



# Sweetpotato seed systems in Sub Saharan Africa



MAY 21  
2020

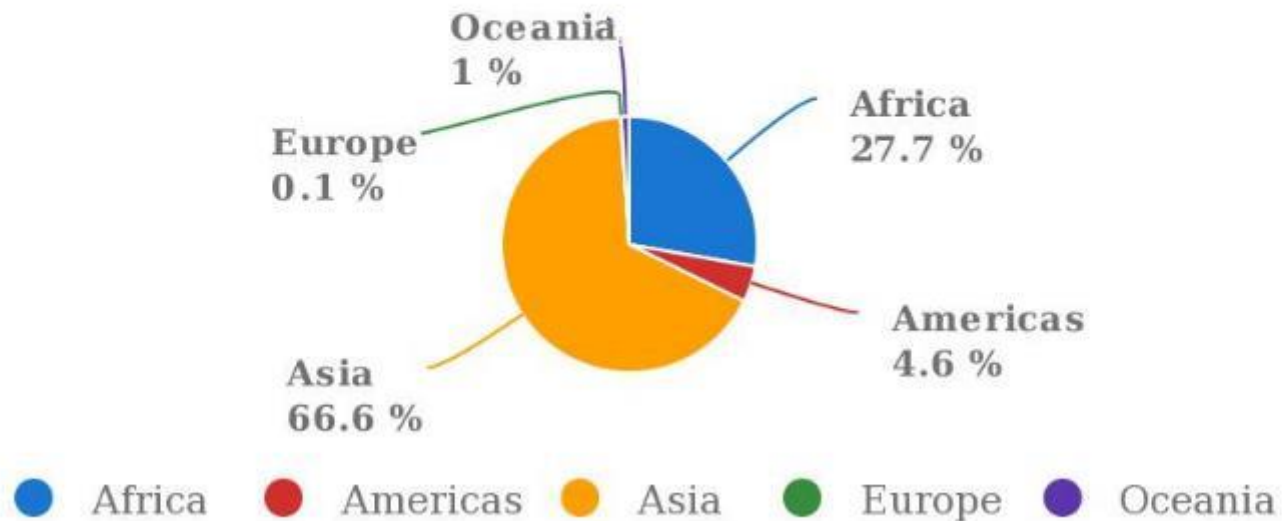
Kwame Ogero  
Margaret McEwan

## 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 share of Sweet potatoes by region

Average 2014 - 2018



Source: FAOSTAT (May 18, 2020)

## Production trends cont'd

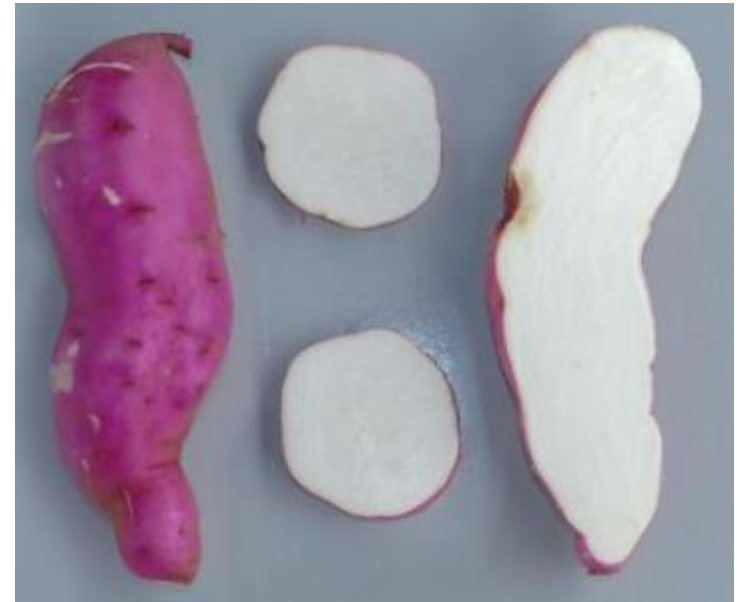
Productivity is very low:

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

Source: FAOSTAT, 2018.

- 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



Awassa – 83 variety. Ethiopia. Credit: Sweetpotato Knowledge Portal.



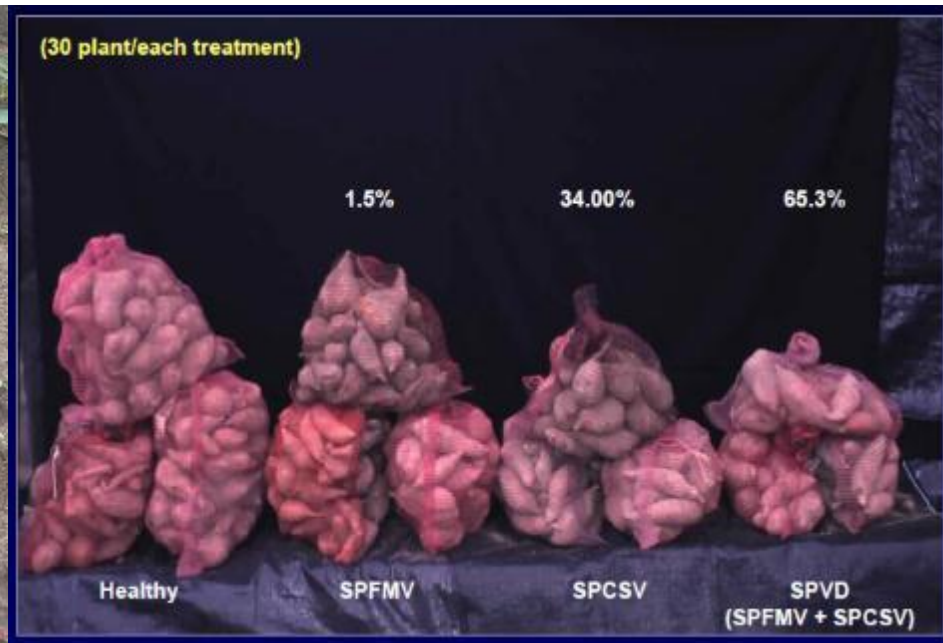
Ejumula variety. Uganda. Credit: Sweetpotato Knowledge Portal.

# 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.

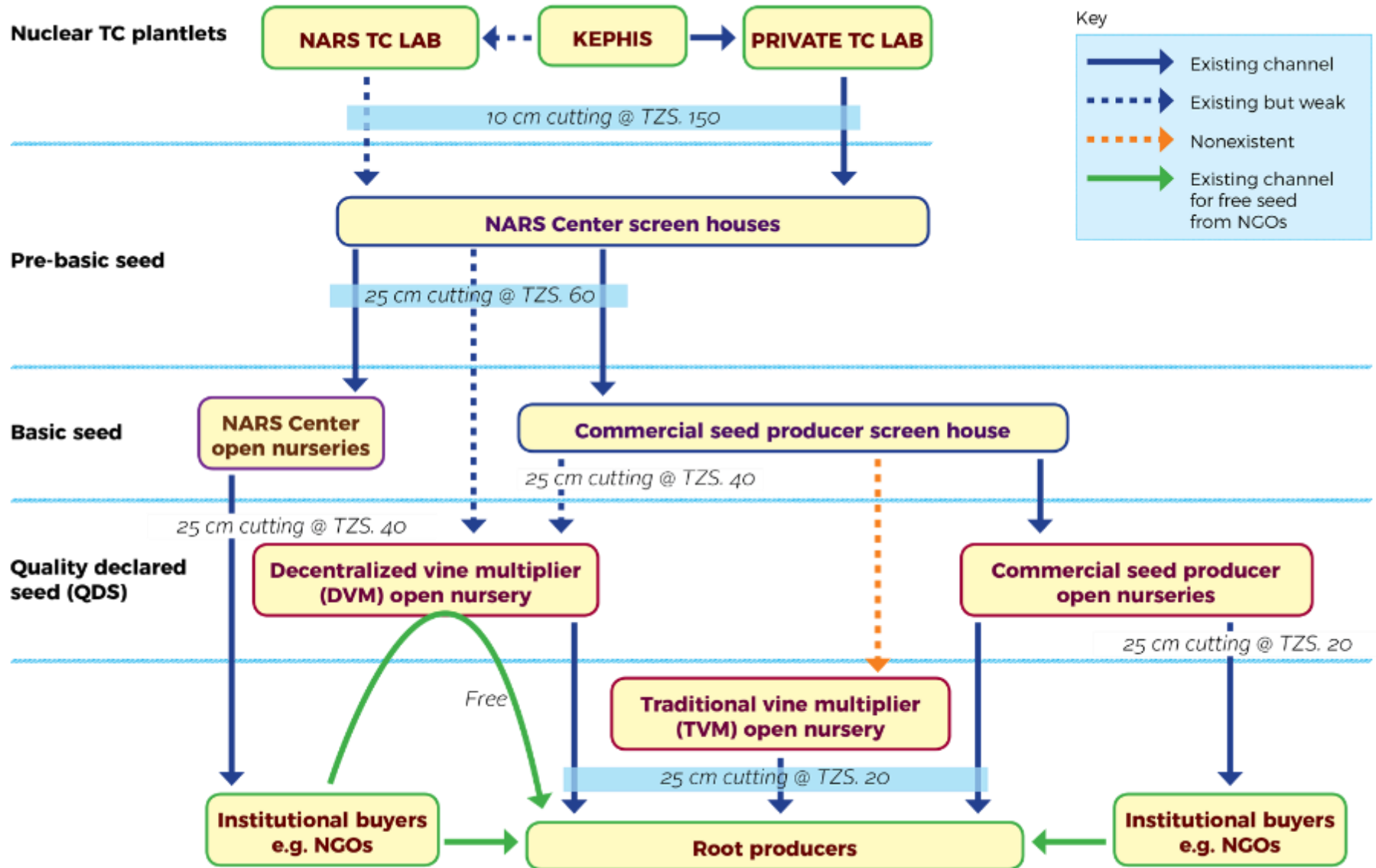


Clean vine cuttings. Tanzania. Credit: K. Ogero.



Traditional vine multipliers in Bunda district. Tanzania. Credit: K. Ogero.

# Tanzania seed flows



# 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)



Solar sterilisation of substrate for screenhouse, Ethiopia.  
Credit: M. McEwan.



Screenhouse overhead irrigation, charcoal cooler, and insect scouting, TARI, Mekelle Ethiopia. Credit: M. McEwan.



# 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 greenhouse 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. Deuseddit Peter assessing the quality of a sweetpotato vine with a seed producer (in black cap) in Tanzania. Credit: K. Ogero.



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