



Learning from Evaluations:

The HarvestPlus Orange-Fleshed Sweet
Potato Project in Mozambique and Uganda

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Overview



- The role of evaluations: learning what works and why
- Findings of evaluation of a project to disseminate provitamin-A-rich orange-fleshed sweet potatoes to reduce vitamin-A deficiency
- Implications for cost effectiveness and scaling up



- Impact evaluations based on field experiments are an essential learning tool in development economics and public health
 - evaluation design: To ‘randomize’ or not to randomize?
 - well designed evaluations can identify which program components are effective and why
- Evaluations are useful for studying agricultural interventions with explicit nutrition and health outcomes
 - can attribute causal impacts of agriculture interventions on health outcomes
 - generalizability can be an issue
 - show findings not driven mostly by local context
 - calls for multi-country studies or repeated experiments



• The HarvestPlus Orange-Fleshed Sweet Potato Project

- disseminate provitamin-A-rich orange-fleshed sweet potato (OFSP) as a strategy to increase vitamin A intakes and reduce vitamin A deficiency
- OFSP given to 24,000 households in Uganda and Mozambique from 2006 to 2009
- viability as nutrition intervention depends on crop adoption and diffusion
- \$450 million spent annually on vitamin A supplementation programs

Site Selection	Mozambique	Uganda
OFSP in the diet	secondary staple	primary staple
Vitamin A deficiency in children under 5	71%	28%





Project Components



Three-pronged OFSP intervention

- i. **seed systems:** disseminate OFSP vines, farmer trainings
 - ii. **demand creation:** trainings on nutrition benefits of consuming vitamin A
 - iii. **marketing:** including product development
- Varied project intensity to study cost effectiveness
 - **Model 1:** Intensive two-year intervention with vine distribution and trainings
 - **Model 2:** Less intensive
 - identical to Model 1 in year 1
 - little activity or costs in year 2
 - Differences in implementation
 - Mozambique: annual OFSP vine distributions
 - Uganda: one OFSP vine distribution in 2007



Evaluation Design



- Cluster randomized design; baseline and endline surveys
- Randomly assigned clusters to Model 1, Model 2, and Control
 - Mozambique: households in church groups (n=703)
 - Uganda: households in farmer groups (n=1594)
- Survey included several components (at least 2 rounds)
 - Socioeconomic Survey
 - Dietary Intake and Nutrition Survey
- In addition to outcomes presented here today, Impact Report (2010) assessed impact on
 - agricultural and nutrition knowledge retention
 - agricultural, nutrition and marketing practices
 - household consumption
 - child feeding practices



HarvestPlus OFSP Project Partners



- OFSP Project Implementation Partner Organizations
 - HarvestPlus: Lead
 - International Potato Center (CIP)
 - Natural Resources Institute (NRI) at University of Greenwich

Mozambique

- World Vision
- Helen Keller International (HKI)

Uganda

- CIP
- PRAPACE
- VEDCO
- FADEP

- OFSP Impact Report (July, 2010) coauthors
 - Alan de Brauw¹, Patrick Eozenou², Daniel O. Gilligan¹, Christine Hotz², Neha Kumar¹, Cornelia Loechl³, Scott McNiven⁴, J.V. Meenakshi², and Mourad Moursi²

¹International Food Policy Research Institute; ²HarvestPlus;

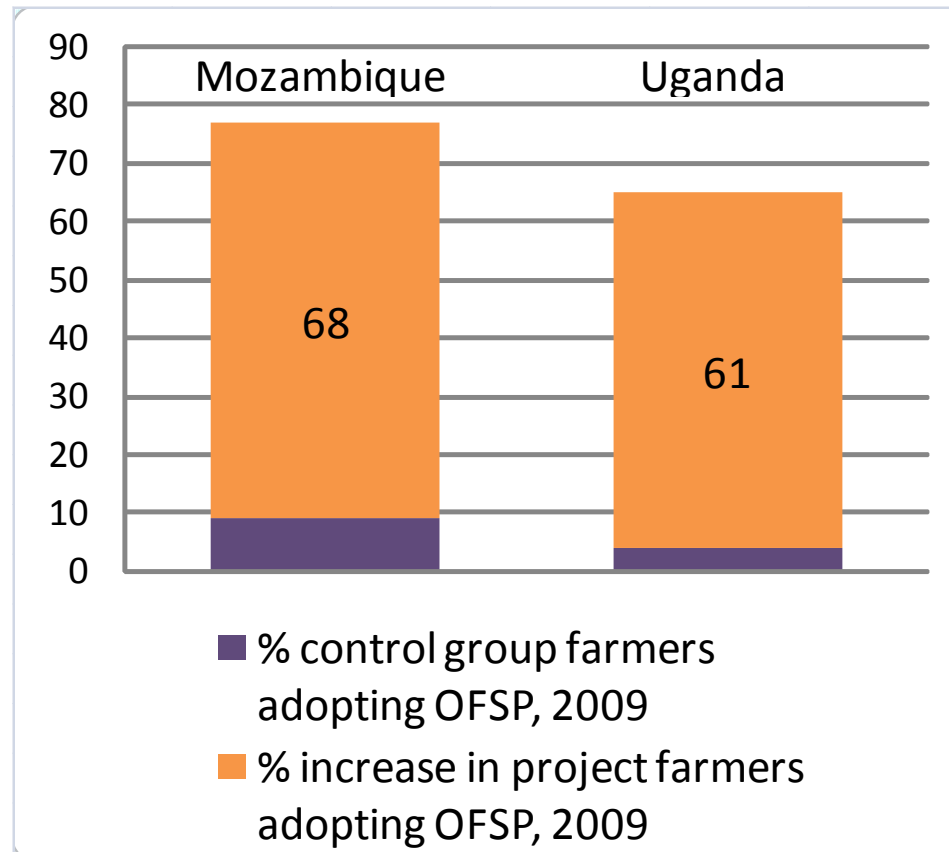
³International Potato Center; ⁴University of California, Davis.



Impact on OFSP Adoption



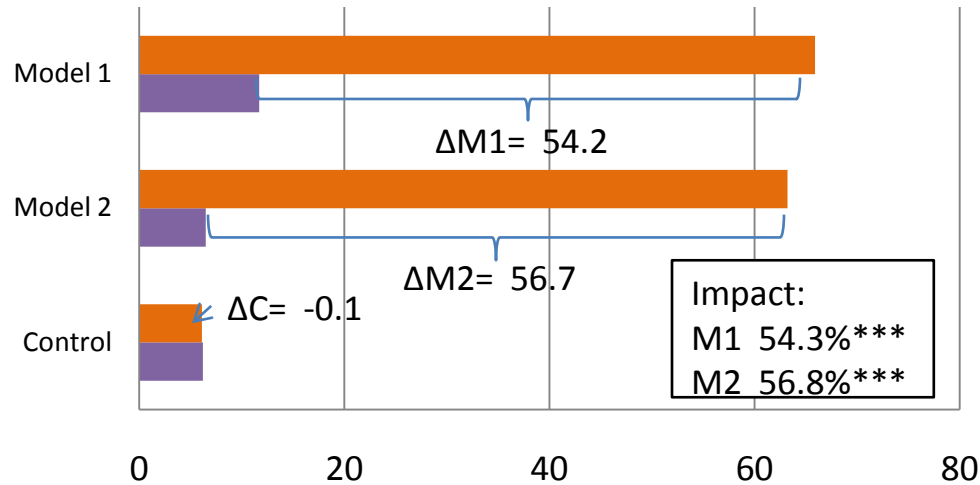
The project successfully promoted OFSP in Mozambique and Uganda



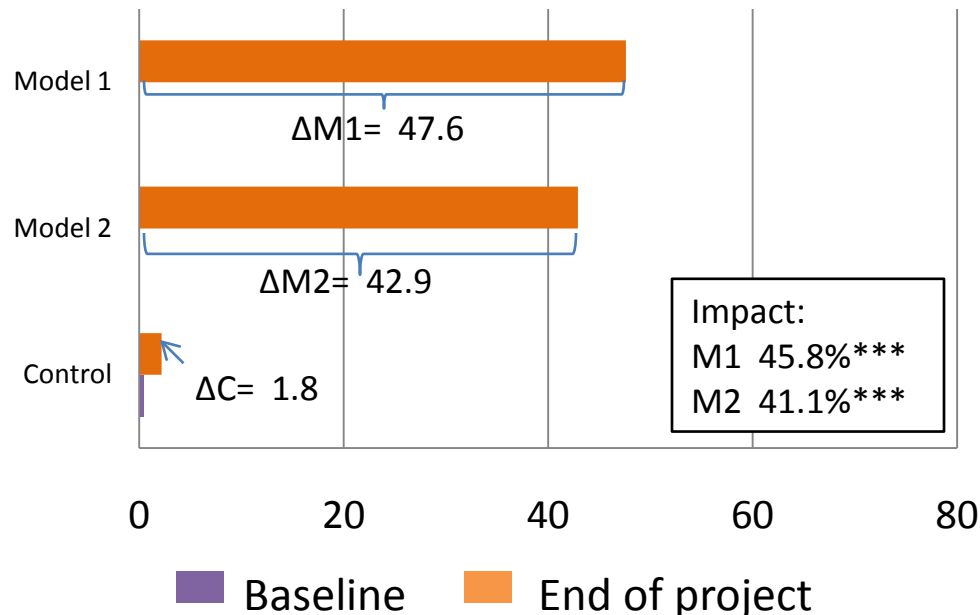
- Estimates are average impacts from Model 1 and Model 2. There was no statistically significant difference between Model 1 and Model 2 adoption rates in either country.

Share of OFSP in sweet potato area

Mozambique, 2006-2009



Uganda, 2007-2009

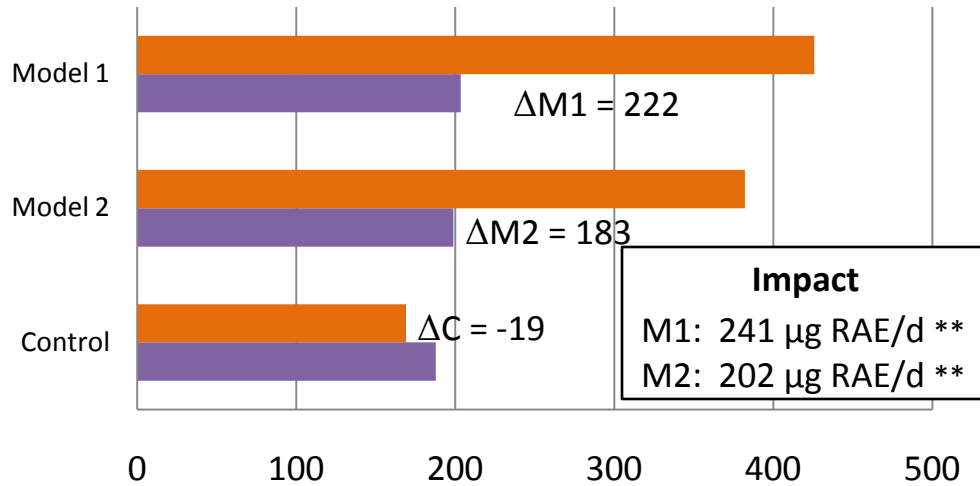


Impact on OFSP Land Area Cultivated

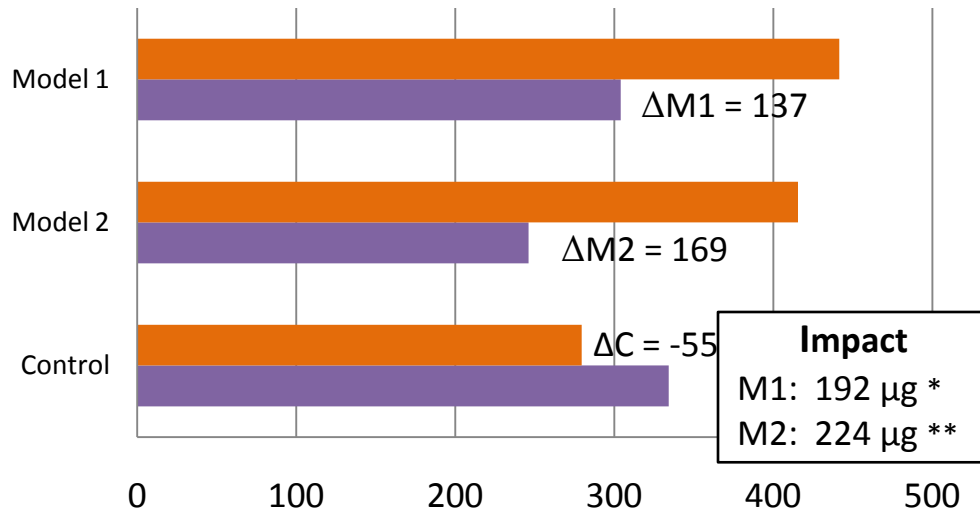
- Project increased share of OFSP in sweet potato area cultivated
 - by 54-57 percentage points in Mozambique
 - by 41-46 percentage points in Uganda
- Households substituted OFSP for white or yellow SP
 - limited area expansion
 - improves micronutrient quality of dietary staples

Impact on Vitamin A Intakes, Children Age 6-35 Months

Mozambique, 2006-2009



Uganda, 2007-2009



■ Baseline ■ End of project

- Project increased vitamin A intake of young children
 - by 202-241 µg RAE/day in Mozambique
 - by 192-224 µg RAE/day in Uganda
- **Large effect:** equivalent to child's daily requirements of vitamin A (210 µg RAE/day)
- Increased vitamin A intake due to OFSP
 - OFSP 78% of total vitamin A intake in Mozambique
 - OFSP 53% of total vitamin A intake in Uganda



Cost Effectiveness of OFSP Models



- Model 2 is much more cost effective than Model 1
 - No significant difference between Model 1 and Model 2 in OFSP adoption, nutrition knowledge, increase in vitamin A intakes
 - Model 2 was **cheaper to implement** by almost **one-third**
- Further cost savings from Model 2 are possible

Cost per Beneficiary	Mozambique		Uganda	
	Model 1	Model 2	Model 1	Model 2
Average Cost per Beneficiary				
Actual	97	65	82	48
With cost savings, broad diffusion	26	13	26	16
Marginal Cost per Beneficiary				
Actual	40	27	29	18
With cost savings, broad diffusion	8	5	10	6



Ongoing Research from OFSP Evaluation



- Role of risk aversion and gender differences in access to land on OFSP adoption
- Role of social networks in adoption and diffusion through access to OFSP and nutrition information
- Search for **‘Model 3’**
 - Plans to scale up with lighter integrated intervention, greater focus on crop diffusion

