Towards Sustainable Production of Pre-basic Seeds in Nigeria (2015-2019)

- Strengthened the capacity of national partners (National Root Crops Research Institute (NRCRI) and Bayero University (BUK)) to produce and manage high quality planting material of breeder, pre-basic and basic seeds: 21 net tunnels, three screen houses, and irrigation facilities were established (Fig. 1).
- Established, built and strengthened the capacity of Decentralized Vine Multipliers (DVMs) and NGO partners (Kolpin and Linto farms) to commercialize the production of high quality seeds; Net tunnel and Triple S technologies were extended to partners.

SASHA Sweetpotato Action for Security and Health in Africa

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Fig 1. Christine Okoye inspecting pre-basic seeds in screen house (Credit: J. Njoku)

What was the problem?

A predominantly informal seed system exists for sweetpotato throughout most of Nigeria. This means that often insufficient planting materials are available at the onset of planting season and what is available is often of low quality, producing lower than desirable yield. Most institutions charged with producing new varieties of sweetpotato and supporting sweetpotato research lack the infrastructure and trained personnel to produce high quality pre-basic planting materials.

What objectives did we set?

The overall objective is to test a model for sustainable production of pre-basic seeds for timely availability of quality sweetpotato planting materials. This will be achieved by:

- Ensuring increased capacity for production of high quality sweetpotato planting materials by public and private sector actors
- Enhancing the awareness of the value of high quality sweetpotato planting material among stakeholders and encourage its commercialization

Where did we work?

The project was implemented in four states of Nigeria notably: Abia, Osun, Kano and Kaduna states. At the inception of the project, Abia and Osun state were selected and later in the second year, Kano and Kaduna states were included. Reasons differed for the selection of these states: Abia is the host state of the government research institute responsible for sweetpotato research, NRCRI at Umudike, where the production of pre-basic materials is part of their mandate. Osun State was the site of a previous Orange-fleshed Sweetpotato (OFSP) project which had mainstreamed OFSP into the Osun state home grown school feeding program. Several DVMs were linked to producers for the feeding program, but there was a clear need to improve the capacity of vine multipliers to produce higher quality vines. Kano and Kaduna states are renowned for the production of sweetpotato during all seasons for selling, having the advantage of robust irrigation systems.

What did we achieve during SASHA Phase 2?

- Strengthened the capacity of national partners to produce and manage high quality planting material of breeder, pre-basic and basic seeds; 21 net tunnels, three screen houses, and irrigation facilities were established.
- Built the capacity of national staff to produce and maintain high quality planting materials; four staff from NRCRI, two from BUK (Bayero University Kano) were trained.
- Institutionalized business model and revolving fund for sustainable production of high quality planting materials in NRCRI, Umudike and BUK. The sweetpotato business plan approach has been adopted by other commodity programs.
- Put in place innovative market strategy that used the revolving fund for sustained pre-basic seed production and sales after the exit of the project; OFSP café at NRCRI, Facebook and YouTube advert etc.
- Drafted the sweetpotato seed certification protocol and got approval from National Seed Council of Nigeria (NASC) to start the implementation process on different seed classes in Nigeria (Fig. 2)
- Established, built and strengthened the capacity of Decentralized Vine Multipliers and NGO (Kolpin and Linto farms) to commercialize the production of high quality seeds

Fig 2. Participants in the Stakeholders' Workshop on Sweetpotato Seed Protocol Standard held in November 2018 in Abuja, Nigeria

Fig 3. Field assistant Mr. Charles Nweke harvesting high quality vines from net tunnel (Credit: J. Njoku)

- Extended proven Triple S and net tunnel technologies (Fig.3) to DVMs to improve production of quality seeds for target groups
- Created a seed calendar to synchronize with seasonality in different agro-ecologies of Nigeria targeting the production circle of sweetpotato; two cycles of pre-basic seed production were achieved during the project period.
- Completed three trials with implementable results to improve high quality seed production.

Where there any key challenges or lessons learned?

- The NRCRI tissue culture lab is suboptimal and does not have facilities to produce pathogen tested materials. The laboratory lacks a thermotherapy chamber and suffers from an unsteady supply of electricity.
- Maintenance of a screenhouse does not require electricity; hence we relied on the West Africa Support Platform in Kumasi and KEPHIS to provide pathogen-tested cuttings, that could then be maintained in the screenhouse.
- Lack of capacity to carry out required irrigation procedures required for the validation of technical protocol for sandponics; such as primed tanks with liquid fertilizer and drip irrigation.
- Low demand of vines especially pre-basic seed at off season (dry season); resulting in a limited number of commercial seed multipliers willing to take up multiplication of basic seed.
- Dependence on informal seed systems by farmers due to high cost of seeds; tendencies of farmers to resort to old recycled planting materials after the first purchase of high quality vines.
- Numerous strikes by workers at research institute in Nigeria affecting the daily operations of the project in most cases
- Challenge of accessing funding during the 1st year of the project due to Treasury single account policy of the federal Government that did not permit access to funds for all NRCRI projects. It took over two years (September 2015 to December, 2017) to recover the funds from Central Bank.

What's next?

- Strengthen the breeding program to release more preferred varieties for diversified use
- Scaling-up proven technologies that will enhance quality vine production targeting areas of comparative advantage. Net tunnels to rain forest zones (virus prone) and Triple S to drier agro-ecologies (drought area)
- Strategies to create agro-business clusters in communities to engender more awareness and strengthen the sweetpotato value chain. The clusters will involve vine, root producers and small and medium scale processing entrepreneurs.
- Identifying and encouraging a private sector operator to engage in pre-basic seed production of root and tuber crops, including sweetpotato.

Contact

Dr. Jude Njoku, CIP-Nigeria, J.Njoku@cgiar.org
Mrs Amala, C. Okoye, NRCRI, okoyeamalac@yahoo.com
Dr. Shehu Usman Yahaya, BUK, suyahaya.agr@buk.edu.ng
Dr. Ishiak Khalid, NASC, ishiakbio@gmail.com
Mr. Adeola Sunday Olayiwola, OYES, deolaolayiwola@gmail.com

Partners • National Root Crops Research Institute (NRCRI), Umudike • Bayero university (BUK), Kano • National Agricultural Seed Council (NASC), Abuja • Osun State Youth Empowerment Scheme (OYES) • Kolpin Society, Umuahia • Potato Growers and Marketers Association of Nigeria (POGMAN), Abia state branch • Linto Farms

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