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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR

Thirteenth Session
Brasilia, November 22 to 24, 2011

ADDENDUM

MICROSATELLITE MOLECULAR MARKERS IN THE EVALUATION OF SOYBEAN SEEDS WITH VARIATION IN HILUM COLOR

Document prepared by experts from Brazil

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BMT 13/15:
Mircosatellite molecular markers in the evaluation of soybean seeds with variation in hilum color

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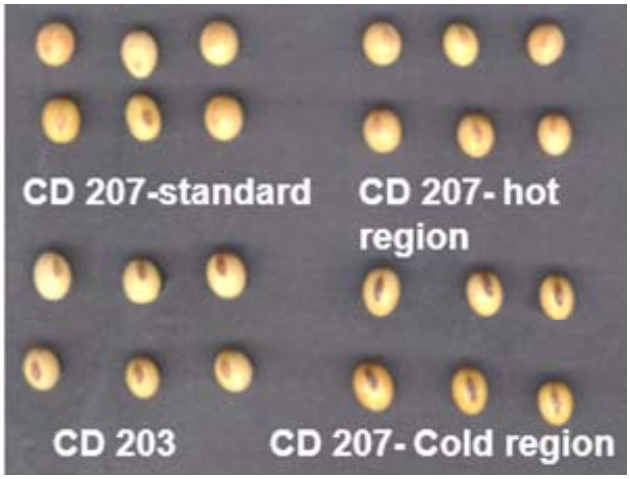
Introduction

- Hilum color
  - One of the most important descriptor of seeds in soybean varieties.
  - Seed quality laboratories:
    - One of the most important characteristic in the evaluation of varietal purity.

- Hilum color
  - Genetically controlled.
  - Influenced by the environment.

Hilum color and environment



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Introduction

- Many times, lots of seeds with high physiological and genetic quality are discarded due to variation of the hilum color.
- The presence of *I* allele tends to produce seeds with clearer hilum.
  - Black or Imperfect black hilum seems gray
  - Brown hilum varied from brown to yellow.

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Material and Methods

- Seeds from two experimental lines and one variety
  - CD 02RV-8444, brown hilum
    - Produced in 2003/2004 season, in Primavera do Leste, MT.
  - CD 01RV-7618 brown hilum
  - Produced in 2004/2004 season, in Primavera do Leste, MT.
  - CD 222, black hilum.
  - Produced in 2004/2005 season, in São Miguel do Passa Quatro, MG.
- Visualy separated, based on hilum color/tone.

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Material and Methods

- DNA extracted from each seed, and grouped in bulks of 5 seeds from the same group, to PCR.
- 16 microsatellite primers from 16 LG.
- Genotyped in 10% native acrylamide gels or 3% agarose gels.

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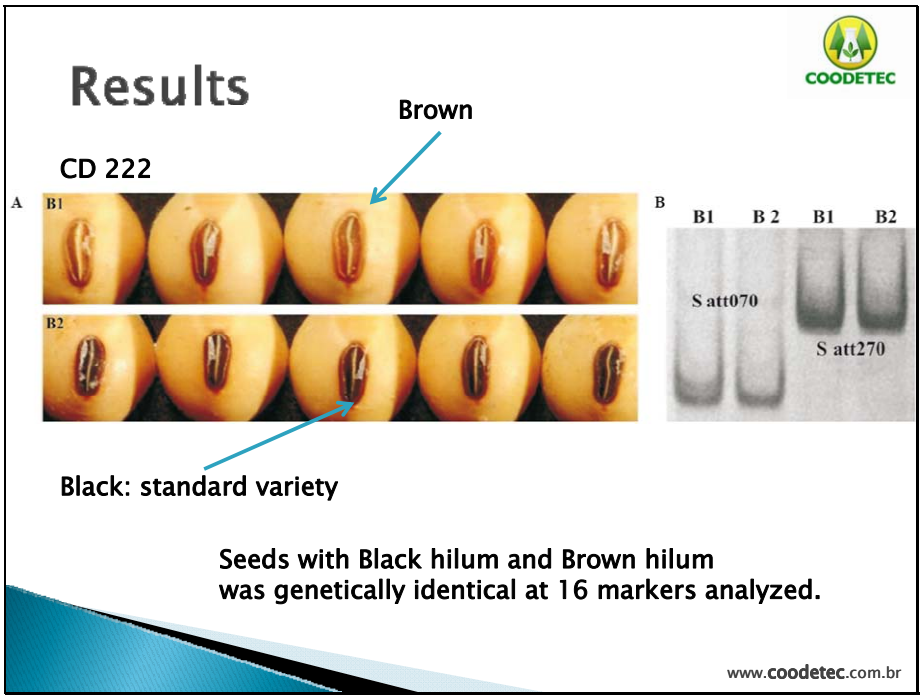
Results
COODETEC
Brown
CD 222
A
B1
B2
B
B1
B 2
B1
B2
S att070
S att270
Black: standard variety
Seeds with Black hilum and Brown hilum
was genetically identical at 16 markers analyzed.
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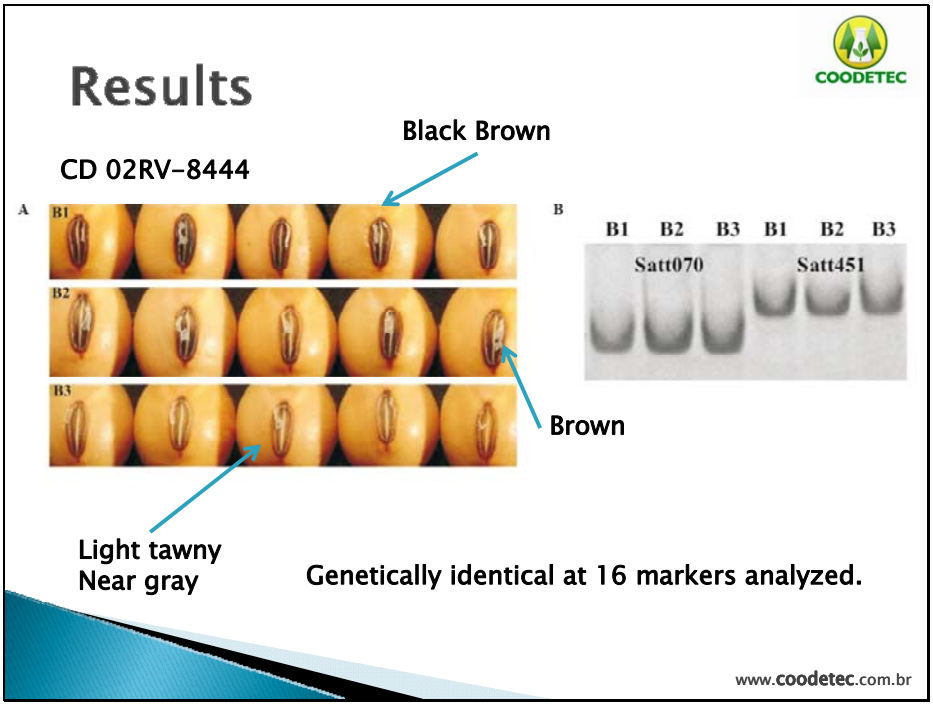
Results
COODETEC
Black Brown
CD 02RV-8444
A
B1
B2
B3
B
B1
B2
B3
B1
B2
B3
Satt070
Satt451
Brown
Light tawny
Near gray
Genetically identical at 16 markers analyzed.
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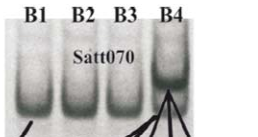
Results

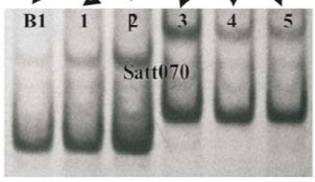
CD 01RV-7618

A

B



C



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Conclusion

- We demonstrated, with the aid of molecular marker, hilum color/tone differences that was not genetic differences.

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