Expectations for 2nd Meeting of Sweetpotato Support Platform – WA and Update on Sweetpotato Breeding

Ted Carey

SASHA

Sweetpotato Action for Security and Health in Africa

Welcome to the Second Meeting of the Sweetpotato Support Platform (SSP-WA)

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SPHI Sweetpotato for Profit and Health Initiative

16 priority countries, 3 sub-regions

Under SASHA, activities in 8 countries

Four major technical components

1. **Population Development & Varietal Selection**
   - a. East & Central Africa: Robert Mwanga
   - b. Southern Africa: Maria Andrade
   - c. West Africa: Ted Carey
   - d. CIP-HQ (Lima, Peru): Wolfgang Grüneberg

2. **Weevil Resistant Sweetpotato using Transgenics**
   Marc Ghislain

3. **Seed Systems**
   - a. Seed Systems Research: Ian Barker
   - b. Tanzania going-to-scale with vines (Marando Bora)

Four major technical components

4. Effective Delivery Systems

Proof-of-Concept Projects (must have a control group)

A. Kenya Agriculture-Health PoCP
   Hermann Ouedraogo

B. Rwanda Value Chain Project
   Kirimi Sindi & Jean Ndirigue

Feasibility Studies

A. Sweetpotato as an Animal Feed
   Sammy Agili

B. Potential for Sweetpotato Processed Products in Nigeria
   Natural Resources Institute

Research Program 5: Management & 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 programs and PhD training programs (ACCI & WACCI)
- **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**
- **Support advocacy work for promoting Vitamin A Sweetpotato**

Key Partners and their roles

CSIR-Crops Research Institute (CRI)

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Breeding, Biotechnology, Virology, Postharvest and Entomology Provide an Institutional Home for SASHA Pre-Breeding

Key Partners and their roles
CSIR-Crops Research Institute

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CRI is the Regional Center of Specialization for Root Crops under the West Africa Agricultural Productivity Program (WAAPP)

Key Partners and their roles
Students at WACCI will be NARS Breeders

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ERNEST BAAFI, CRI

VIVIAN ODURO, BNARI

Key Partners and their roles
Collaborators and Stakeholders

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IBOK ODURO, FOOD SCIENTIST, KNUST
AND TOM GAMBRAH, PREMIUM FOODS
SWEETPOTATO SUPPORT PLATFORM

PARTICIPANTS IN SWEETPOTATO HARVEST TRAINING FROM
CRI, SARI, AND MINISTRY OF FOOD AND AGRICULTURE
ROOT AND TUBER IMPROVEMENT AND MARKETING PROGRAMME
(RTIMP)

LYDIA SASU, FARMERS GROUP REPRESENTATIVE
AND ESI AMOAFUL OF GHANA HEALTH SERVICE
SWEETPOTATO SUPPORT PLATFORM

Key Partners and their roles
Nigeria and Burkina Faso

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NATIONAL ROOT CROPS RESEARCH INSTITUTE

PROF AKORODA,
UNIVERSITY OF IBADAN

SOME KOUSSAO
WACCI STUDENT, INERA

Key Partners and their roles
Farmers, Marketers, Consumers

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BABA SALIFU, KOMENDA,
CENTRAL REGION

ANAO KUTOTUA,
NIMBASINIA,
UPPER EAST REGION

NUTIFAFE WOMEN'S GROUP,
KPORKUVE, VOLTA REGION

Key Partners and their roles
CIP Staff in Ghana

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BEN DZEGBLOR,
DRIVER

HALIDU OSMAN,
FINANCE AND ADMIN.

EBENEZER OBENG-BIO,
ASSISTANT BREEDER

EMMANUEL OWUSU KYERE,
SEED TECHNOLOGY
(Rear left)

Sweetpotato breeders 2010

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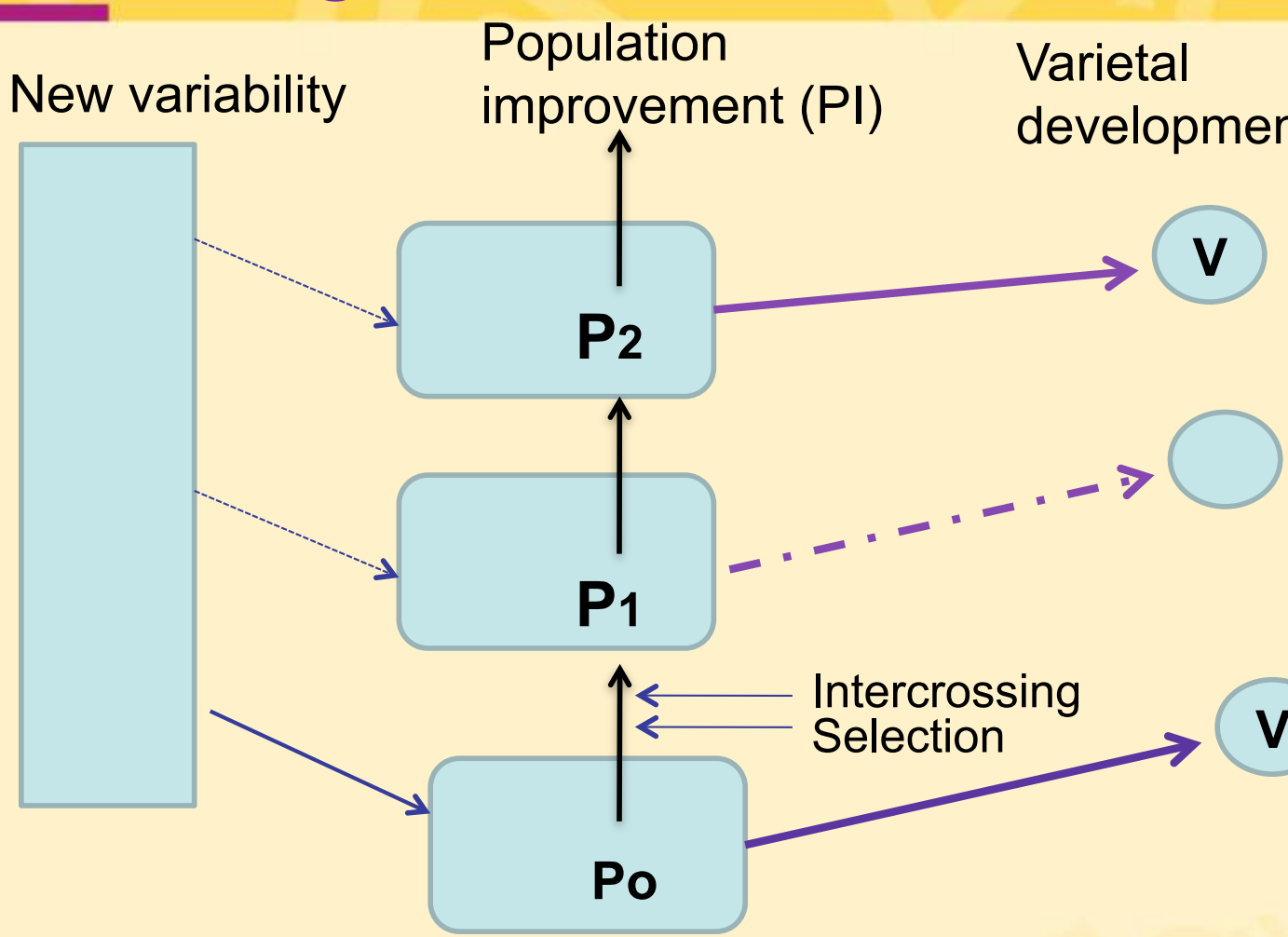
- Building a community of practice

Update on Breeding and Seed Activities
SASHA and Ghana

- Population improvement – pre-breeding
- Technical input on seed is critical
- Accelerated Sweetpotato Breeding works (case of Mozambique)
- Heterosis in sweetpotato breeding
- Assessment and use of African genetic diversity
- Progress report

Sweetpotato Support Platform (SSP) Breeding Activities



- **PI** by SSP – long term by SASHA : use distinct populations to exploit heterosis to improve e.g. yield, disease resistance
- **VD** by sweetpotato National programs – short term (AGRA or other support)

Major Focus: Seed Systems Research

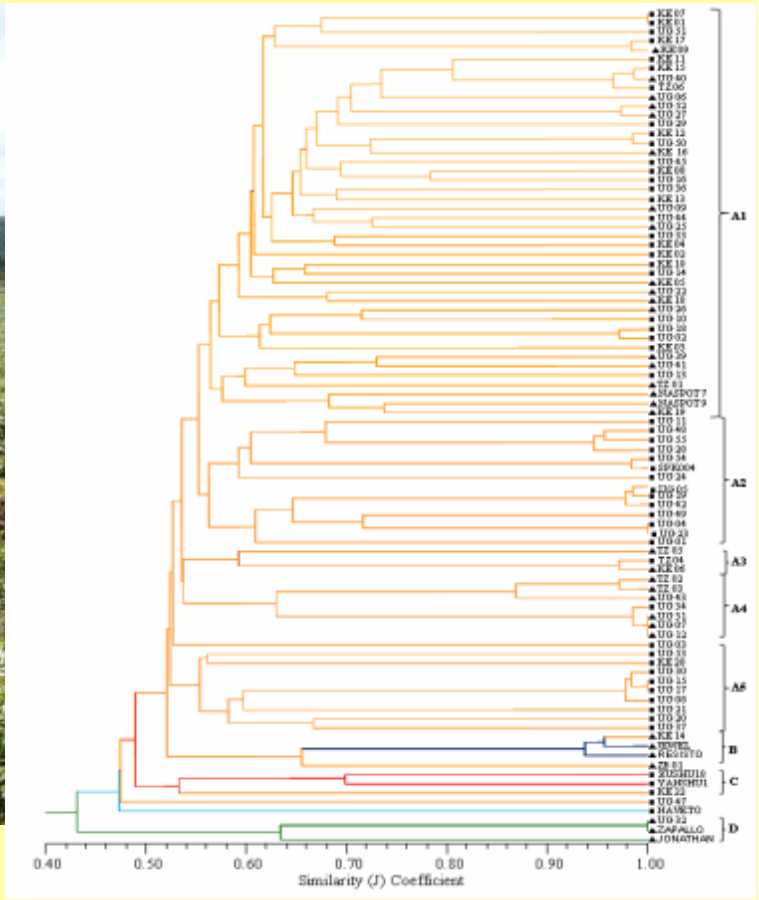
establish demand-led cost-effective seed systems for the dissemination of new varieties and high quality planting material

- **Develop and test strategies for the multiplication and dissemination of sweetpotato varieties**
  - enhanced farmer-based capacities to maintain quality planting material
  - cost-effective public sector distribution programs
  - potential for for-profit nurseries
- **Study the marginal costs in adding sweetpotato to an existing clonal crop (cassava) seed dissemination program in Tanzania**
- **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

Accelerated breeding

- Speeds up process by evaluating over sites at early stages
- Can be participatory at any stage
- Traditionally 10 years to release
- Mozambique <4 years

Africa has its own OFSP Farmer Varieties



CIP Sweetpotato from HP to SASHA

ST, RT & WG 2006 - 2010

Two OFSP Breeding Populations

Populations:
- Jewel (PJ) 2 x 5000 genotypes = 2 x 15,000 plots
- ZapalloSPK (PZ) 2 x 5000 genotypes = 2 x 15,000 plots
- Hybrid (PH) 1 x 6000 genotypes = 24,000 plots

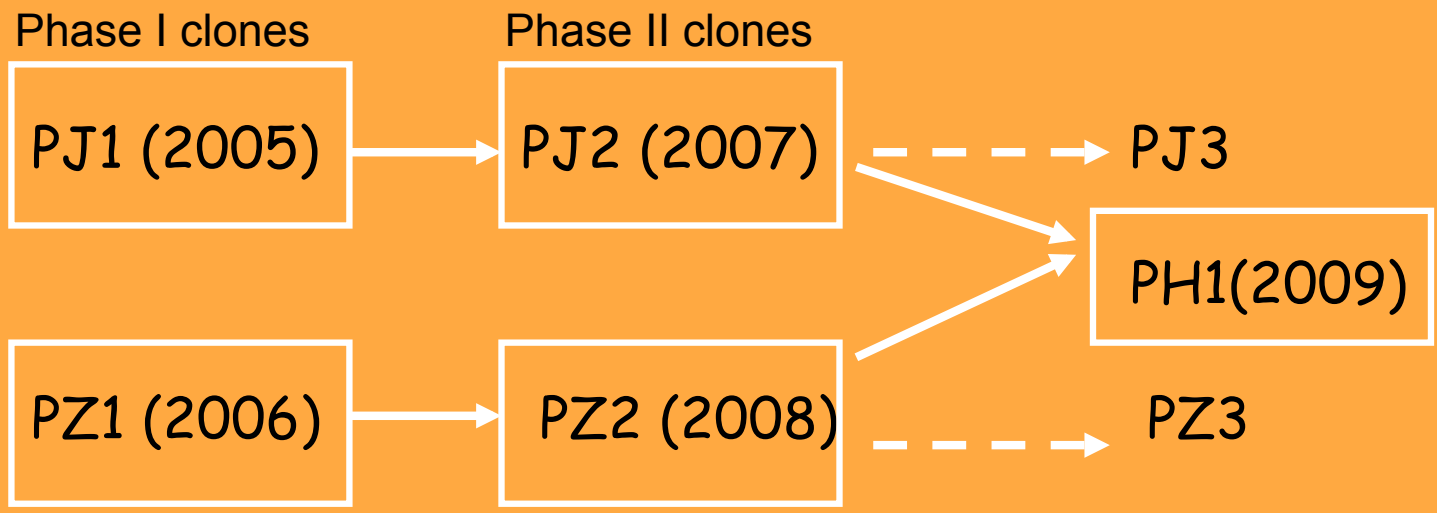
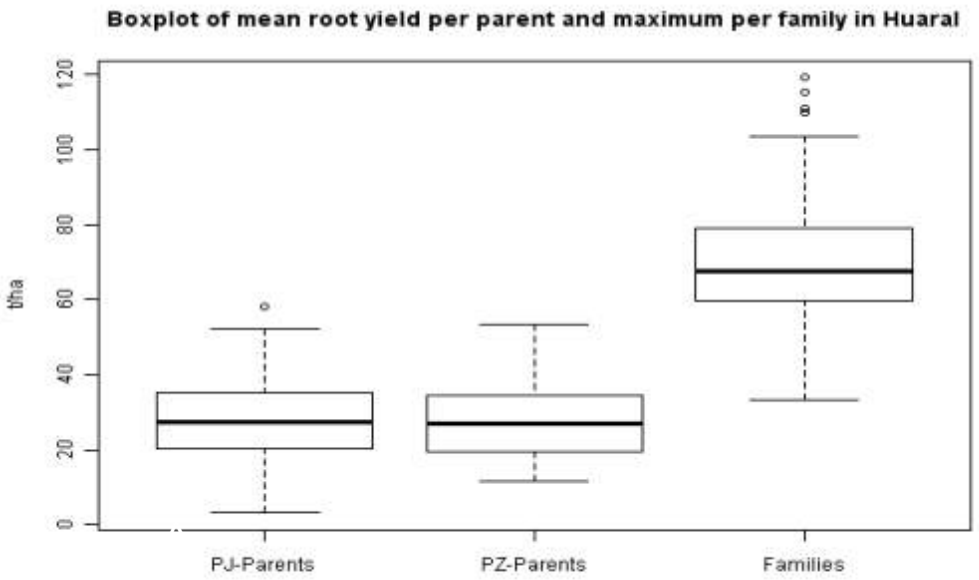


Fig. Planting Population PJ1 in 2005 in San Ramon

Heterosis in Sweetpotato



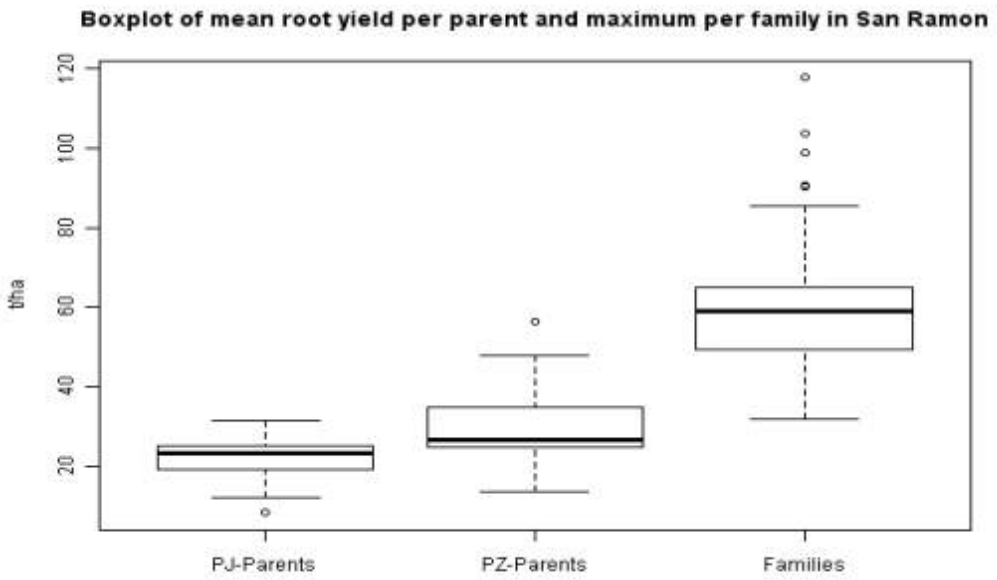


Fig. Best-offspring root yields (N = 231) and parental root yields (N_{PJ}=49, N_{PZ}=31) by location Huaral (A) and San Ramon (B).

Collaborative Progress to Date

- Crossing block established and workers trained – working on efficiency
- Germplasm imported and collected – CIP (IITA), USDA, SSP-SA and SSP-EA
- Accelerated Sweetpotato Breeding trials underway using CloneSelector
- Sites selected - targeting production areas and agroecologies

Collaborative Progress to Date

- Setting up NIRS lab
- Setting up screenhouse + germplasm management infrastructure
- Seed system research and training
  - Virus survey (breeding and epidemiology)
  - Clean seed research
  - Quarantine (training going on now)

Lessons Learned

- It's great to have a presence in W. Africa
- Pre-breeding for non-sweet and processing, but national program partners can keep options open for variety selection
- Simultaneous need to work on demand creation, seed systems, production systems

Thanks very much

Medaase