MANGO BREEDING IN SOUTH AFRICA: CHALLENGES AND FUTURE PROSPECTS

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INTRODUCTION

COMMERCIAL MANGO PRODUCTION IN SOUTH AFRICA

- 1920's
  - Seedlings (Sabre & Peach)
- 1930's
  - Import: Aden & Mulgoba
- 1960's
  - Kent & Zill
  - Followed by other cultivars: Tommy Atkins
  - Sensation
INTRODUCTION

• Mango industry based on 5–6 cultivars
• Low yields
→ Narrow maturity window
→ External colour
→ Poor fruit quality

• Physiological disorders
• Susceptibility to diseases
INTRODUCTION

• BREDING PROGRAM
  • Started 1990
  • Aim: European market
  • Red/Yellow fruit
  • Good internal colour
  • External colour
• Local •

- Lowwel d of Pumalanga Province

- 500-1000 trees/year (Phase I)

- Natural hybrids (open pollinated)

- Source = promising selections
• Best performers

rafted on abre 
root stocks 
cultivars

compared with 
commercial 
cultivars
RESULTS & DISCUSSION

HEIDI JOA

Harvesting date: Mid February

- Fruit size (g/fruit): 421
- Taste: 8
- Fibre: 7
- Remarks: Excellent taste and colour

Harvesting date: Mid January

- Yield (kg/tree): 2003 - 81.0, 2004 - 85.4
- Fruit size (g/fruit): 344 - 463
- Taste: 7
- Fibre: 7
- Remarks: -
Harvesting date: Early January

- Yield (kg/tree): 2000/2001 – 87.8
  Fruit size (g/fruit): 424
  Taste: 5
  Fibre: 6
  Remarks: High yielding selection

Harvesting date: Early January

  Fruit size (g/fruit): 461
  Taste: 8
  Fibre: 7
  Remarks: Resistant to sun scorching, excellent external appearance
Emphasis changed. Export to Europe

\[ \text{competition from south America} \]

\[ \text{razil} \]

\[ \text{ood quality} \]

\[ \text{ood quality} \]

\[ \text{t}() \]

\[ \text{ommynikins} (\%) \]

\[ \text{eitt} (\%) \]

\[ \text{alner (\%)} \]

EXPLORE ASIAN MARKETS

\[ \rightarrow \text{Yellow/green external colour} \]

\[ \rightarrow \text{Little fibre} \]
Harvesting date: Late January
• Fruit size (g/fruit): 558
• Taste: 6
• Fibre: 7
• Remarks: Soft, juicy, good taste

Harvesting date: Mid January
• Fruit size (g/fruit): 528
• Taste: 6
• Fibre: 8
• Remarks: Soft and juicy
<table>
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<td>65 807</td>
<td>1 072</td>
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- Decrease in export
- Emergence of small scale farmers
  ↓
  strategy change
  ↓
  Alternative markets
  ↦
  Disease tolerant  High yields  Fruit size not critical
Harvesting date: Mid February
  Fruit size (g/fruit): 332
  Taste: 6
  Fibre: 6
  Remarks: -

Harvesting date: Mid February
  Fruit size (g/fruit): 295
  Taste: 7
  Fibre: 6
  Remarks: Waxy skin
Harvesting date: Late January


- Fruit size (g/fruit): 248

- Taste: 7

- Fibre: 7

- Remarks: -
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<td>14 122</td>
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Sensory evaluation

RESULTS & DISCUSSION cont.

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<tr>
<th></th>
<th>Taste</th>
<th>Colour</th>
<th>Texture</th>
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<td>Joa</td>
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Dried Mango
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### RESULTS & DISCUSSION cont.

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**Small scale farmers → praying costs → high yields**
• Reading is time consuming
• Expensive → physical size of program
• Strategies → flexible
• Export not main focus
• Outcomes → export → Europe (.cultivars)
  → Asia (.cultivars)
  → Alternative markets → elections
CONCLUSIONS

FUTURE RESEARCH STRATEGY

→ selection for specific niche markets
→ semi-commercial evaluation
   ↓
   producers in different areas
→ commercial release + protection
   = ensure existence of mango breeding program
ACKNOWLEDGEMENTS

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South African Mango Growers Association (SAMGA) – coworkers
Mr. J. Fiaz of Mohlatshi Farms