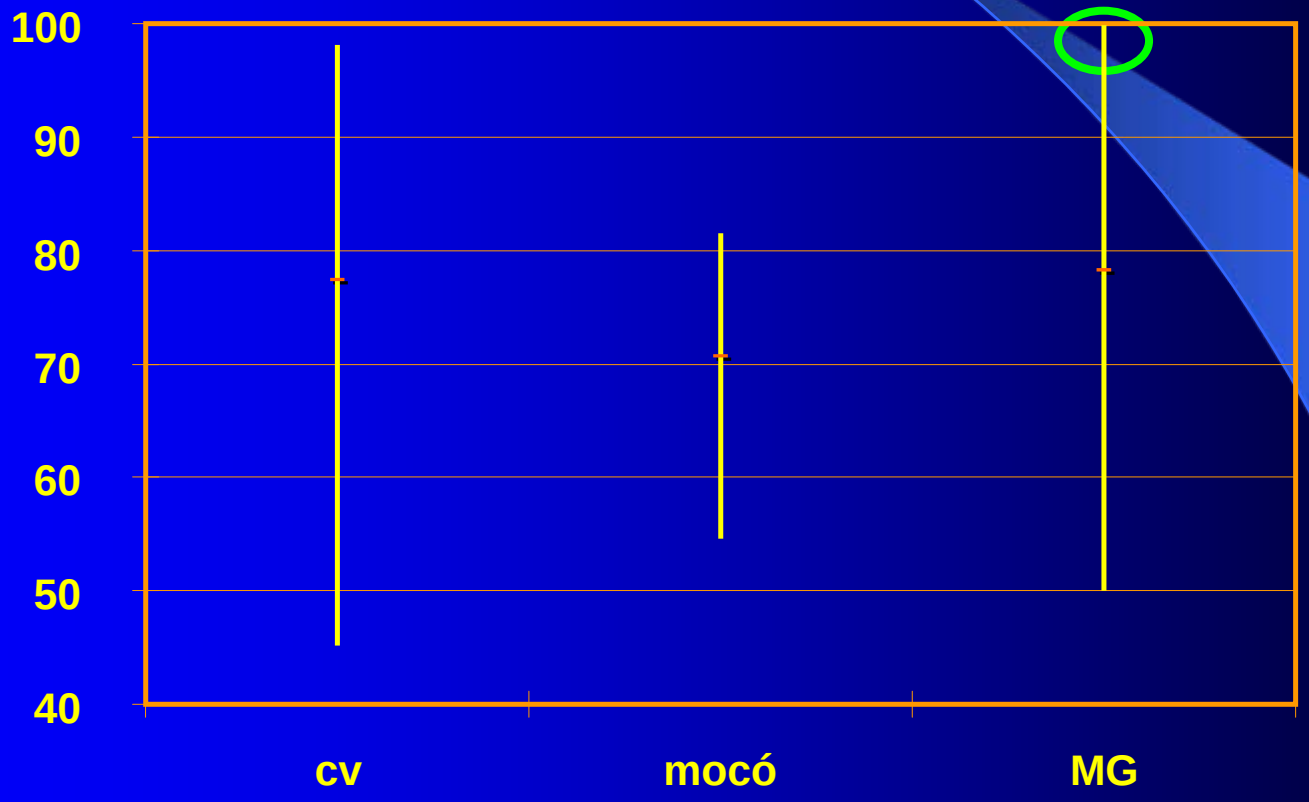
# STRENGTH T1 g/tex



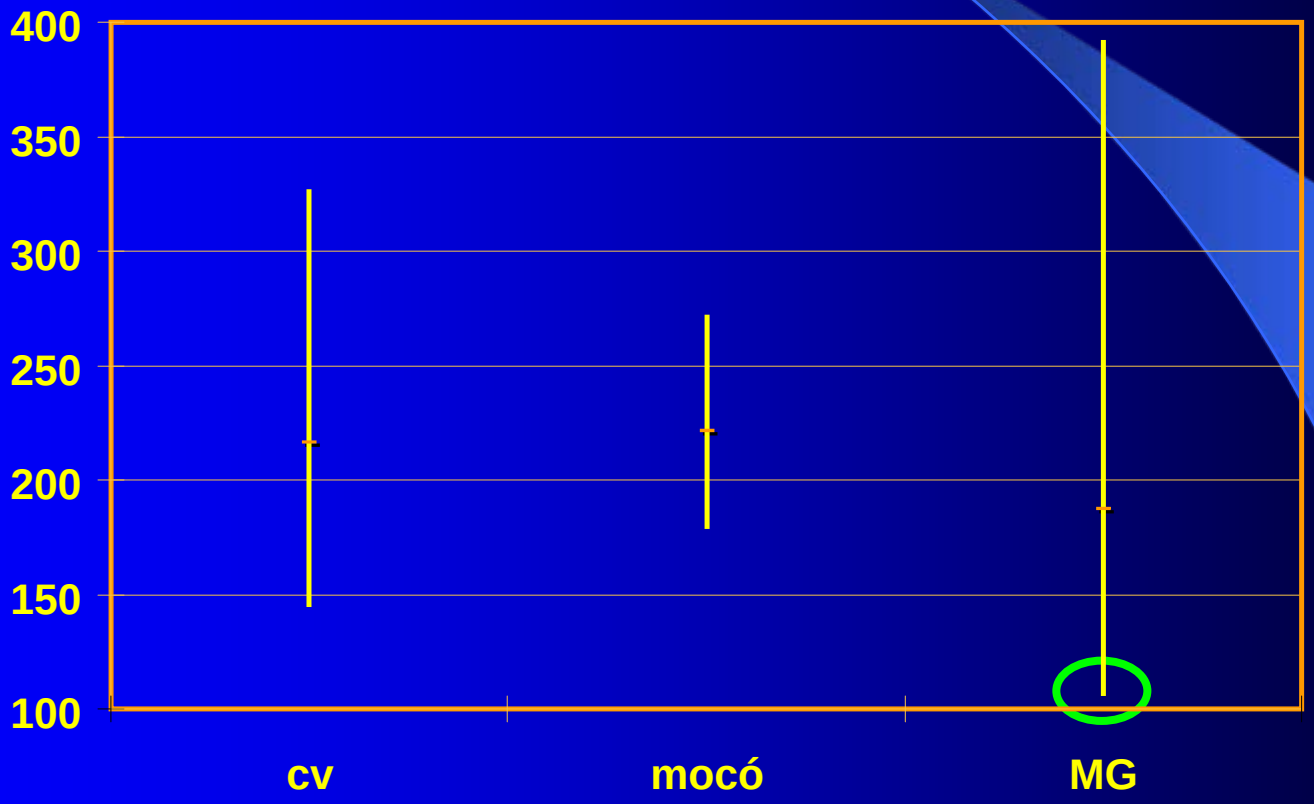
# ELONGATION E1 %



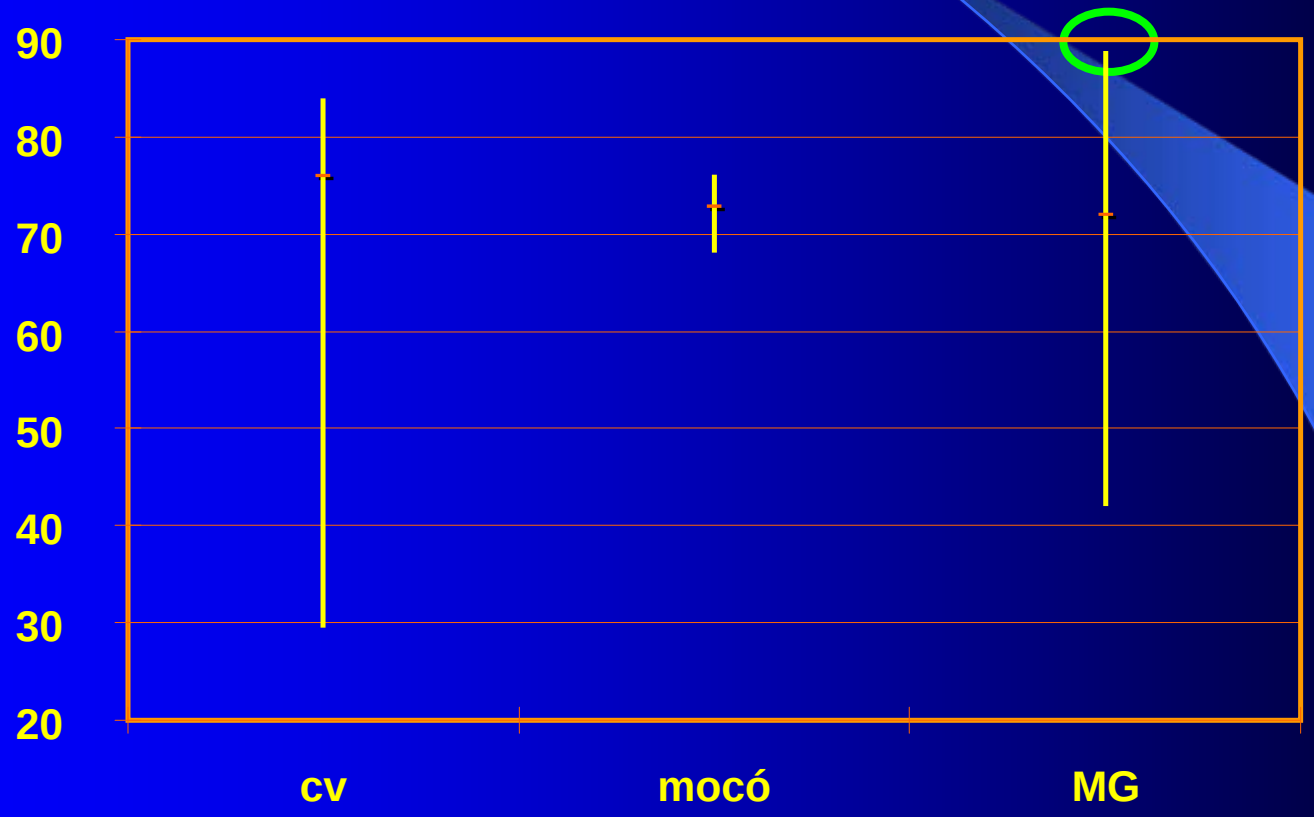
# MATURITY PM%



# FINENESS Hs mtex



# REFLECTANCE Rd %



# REFERENCES

- **Mocó : high fibre quality and drought resistance**

  (A. Borém, E.C. Freire, J.C.V. Penna, P.A.V. Barroso, 2003)

# REFERENCES

- **Some Marie-Galante resistant to *Meloidogyne incognita* and *Rotylenchulus reniformis***

  (A.F. Robinson, A.C. Bidges, A.E. Percival, 2004; D.B. Weaver, K.S. Lawrence, E. van Santen, 2007 and C-P. Yik, W. Birchfield, 1984)

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# CONCLUSION

- **Mocó and Marie-Galante could be usefull for the improvement of some technological characteristics and tolerance to biotic stress of Upland cv**
- **Crosses were made in Brazil by Embrapa for the improvement of semi-perennial cvs.**

# Thank you for your attention