Sweetpotato production in Africa

**Africa** is the second largest producer of sweetpotato in the world. However, it accounts for less than 30% of global production.
Production trends cont’d

Productivity is very low:

<table>
<thead>
<tr>
<th>Country</th>
<th>Production (tonnes)</th>
<th>Area harvested (ha)</th>
<th>Productivity (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa total</td>
<td>26,000,076</td>
<td>4,599,723</td>
<td>5.7</td>
</tr>
<tr>
<td>USA</td>
<td>1,241,846</td>
<td>58,437</td>
<td>21.3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1,712,363</td>
<td>4,029,909</td>
<td>0.4</td>
</tr>
<tr>
<td>Tanzania</td>
<td>3,834,779</td>
<td>766,494</td>
<td>5.0</td>
</tr>
<tr>
<td>Uganda</td>
<td>1,529,608</td>
<td>363,017</td>
<td>4.2</td>
</tr>
</tbody>
</table>


- Mostly grown by smallholder farmers on less than 1 ha for subsistence purposes
- Majority of growers are women
• White-fleshed varieties dominate
  • Consumer-preferred due to high dry matter content

• Increasing acceptance of orange-fleshed varieties

• Production challenges include:
  • Weevils
  • Viruses
  • Recycling of planting material
  • Post-harvest
Viruses are the main challenge...

- Major viruses: a) Sweet potato feathery mottle virus (SPFMV) and b) Sweet potato chlorotic stunt virus (SPCSV)
- The two can interact synergistically causing sweetpotato virus disease (SPVD) which can lead to 56 - 98% yield reductions

SPVD infected plant in the field. Tanzania. Credit: K. Ogero.

Comparing the effect of different viruses on sweetpotato yields. Peru. Credit: S. Fuentes.
Seed systems

- Sweetpotato mainly propagated from vine cuttings
- **Two** types of seed systems:
  - “**Informal**” SS characterized by “free” farmer-farmer exchange of planting material – predominant
  - “**Formal**” involving production and dissemination of clean seed. Actors include researchers, extension workers, NGOs, govt etc. – Nascent
- > 95% of seed flows are in farmer-based system: own fields, neighbours, informal markets
- **Unimodal rainfall areas**: low availability of seed at start of rains, but higher willingness to pay (WTP)
- **Bimodal rainfall areas**: all year availability of seed; but accumulation of diseases & pests. Lower WTP.
Tanzania seed flows

Nuclear TC plantlets
- NARS TC LAB
- KEPHIS
- PRIVATE TC LAB

Pre-basic seed
- 25 cm cutting @ Tzs. 60

Basic seed
- NARS Center open nurseries
- Commercial seed producer screen house
- 25 cm cutting @ Tzs. 40

Quality declared seed (QDS)
- Decentralized vine multiplier (DVM) open nursery
- Traditional vine multiplier (TVM) open nursery
- Free

Key:
- Existing channel
- Existing but weak
- Nonexistent
- Existing channel for free seed from NGOs

Institutional buyers e.g. NGOs
- Root producers
- Institutional buyers e.g. NGOs
- Commercial seed producer open nurseries
- 25 cm cutting @ Tzs. 20
Seed systems: what is working

Sustainable Early Generation Seed: 11 countries with business plans and revolving funds, the majority can cover recurrent costs

Screenhouse practices: increasing multiplication rates, reducing costs, and maintaining quality

Cost effective pre-basic seed production: multiplication rate in the sandponics system is 21.8% higher compared to conventional soil substrate

Regulations, seed standards and inspections: 10 countries have sweetpotato seed standards; however limited capacity for roll out; improved virus diagnostics (LAMP, sRSA)
Seed systems: areas for strengthening

Understanding existing seed systems & leverage points with formal seed sector:

- Use of RTB Multi-Stakeholder Framework
- Integrated Seed Health approach (host resistance, seed replacement, farmer management)
- Farmer socio-economic demand characteristics for market preferred varieties

Linking breeding outputs with seed systems:

- Earlier clean up,
- Commercial seed producers host OFT & demos
- Multiplication of pre-release material
- Gender Plus seed delivery profile to support decisions on seed distribution models

Sustainable business models linking EGS and commercial seed producers:

- Using ICT to strengthen communication & coordination among seed VC actors
- Tracking seed delivery & impact on farmers’ fields
Potential areas for SSA – USA collaborations

- Processes and technologies for production of virus-tested seed
- Increasing multiplication ratio at screenhouse level
- Disease research including effect of viruses on cultivar decline
- Assessing economic impacts of virus-tested seed
- Optimization of soil fertility
- Best practices/SoPs for seed production from TC to open nurseries

LSU’s Dr. Christopher Clark and Dr. Arthur Villordon and TARI’s Dr. Deusdedit Peter assessing the quality of a sweetpotato vine with a seed producer (in black cap) in Tanzania. Credit: K. Ogero.
CIP is a research-for-development organization with a focus on potato, sweetpotato and Andean roots and tubers. It delivers innovative science-based solutions to enhance access to affordable nutritious food, foster inclusive sustainable business and employment growth, and drive the climate resilience of root and tuber agri-food systems. Headquartered in Lima, Peru, CIP has a research presence in more than 20 countries in Africa, Asia and Latin America.

www.cipotato.org

This work was undertaken as part of the CGIAR Research Program on Roots, Tubers and Bananas (RTB). Funding support for this work was provided by BMGF (through SweetGAINS) and the CGIAR Trust Fund Contributors.