Highlights from Year 2: the Rest of SASHA

Sweetpotato Action for Security and **Health** in **Africa**

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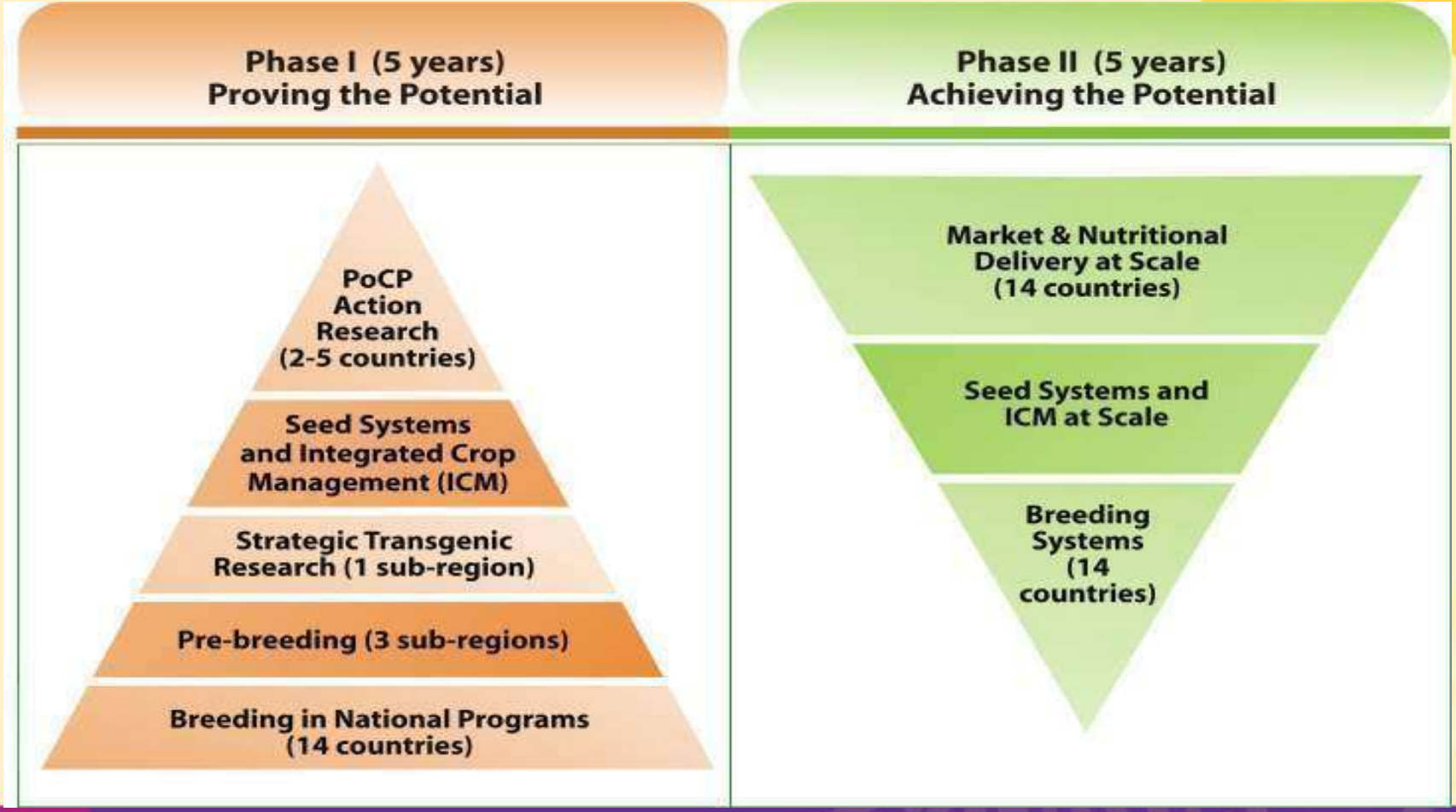
Sweetpotato Support Platform-WA
Kumasi; 12-13 July 2011

SPHI is a multi-partner, multi-donor initiative that seeks to reduce child undernutrition and improve smallholder incomes in 10 million African families by 2020 through the effective production and expanded use of sweetpotato.

The Sweetpotato Action for Security and Health in Africa (SASHA) Project is a 5 year project led by the International Potato Center that will develop the essential capacities, products and methods to reposition sweetpotato in the food economies of Sub-Saharan Africa. It serves as the foundation for the broader Initative.

Two Phases: Greater Emphasis in the first 5 years on R&D as the Foundation

SASHA
Sweetpotato Action for Security and Health in Africa



SPHI Sweetpotato for Profit and Health Initiative

16 priority countries, 3 sub-regions

Under SASHA, activities in 8 countries

Major Focus: Seed Systems Research

establish demand-led cost-effective seed systems for the dissemination of new varieties and high quality planting material

- **Develop and test strategies for the multiplication and dissemination of sweetpotato varieties**
- **Study the costs of disseminating sweetpotato vines using vouchers and trained farmer multipliers**
  - 150,000 households in Tanzania in 3 years (Marando Bora)
- **Assure sweetpotato varieties can be maintained in a disease-free state over time at the sub-regional level and that safe and efficient germplasm exchange occurs between countries**
  - develop field level diagnostic kits for virus detection

Marando Bora: Going-to-Scale with Better Vines in Tanzania

- 35,479 disease-free tissue culture plantlets of 7 varieties multiplied by private sector company in Kenya (GTIL) and hardened at Maruku
- Voucher dissemination guidelines prepared & 3 Implementing Partners (IPs) trained.
- 30 trained decentralized vine multipliers (DVMs) by April 2011 distributed vouchers, of which 9,984 (72% women beneficiaries) were redeemed. 57% had children under 5 years of age.
- An additional 1,474 purchased vines and 641 received vines as gifts
- A total of 83 DVMs now trained and multiplying for next season. An additional IP has been added for DVM approach to reach 66,400 hhs.
- Will compare to mass dissemination to 47,000 hhs with 3 new partners.
- Social marketing company T-MARC contracted to support preparation of communication strategy.

Marando Bora: Tunnu Women's Group – champion multipliers!

- GLCI cassava multiplication group interested in sweetpotato.
- Trained and provided with 1,765 cuttings of Polista and Ukewere in August, and 5,400 cuttings of Ejumula in November.
- They use buckets for irrigation, hand hoes, and apply manure.
- Achieved multiplication rates of 18x and 11.5x for Polista and Ukewere, respectively, and had 589,600 cuttings to disseminate in March-April (i.e., supply 2,500 households with 200 cuttings each).

A new system of producing planting material for regions with prolonged dry seasons: The use of sprouting roots

SASHA Sweetpotato Action for Security and Health in Africa

Stage 1: The roots are stored in sand

Dry sandy soil is collected from around the houses. Medium sized and free from weevil- or other damage roots are placed in it. The roots are stored in the house or other dry and cool place until about 5–7 weeks before the start of the rainy season.

Collecting sand

Storing roots

The Triple S System: Storage in Sand and Sprouting

Stage 2: Planting out and watering

The roots are then planted close to the house and watered.

They quickly start to sprout, producing large amounts of planting material,* ready for use when the rains come.

Planting the roots

Measuring the yield

***Average production in trials with 12 women farmers in Meatu & Shinyanga: 42 cuttings/plant**

Major Focus: Effective Delivery Systems to improve Vitamin A Intakes

- Can linking orange-fleshed sweetpotato (OFSP) access and nutritional training to existing health services provide:
  - an incentive to pregnant women to increase health service utilization?
  - lead to increases in consumption of OFSP and other vitamin A rich foods by the women and their young infants?
- Project in Western Kenya: 1st in SSA linking ag to health
- Partners: PATH (International health NGO), CREADIS & ARDAP (two local agricultural NGOs) and CIP

Completed Pilot Phase in Dec 2010...

SASHA
Sweetpotato Action for Security and Health in Africa

- **Linked OFSP intervention to health service delivery**
  - Improved nutrition counseling by ANC service providers.
  - 4,906 vouchers issued to pregnant or lactating women.
  - 3,700 vouchers redeemed for OFSP vines.
  - Home visits conducted by Ag Extensionists and CHWs.
- **Improved evidence base of the health impacts**
  - Conducted the first round of Operation Research on feasibility and acceptability of the pilot project.
    - Revised education and communication materials
    - Linked demonstration plots to trained vine multipliers
    - Improved selection criteria for vine multipliers & established 14 sites

Mama SASHA (Kenya PoCP) Roll-Out in 1st half of 2011

- **Conducted baseline survey**
  - 968 pregnant women
  - 1,918 mother-child (6-24 month old) pairs
  - In intervention and control communities
  - Wide range of information
    - Nutrition and health knowledge and practices
    - Sweetpotato knowledge and practice
    - Assets and demographic information
    - Anthropometry
    - Prevalence of Vitamin A deficiency among children
- **Full implementation began April 2011**
  - As of June 16th: 1,296 vouchers issued
  - 798 redeemed (62%).
  - Problem of undependable rains

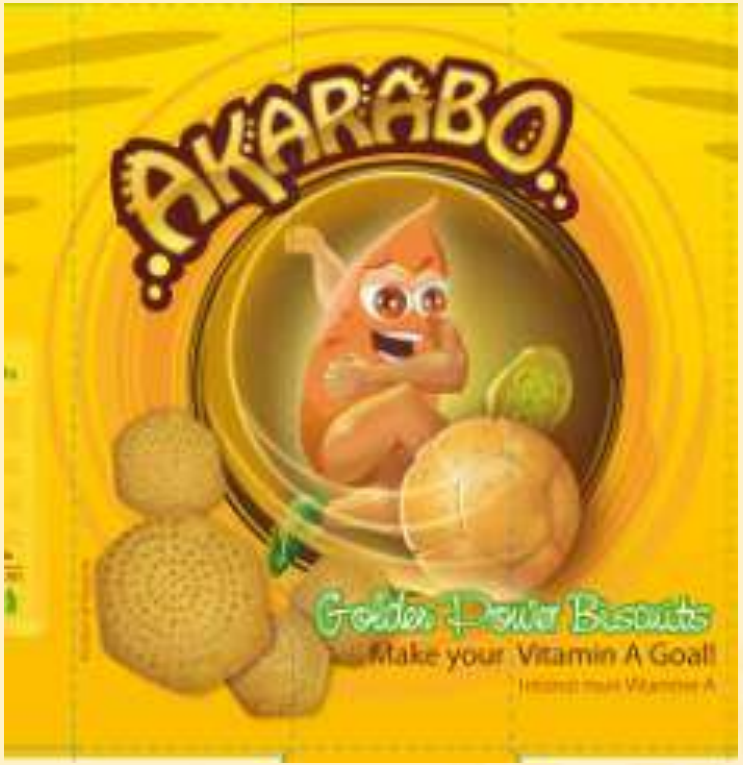
Rwanda Value Chain Project Fully Launched

- Getting LOUs finalized between CIP and SINA enterprises, CRS-Rwanda, and Institut des Sciences Agronomiques du Rwanda (ISAR).
- Conducting second recipes refinement of SP-based products at the new SINA bakery in collaboration with ISAR postharvest team

- Forging strong research links with KIST food science dept.
  - 4 students did research in 2010; 8 selected for 2011
- Conducting a successful consumer testing survey at the Diaspora-Agri show with four SP products (biscuits, bread, doughnuts, and queen cakes) with 694 panelists in total.

Getting the Project Moving

- Selection of **Biscuit** as the first SP-based product to be processed and marketed by SINA in 2011.
- Selection of varieties of SP to be used in the project and their multiplication effort at Rubona (70,000 SP cuttings available).
- Selection and starting of production of SP roots by 3 farmer groups by CRS and 15 contract farmers by SINA (with over 80% women in both systems).
- Training of Trainers in SP vine multiplication and SP roots production.



Major Focus: Improving incomes through use as an Animal Feed

- Adapting the lessons learned from silage utilization in China for dairy & pig feeds in East Africa
- Identify the best dual purpose varieties for use in East Africa, where *zero grazing* policies are spreading
- Project in Kenya & Rwanda, 4 master's students
- Partners: Heifer International (International NGO), University of Nairobi, Farmer's Choice (private sector/pork products), ILRI, ISAR & KARI (national research programs)

Animal Feed Research:
1st Round Silage Trials Completed

Also varietal trials to select best feed variety for dairy silage in Kenya completed:

NASPOT1 the best for dual purpose.

Pig silage trials & dairy silage on-farm testing begun.

Major Focus: Weevil Resistant Varieties

to develop weevil-resistant sweetpotato varieties for SSA within 5 years

- **Focuses on using *Bacillus thuringiensis (Bt)* sources for weevil resistance**

  20 years of conventional breeding failed to identify suitable sources

Sweetpotato with weevil damage

- **Heavy emphasis on training African biotechnologists** (2 Phds, 4 technicians) for Kenya and Uganda utilizing new BeCA platform facilities

Towards Weevil Resistant Variety Development: The Materials

- We have a total of 92 events:
- 8 with *cry7Aa1* from Jewel
- 9 with *cry3Ca1* from Jewel
- 8 with *ET33-34* from Jewel
- 7 with *cry7Aa1+ cry3Ca1* from Jewel
- 2 with *cry7Aa1+ ET33-34* from Jewel
- 1 with *cry7Aa1* from Wagabolige
- 5 with *cry7Aa1+ ET33-34* from Huachano
- 33 with *cry7Aa1+ cry3Ca1* from Imby
- 4 with *cry7Aa1+ cry3Ca1* from Mugande*
- 16 with *cry7Aa1+ cry3Ca1* from Jonathan
- We expect 20-30 harvesting events from Huachano, Imby, Mugande*, and Jonathan. Hence, we have now enough events to assess properly the efficacy of these WR genes in sweetpotato.
- *Identity doubtful

The evidence accumulates…

Storage roots produced in the Biosafety Greenhouse at CIP-Lima, in eight transformed events of sweetpotato events of sweetpotato var. Jewel with *ET33-34*

Cuttings of the 31 events and untransformed control of WR transformed events at the BecA facility in Kenya.

So Far, So Good.....

- 31 events transferred to KU and BecA were grown in biosafety greenhouse for storage root production. These will be lyophilized and sent to NaCRRI for artificial-diet *assay against weevils* and tested as whole roots at BecA.
- 9 events with single gene transferred to University of Puerto Rico are multiplied for *confined field trials* in September 2011.
- 39 events transferred to NaCRRI will be tested for artificial-diet *assay against weevils* and crossing with locally adapted progenitor.
- *Gene expression and Cry protein accumulation* have been observed in leaves and roots. So far, it is promising, although we have indications that the b-amylase promoter might be less active than the sporamin promoter.

Major Focus: Sweetpotato Support Platforms

to organize the work around research for development platforms that integrate and support the work of institutional partners in each sub-region

- **Provide technical backstopping**
  - Special emphasis on Alliance for a Green Revolution (AGRA) supported national breeding and PhD training programs
- **Assure clean germplasm exchange**
- **Assure gender-sensitive design and implementation**
- **Assure comparable data collection** between countries engaged in the breeding and germplasm exchange
- **Facilitate information exchange**
  - Hold SSP meetings in each sub-region every 6 months
- **Support advocacy work for promoting Vitamin A Sweetpotato**

M&E Progress: Standardize Modules Developed and Implemented

- Working as a team at CIP, we finalized 21 modules for the baseline surveys under SPHI.
- Mainstreaming gender component in the baseline survey modules. Qualitative research on women & seed systems conducted in June 2011.
- Adapting the survey modules to Tanzania, Mama SASHA and Malawi baseline surveys.
- Testing the survey modules in the three baseline surveys and improving the final modules.
- Being adapted for animal feeds project and Rwanda PoCP.
- Draft communication strategy for research outputs to be completed by July 2011.

Launching of the Sweetpotato Knowledge Portal

- 87 persons trained on use during 2nd Round of Sweetpotato Support Platform Meetings, led by Jens Riis-Jacobsen.
- www.sweetpotatoknowledge.org

Improvement of the CloneSelector

- Version 2.0 now ready with updated user manual
- Multi-environmetal trials can now be accommodated
- Conducts relevant statistical analysis on any trait, including stability analysis
- Course will emphasize data manipulation and interpretation