Technical innovations in pre-basic seed production: Burkina Faso, Ethiopia, Nigeria, Rwanda, Uganda

SASHA

Sweetpotato Action for Security and Health in Africa

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The challenge: sustainable production of sweetpotato pre-basic seed

SASHA
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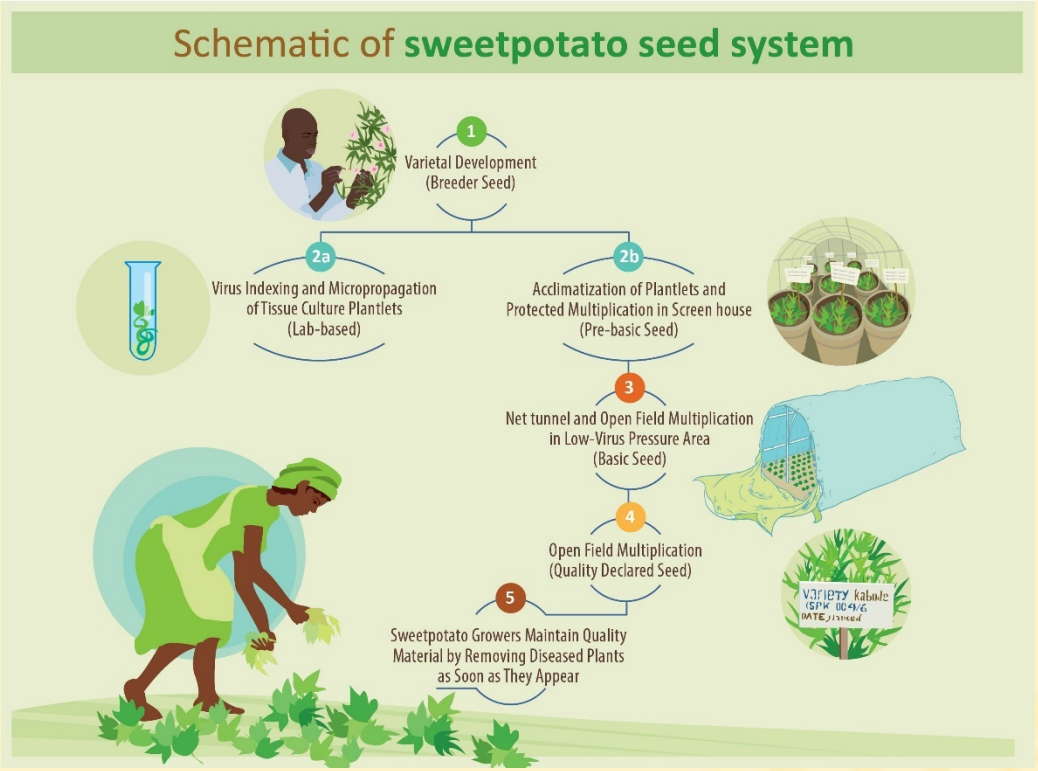
Objectives:

1. Strengthen **technical,** institutional & financial capacity for increased production of quality planting materials.
2. Promote awareness on quality sweetpotato planting materials, and strengthen coordination among stakeholders in the seed system
3. Ensure quality assurance for the pre-basic seed production process



Panel experiences: technical innovations

Technical:

- Consistent supply of pathogen tested pre-basic cuttings
- Strengthen TC lab and screen-house procedures
- Technologies to increase multiplication rate & reduce cost of seed production

Seed System CoP SGA review meeting December 2015. Credit: C. Bukania

Countries

- Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda
- Burkina Faso, Nigeria, Zambia, Ghana

NaCRRI: tissue culture innovations to reduce costs

- Use of MS stock solutions in place of pre-mixed MS salts
- Use of agar in place of phytagel to solidify the media
- Use of sugar as a carbon source in place of research grade sucrose

NaCRRI: screen house innovations to increase multiplication rates

- Use of wooden boxes in place of buckets
- Use of organic manure (poultry manure)
- Use of foliar fertilizer (Poly Feed) to boost growth in the first three weeks of transplanting

TARI: multiplication using two node cuttings

- TC plants are expensive
- Greenhouse multiplication of TC plants can significantly reduce cost
- Sweetpotato can successfully propagated using cuttings as small as two nodes, so that several cuttings can be taken from each hardened TC plantlet
- Rooting hormones increase the success rate by enhancing rooting

TARI: using coco-peat plugs and rooting hormones

- IBA, IAA, and NAA are equally good rooting hormones
- Apex cuttings root faster and better followed by middle cuttings. Cuttings obtained from the bottom of vine perform poorly as compared to distal cuttings

Burkina Faso: Tackling white fly in the screen house

- Multiple entries are cause of white flies in screenhouse. Use of sprinkler irrigation technique with control from outside the screenhouse
- Monitored relative humidity inside the screenhouse by season to better control irrigation interval
- The installation is in process

Burkina Faso: managing hot weather in screen house production

- Use of double shade net-roof: reduce sunlight and temperature inside the screen house.
- Sprinkler irrigation system may help to increase relative humidity and to reduce the temperature inside the screen house
- Black net is possible and is in use for cowpea with significant control of temperature

Nigeria: apex vine selection for further multiplication

- Select healthy vine cuttings
- Apex vine preferred compared to middle or basal:
  - Fast establishment, escapes diseases and pest
- Strip leaves from lower portion leaving one leaf
- Soak cuttings for 15 mins. in systemic insecticide, sun dry before planting
- Plant vines soon after cutting: if not,
  - Vines should be tied in bundles with their base covered with wet cloth (not >2 days)

Healthy apex cutting for planting

Bundle of sweetpotato vines with their base covered with wet cloth if planting is delayed

Nigeria: Fertilizer use - planting in pot (screen house) or open field

Screen house

- Pot mix of 3:2:1 (top soil: poultry manure: sand) top with Urea (1.5kg/100m^2) after each cutting(ratoon)
- Expected multiplication ratio: 1:15

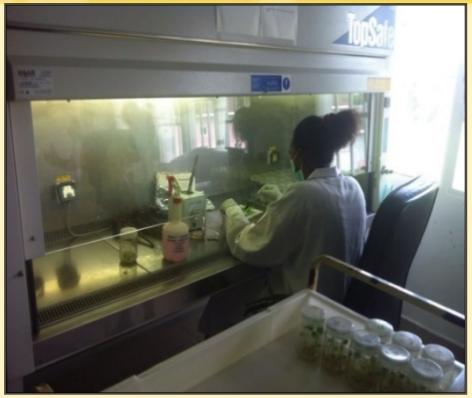
Healthy sweetpotato plant

Rapid multiplication

- 4t/ha of poultry manure
- or 2t/ha +200kg/ha NPK (15:15:15)
- Top dress with Urea (1.5kg/100m2) after each cutting (ratoon)
- Expected multiplication Ratio: 1:45

Rwanda: sustaining pre-basic seed production

- Select preferred high yielding improved OFSP as well as WFSP & dual purpose varieties.
- Actions taken to increase multiplication rates:
  - Apply urea to stimulate the growth and cut when vines are enough long (8 weeks at screenhouse)
- Actions to reduce costs of production:
  - Reduce amount of plantlets at TC
  - Increase number of plants in screenhouse
  - Increase the number of ratoons and generations at nursery



TC-Lab

Hardening

Screenhouse

Rwanda: sustaining pre-basic seed production

- Promote and advocate sale of vines by partners/DVM
- Capacity building to seed partners
- Improve Technicians and farmers skills in different modules
- Train DVMs and seed inspectors in QDS standards

Photo Credit : Chrsitine Nyirahabimana and Jean. Ndirigwe