Addressing Vitamin A deficiencies in Eastern Africa through Musa-based foods

Ekesa B¹., Nabuuma D¹*., Van den Bergh I².
*d.nabuuma@cgiar.org
Introduction

Aim: Increase access to and consumption of micronutrient-rich banana-based foods among populations at risk of micronutrient deficiencies in Eastern Africa with focus on vitamin A

- **Screened >400 banana cultivars:**
  - High degree of genetic variation in provitamin A carotenoids (pVACs)

- **Nutrition profiling of cultivars in Eastern Africa:**
  - Higher levels of pVACs in plantain than East African highland bananas (EAHBs)
  - pVACs in EAHBs-based dishes are more bio-accessible (27%) than in plantain-based dishes (16%)

- **Established trials of 11 high-pVACs cultivars:**
  - Burundi: 2 sites
  - Eastern Democratic Republic of Congo: 6 sites

- **Assessed agronomic performance, sensory acceptability and nutrient composition**
  - Bunch size/ weight
  - Taste as compared to local
  - Nutrition value
# Fast Tracking Cultivars

## Results

1. **Agronomic performance**

### Table 1. Cultivars with good agronomic performance

<table>
<thead>
<tr>
<th>Accession</th>
<th>Genome</th>
<th>Subgroup</th>
<th>Country of origin</th>
<th>Bunch weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laï</td>
<td>AAA</td>
<td>Red</td>
<td>Thailand</td>
<td>13-18</td>
</tr>
<tr>
<td>Apantu*</td>
<td>AAB</td>
<td>Plantain</td>
<td>Ghana</td>
<td>5-20</td>
</tr>
<tr>
<td>Bira</td>
<td>AAB</td>
<td>Pacific Plantain</td>
<td>Papua New Guinea</td>
<td>4-18</td>
</tr>
<tr>
<td>Lahi</td>
<td>AAB</td>
<td>Pacific Plantain</td>
<td>Hawaii</td>
<td>11-18</td>
</tr>
<tr>
<td>Pelipita</td>
<td>ABB</td>
<td>Pelipita</td>
<td>Philippines</td>
<td>8-16</td>
</tr>
</tbody>
</table>

*Apantu has persistent male bracts and flowers*
Fast Tracking Cultivars

2) Sensory evaluation

- Evaluated by 300 participants in Eastern DRC and 120 in Burundi
- Overall acceptability scores ranged from fair to good
  - 3 to 4 on a 5-point hedonic scale
- Trial cultivars acceptable to >50% of the panelists:
  - Plantain: Apantu (AAB), Bira (AAB)
  - Cooking: Lahi (AAB)
  - Dessert: Lai (AAA), To’o (AA)
Fast Tracking Cultivars

3) **Nutrient analyses**

- Mean total pVACs: 32 – 198 nmol/gfw
- Highest values: Bira (AAB), Lahi (AAB) and Apantu (AAB)
- Consumption of 100g of ripe fruit (stage 5):
  - 6 of 9 cultivars can exceed the Vitamin A Daily Recommended Intake (DRI) for children (1-5 yrs)
  - 4 of 9 cultivars can meet >half of the DRI for women

Fig 7. Boiled fingers of Bira, Pelipita & Apantu (L,R)
Conclusion

➢ Cultivars selected for dissemination:
   1. Apantu (AAB)
   2. Bira (AAB)
   3. Lahi (AAB)
   4. Pelipita (ABB)
   5. Lai (AAA)
   6. To'o (AA)

➢ Adoption and consumption can substantially contribute to meeting the vitamin A needs of women and children
Thank you

www.bioversityinternational.org