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

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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

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

Seed System CoP SGA review meeting December 2015. Credit: C. Bukania
NaCRRRI: 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
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
• 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.
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)
Screen house

- Pot mix of 3:2:1 (top soil: poultry manure: sand) 
  top with Urea (1.5kg/100m²) after each 
  cutting (ratoon) 
- Expected multiplication ratio: 1:15

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

Healthy sweetpotato plant
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
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: Christine Nyirahabimana and Jean Ndirigwe