



CIP
INTERNATIONAL
POTATO CENTER



The OFSP Story: Key Lessons & Discussion for Ag-Nutrition Programming

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Ag2Nut Community of Practice Webinar
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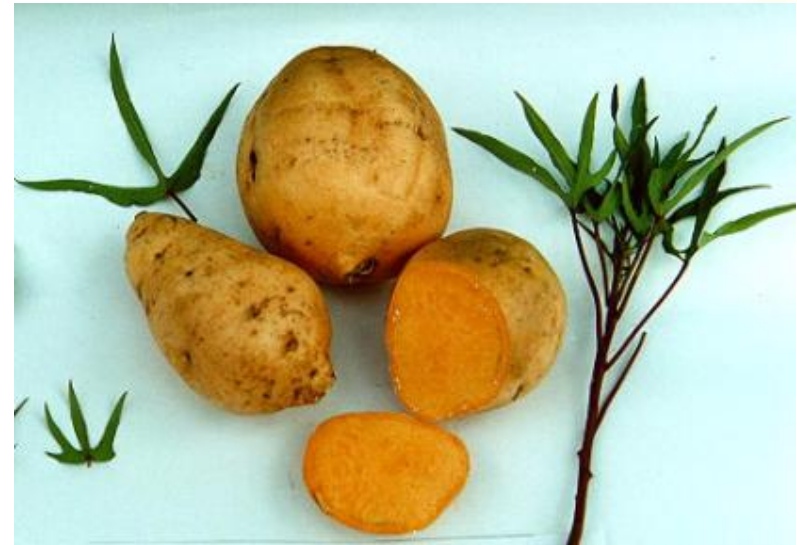
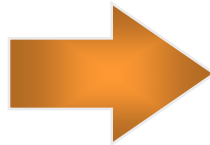
Outline



- Phases in OFSP Development
 - Jan Low
- Focus on testing of ag-nutrition-health model: “Mama SASHA”
 - Aimee Webb Girard
- Scaling up building on integrating ag-nutrition experience
 - Robert Ackatiah-Armah
- Discussion



Orange-fleshed Sweetpotato (OFSP): The Model for Biofortified Crops with a Visible Trait



- All types good sources of vitamins C, K, E and several B
- Most varieties in SSA white-fleshed: no beta-carotene
- 100 gms (one small root) meets daily vitamin A needs of a young child

✉ Earlier maturing

Phases of Development and Promotion Linked to Evolving Policy Environments in Agriculture and Nutrition



From left to right:
Jan Low,
Robert Mwanga,
Maria Andrade,
Howdy Bouis

*Low et al., Global Food
Security, 2017,
<https://doi.org/10.1016/j.gfs.2017.01.004>*

- **Phase 1: Recognition of the Potential (1991-2000)**
- **Phase 2: Building the Evidence Base (2001-2009)**
- **Phase 3: Going-to-Scale & More Evidence (2010-2017)**

Phase 1: Pilot Work with 20 Women's Groups in Western Kenya:



- Easy to incorporate OFSP-based weaning foods into young child diet & improve feeding frequency
- Nutrition education component essential
- Preferences differed
 - Children: low dry matter
 - Adults: high dry matter

CIP/KARI/CARE collaboration funded by International Center for Research on Women/OMNI/USAID (1995-1997)

Hagenimana et al., ICRW /OMNI Research Report No. 3, 1999

Phase 1: Actual Breeding Only Taking Place in Uganda & South Africa.. Emphasis on Selecting Best Bets from Imported Varieties



Robert Mwanga (2nd from right) with East & Central African breeders in 1994



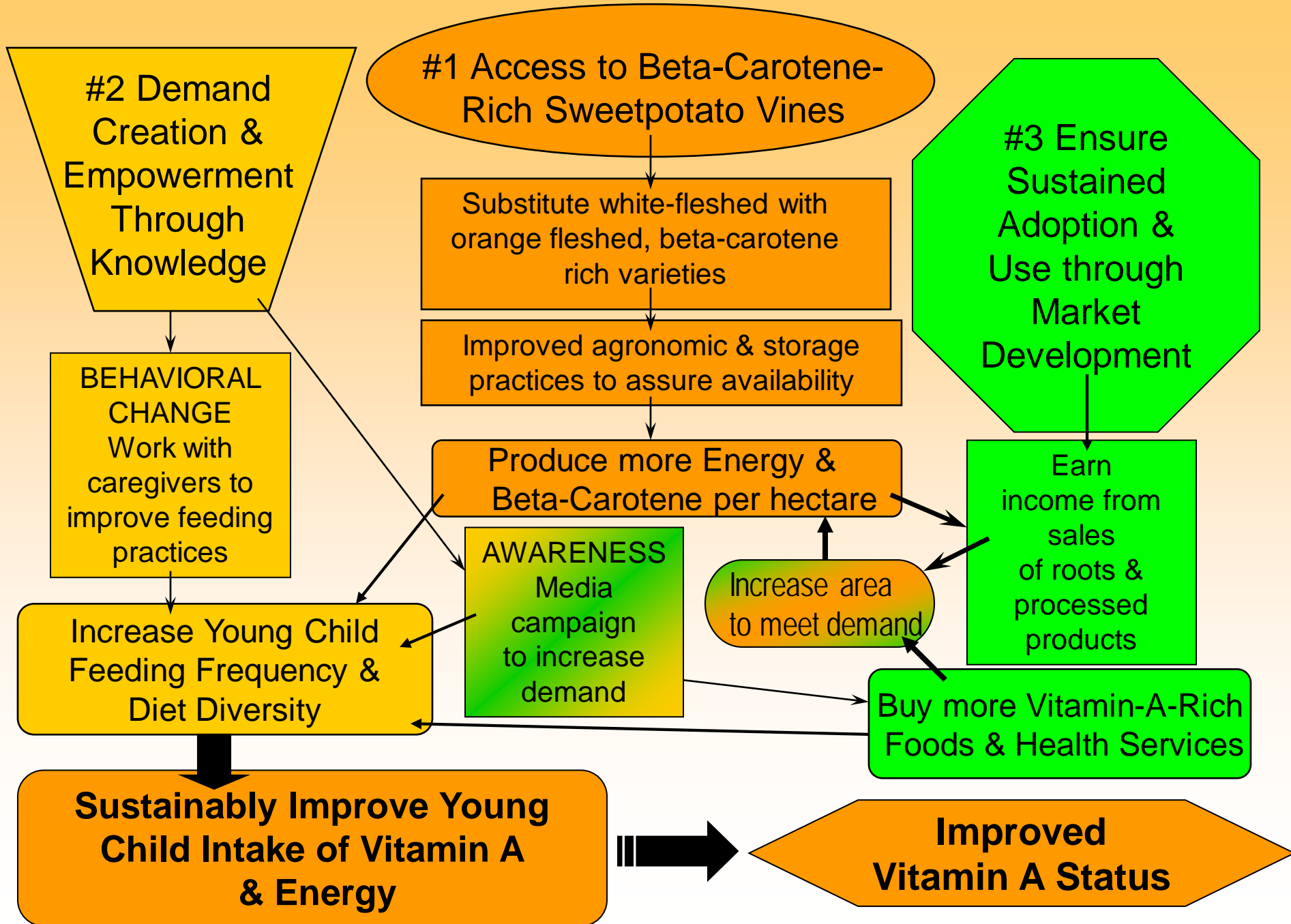
Top row: Maria Andrade (2nd left) & Jan Low (3rd left) at 1st Multi-sectoral Meeting in 1999

1997-1999
1st generation adaptation trials (68 clones)

April 1999
First multi-sectoral meeting when we talked about the potential of OFSP

July 1999
1st strategy to combat micro-nutrient deficiencies

INTEGRATED CONCEPTUAL FRAMEWORK



Phase 2: Evidence at the Community Level: Towards Sustainable Nutrition Improvement Study

- Median intake vitamin A almost 8 times higher (24 h recall)
- OFSP contributed 35% of vitamin A intake
- 15% decline in prevalence of vitamin A deficiency in under 5s



Zambezia Province
Central Mozambique (2002-2004)



Low et al., Journal of Nutrition 137: 1320-1327, 2007

Phase 2: Reaching End Users Project (2006-2009) in Uganda & Mozambique

How can we reach larger number of households cost effectively?

- Scaling to 24,000 households with integrated approach, testing 2 levels of intensity
- Randomized controlled trial – effectiveness study
- Improved vitamin A intakes young children & women
- 77% households adopted OFSP in Mozambique; 65% in Uganda
- Highly cost-effective:
 - \$15-20 per DALY saved

DALY: Disability Adjusted Life Years



Phase 3



SPHI is a multi-partner, multi-donor initiative that seeks to reduce child malnutrition and improve smallholder incomes in 10 million African families by 2020 through the effective production and expanded use of sweetpotato in 17 SSA countries

The Sweetpotato Action for Security and Health in Africa (**SASHA**) Project is a 10 year project among 26 partners 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 initiative.

Breeding in Africa for Africa

- Generate populations to meet needs of users
- "Accelerated" sweetpotato breeding approach to produce varieties in 3-4 years instead of 7-8 years
- By 2016, 42 OFSP varieties bred in Africa released



Making a controlled cross

The *Speed breeders* at a crossing block



Now 12 SSA countries are breeding

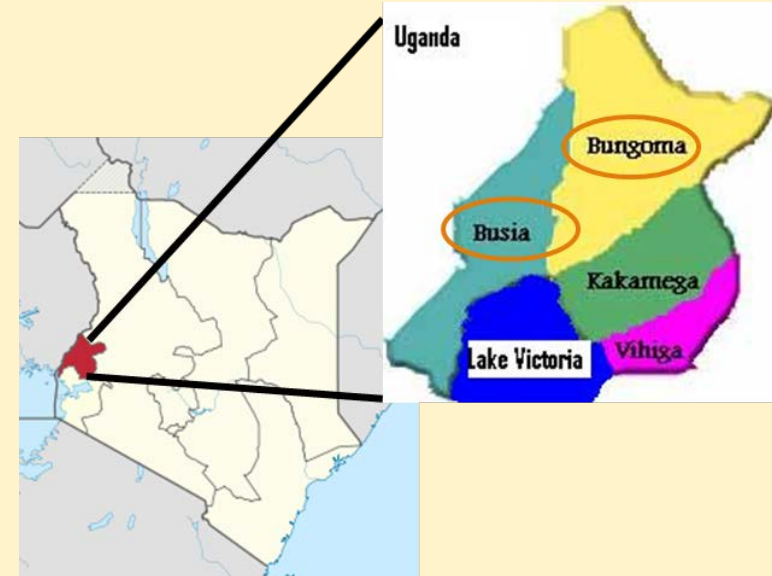


Mama SASHA

- Can linking vitamin A rich orange-fleshed sweetpotato (OFSP) access and nutritional training to existing health services improve the consumption of vitamin A rich foods and improve maternal and child nutrition?

5 year quasi-experimental proof of concept study linking nutrition, agriculture and health (2009-2014) in Bungoma and Busia counties, Western, Kenya

- Integrated Partnerships: International Potato Center (CIP) in collaboration with PATH (International Health NGO), Univ. of Toronto, Emory Univ., CREADIS & ARDAP (2 Local Agricultural NGOs), MoA & MoH



What's new? Focus on 1st 1000 days Integrated Health Component

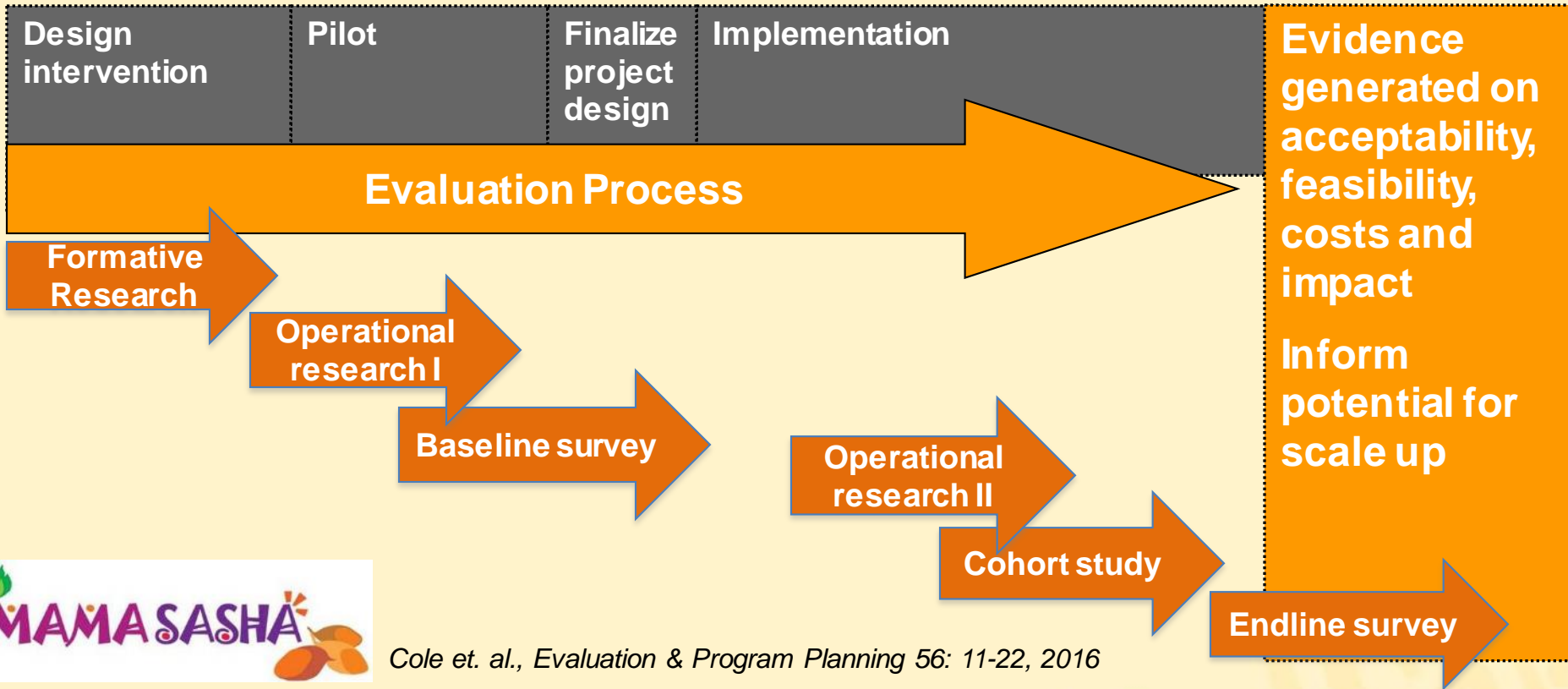


Timeline
2008

2010

2011 to 2013

2014



Cole et. al., Evaluation & Program Planning 56: 11-22, 2016

Key Components of the Intervention



1. COMMUNITY SENSITISATION



2. ANC CLINIC ATTENDANCE/
NUTRITIONAL COUNSELING



3. VOUCHER ISSUING AT
ANC CLINIC



6. AG EXTENSION ACTIVITIES



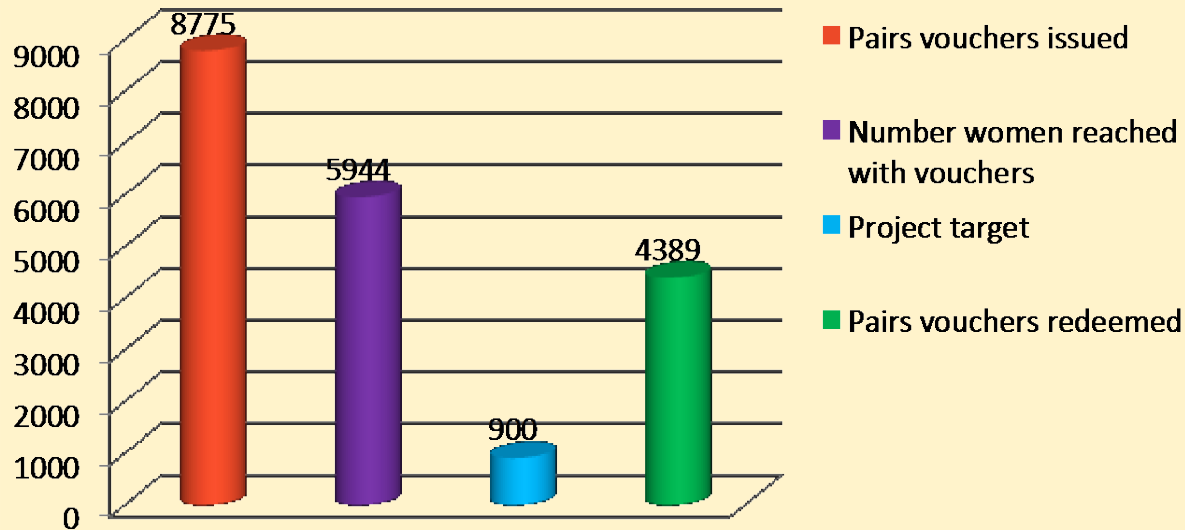
5. PREGNANT MOTHER'S CLUBS



4. VOUCHER REDEMPTION

Project Achievements and Reach: (March 2011 to August 2013*)

March 2011-August 2013



* Excludes pilot results



- Over 5,900 women reached
- 215 pregnant/lactating mother clubs formed
- 25,141 attendances
- Voucher issue and redemption

Findings among Women



Outcome	Effect
Nutrition and Health Knowledge	Positive in cohort; null in CS
OFSP production	Positive
Household diet diversity; food security	Positive
Maternal OFSP consumption / Consumption of VA rich foods	Positive
VA intakes / VA Adequacy*	Positive
MUAC*	Non-significant trend towards protection against declines
VA Status*	Reduced odds of low RBP at 9 mos postpartum
Anemia*	Reduced odds of anemia in 3 rd trimester

* Only assessed in cohort study

Webb Girard, A. Grant, F., Deneen, M*, Selassie HO, Wanjala R, Cole, D. Levin, C., Low, J. **Promotion of Orange-Fleshed Sweet Potato Increased Vitamin A Intakes and Reduced the Odds of Low Retinol-Binding Protein among Postpartum Kenyan Women.** [J Nutr.](#) 2017 May;147(5):955-963. doi: 10.3945/jn.116.236406. Epub 2017 Apr 12.

Results among children < 24m



Outcome	Effect
OFSP consumption / consumption of VA rich foods	Positive
Diet Diversity Scores	Positive in CS; Null in cohort
Meeting Minimum Meal Frequency	Positive
VA intakes*	Positive
Anthropometry	CS: Significantly reduced odds of stunting in 6-23 mos among full participants; null in cohort
Low RBP	CS: Significantly reduced odds of low RBP and significantly higher serum RBP among full participants; Null in cohort study
Anemia*	Null
Illness*	Null

What Factors Drive Participation?

Higher levels of participation correlated with

- Households with higher dependency ratios
- Having previous experience growing sweetpotato
- Living closer to the health facility
- Having a higher wealth index
- Being in the project when Community Health Workers were receiving 1000 Ksh/month (\$8) for travel support; this was cut mid-project to 500 Ksh/month by government and affected CHW moral



Multinomial logistic regression. Coefficients compare to NO Participation results.

The Essential CHWs..



“The efforts of CHWs to identify and mobilize beneficiaries were the indispensable ingredient to project success. In all sites, implementing agents lauded the CHWs’ efforts. Most beneficiaries attributed their decision to visit the health facility to receive ANC, pick the vouchers as well as pick and plant the vines to their efforts and support.

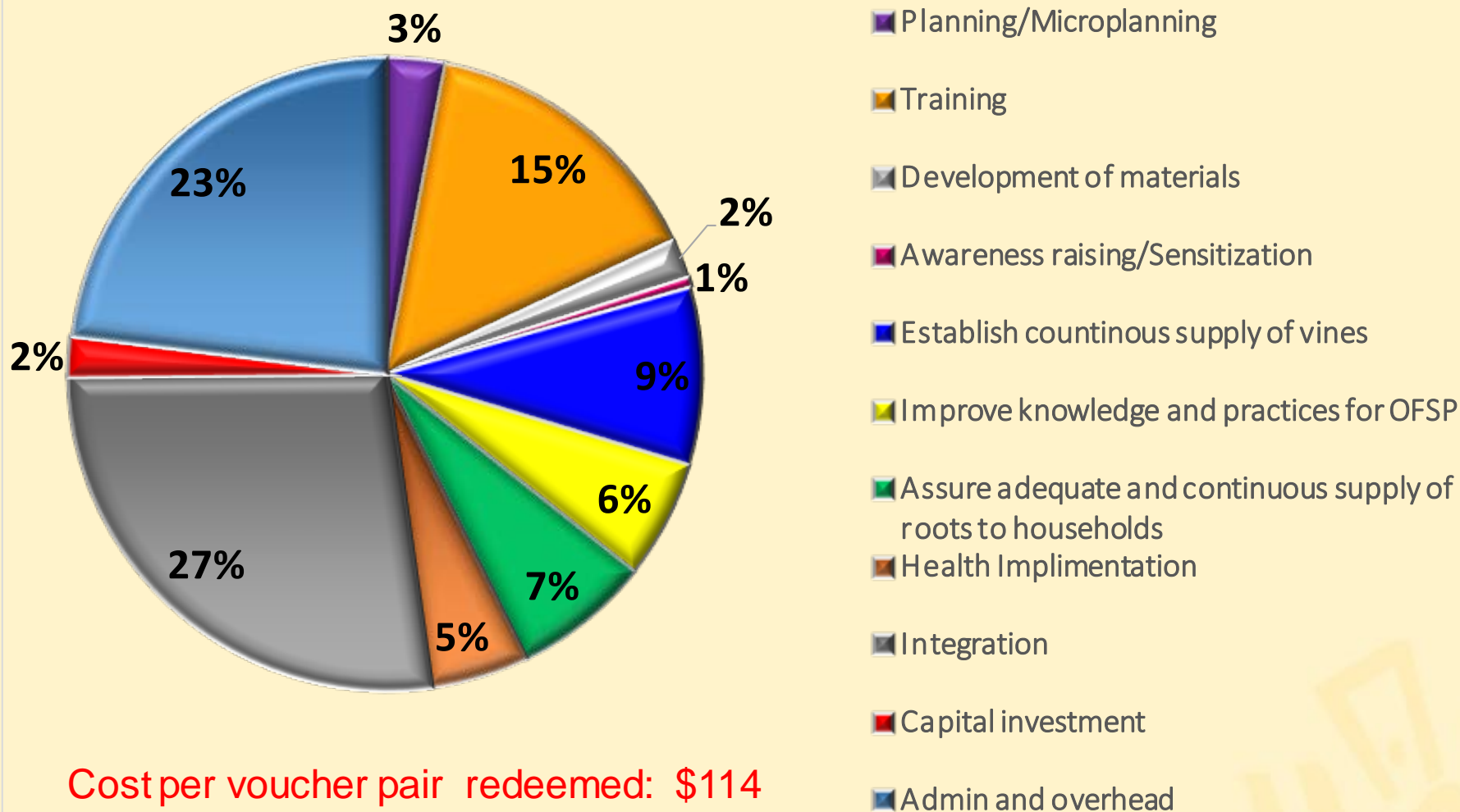
Many CHWs went beyond their call of duty to follow up the mothers to ensure that they followed through with the requirements of the project.”

- Mama SASHA Operational Research Report (Machira et al., 2013)

- Recruited pregnant women through home visits
- Ran pregnant women’s clubs
- Attended community events and other outreach events
- Attended monthly feedback meetings
- Some supported nurses at the health facility
- Some made several follow up home visits to beneficiaries
- Annually, they attended training refresher courses



Cost Profile by Activity



Scaling lessons across projects



- In scaling up lessons and approaches from MAMA SASHA, several CIP projects have adopted modified versions of MAMA SASHA
- These adjustments have been made to lower cost per beneficiary & reach a larger number of direct beneficiaries.
 - Beneficiary selection methods and voucher use
 - Adoption of counselling materials to local contexts
 - Active participation of men in nutrition programming
 - Value chain development (value addition and marketing)
- A multi-sector, multi-partner approach is necessary for the uptake and adoption of the MAMA SASHA Model



SUSTAIN and VISTA projects



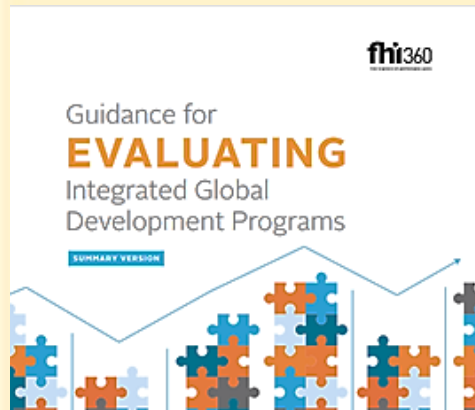
- SUSTAIN and VISTA projects are scaling modified models in 6 countries with the aim of reaching least 2 million rural households, as well as urban consumers



Continuous documentation & way forward



- Current evaluation of the best combinations for scaling up sweetpotato interventions into food systems through behavior change
- Six arm, randomized control trial of agriculture (seed systems) -nutrition(messaging & counselling) and market (fresh and transformed) interventions by Michigan State University (MSU) in Rwanda



- Rwanda endline led by MSU will be concluded mid 2018 to shed more information on lessons learnt from scaling up Ag-Nutrition- Market interventions
- Success of AG-NUTR-HEALTH-MARKETS interventions depend heavily integration with local systems, policy, advocacy and continuous support

As of September 2016, reached 2,895,382 households, 29% of the SPHI 2020 goal



The Challenge Ahead



- 7.2 million still to be reached.... Significant Advocacy
- Increasing efforts to reach burgeoning urban consumers—
emphasizing OFSP-based processed products & fresh roots
- Striving for critical mass of implementers
-- Increased knowledge & investment requisite



Nane & Kofi Annan
advocating in Ghana

**OFSP
Bread**



**Power
Biscuits**



**Training of trainers
manual on Everything
You Ever Wanted to
Know about
Sweetpotato –
published**
English, Portuguese,
Kiswahili & French

Check out: www.sweetpotatoknowledge.org



For Discussion



1. The need for community-level nutrition interventions seek to change behavior in groups, often using “volunteers”, has emerged as one of the keys to success. Getting women to *fully* participate at times can be difficult due to other pressing obligations. We have found that it is “easy” to get OFSP into the household diet, but to truly improve young child nutrition, caregivers need to fully participate in the different components. What are techniques you have used to ensure strong participation of caregivers in all components of an integrated ag-nutrition intervention?
2. Integrated Ag-Nutrition interventions have multiple benefits (agriculture, nutrition, knowledge/empowerment, income) but cost-effectiveness analysis and DALYs cannot capture many of the benefits that are hard to put a dollar value on. Thus, the cost per direct beneficiary (\$56-114 in our studies) appears high compared to other micronutrient interventions, such as supplementation, that have more limited outcomes. How can we reduce the cost without losing the effectiveness of the approach?