

# Tackling the Pre-Basic Seed System

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## Introduction

Quality seed is the starting point for any successful agricultural venture and a functioning sweetpotato seed system contributes to food security and income generation.

The transition between breeder and pre-basic (i.e. first generation or foundation) seed production is a major bottleneck in the functioning of an efficient seed system for sweetpotato

## The problem

- Limited incentives to maintain breeder seed & to produce early generation seed;
- A lag in investment in human capacity and facilities for pre-basic seed production;
- Inadequate coordination between seed demand and supply;
- Unreliable funding streams.

## What are we doing?

- Strengthening technical, financial and institutional capacities for the sustainable production of pre-basic sweetpotato seed in public and private sector;
- Developing and testing different seed system technologies to increase the multiplication rate for sweetpotato;
- Exploring innovative partnership business models between public research programmes and private entities that would contribute to the broad goal of developing commercially viable seed systems.

## Results and discussion

### Technical capacity:

- Screenhouse and irrigation facilities have been installed or rehabilitated in 7 countries.
- We are testing: various types of net tunnel for the protection of early generation seed; the use of hormones to speed up rooting of vine cuttings.
- Sandponics units have been established in Uganda, Mozambique, Kenya and Malawi in collaboration with other projects. We are assessing whether different nutrient, irrigation and temperature regimes can increase the multiplication rate for sweetpotato in screenhouses.
- A manual for the hardening of plantlets has been produced; and KEPHIS hosted training in micropropagation for NARI technicians.

### Financial, institutional and regulatory capacity

- We evaluate the cost per unit and time of these technologies against conventional multiplication technologies.
- In Uganda, analysis of the business case for pre basic seed production under public and private sector management indicates that a successful business case for the private sector would require production of larger quantities of basic, in addition to pre-basic seed. Further along the seed chain, quality declared seed producers are likely to be profitable only if root production is a source of income as well.
- In Ethiopia, Tanzania and Mozambique, revolving fund mechanisms are allowable, but may be multi-purpose, and so we are working to link income from sweetpotato seed sales to crop specific expenditure requirements. In Malawi and Uganda, recent changes in policy and government regulations have laid the foundation for revolving fund type mechanisms to be established, with sweetpotato seed production as a test case.
- In Ethiopia, Tanzania and Uganda sweetpotato specialists and the regulatory bodies are developing appropriate seed standards and inspection protocols for the crop and then test these in the field before gazetting.

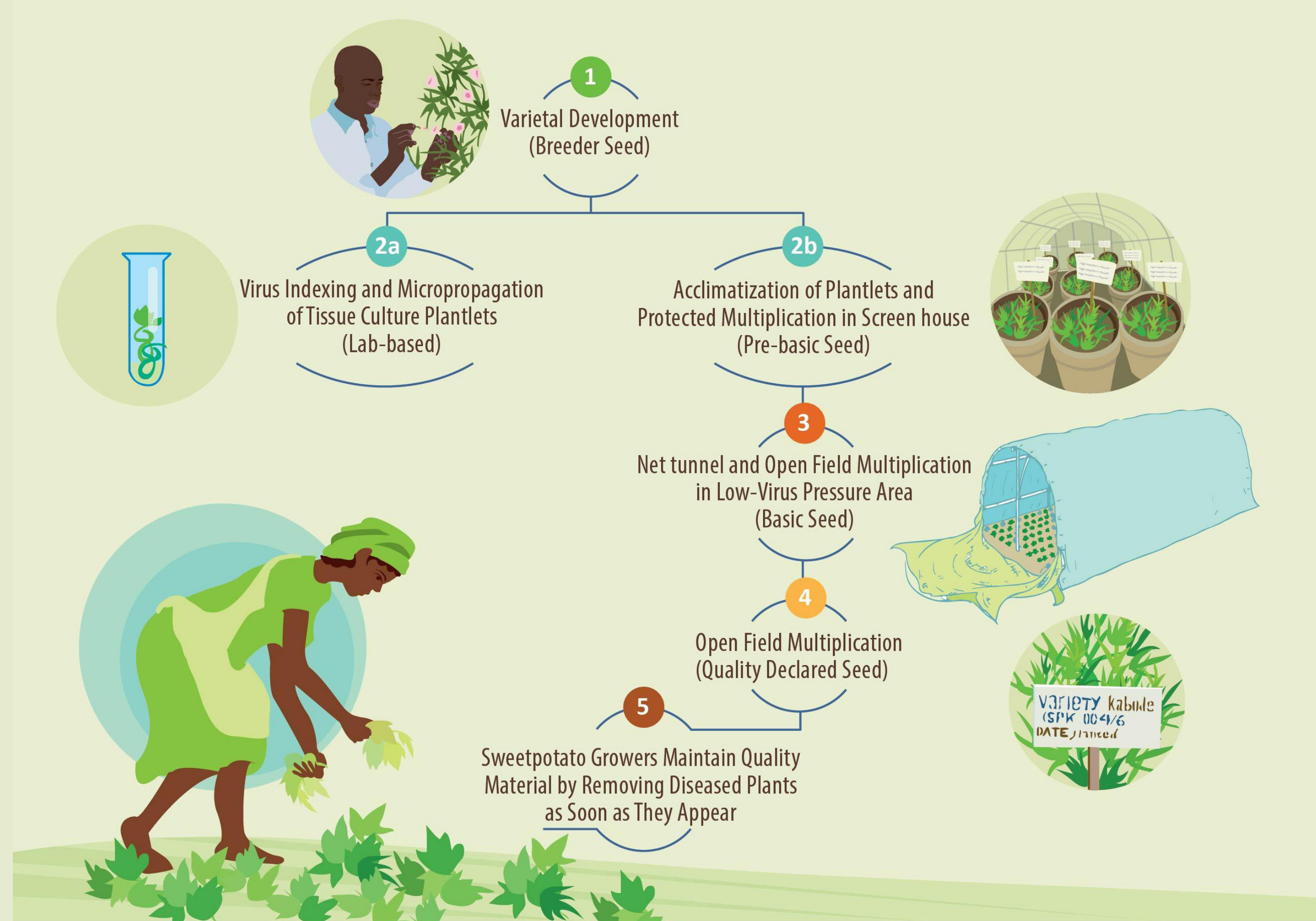
## Conclusions

- A concerted effort is required to understand demand at the different segments in the seed value chain. Regular convening of stakeholders (producers and customers) is critical in order to discuss issues of common concern, build trust through the chain, and synchronize demand with timely supply. Demand projection methods and multiplication planning calendars are essential tools to ensure that the different segments in the seed value chain are coordinated to provide timely and adequate quantities of quality seed to farmers for root production
- Pre-basic seed production is expensive – so we need to reduce costs by using locally available supplies e.g. table sugar in place of sucrose; optimize protocols and increase efficiencies to bring down the unit price and calculate the optimal level of production for TC plantlets in relation to screenhouse cuttings.

## Our partners are

- Kenya Plant Health Inspection Service (KEPHIS Plant Quarantine)
- National Crop Resources Research Institute (NaCRRI–Uganda)
- Rwanda Agricultural Bureau (RAB–Rwanda)
- Sugar Cane Research Institute (SRI–Kibaha) & Lake Zone Agricultural Research and Development Institute (LZARDI) Tanzania
- National Root Crops Research Institute (NRCRI), Nigeria
- Southern Agricultural Research Institute (SARI), Ethiopia
- Tigray Agricultural Research Institute (TARI), Ethiopia
- Crops Research Institute (CRI), Ghana
- Institut de l'Environnement et de Recherches Agricoles (INERA), Burkina Faso
- Instituto de Investigaçã Agrária de Moçambique, IIAM Mozambique
- Zambia Agricultural Research Institute (ZARI–Zambia)

### Schematic of sweetpotato seed system



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#### Acknowledgements:

The Bill and Melinda Gates Foundation;  
CGIAR Research Program on Roots,  
Tubers and Bananas