Making a Difference with Orange-fleshed Sweetpotato-led Nutrition Interventions

Southern Africa Regional CAADP Nutrition Workshop
10 September 2013

Jan W. Low, Sweetpotato for Profit and Health Initiative Leader
International Potato Center - SSA
The Challenge

No one wakes up & says…
Hmmm I am feeling vitamin A deficient today….

125 grams of most OFSP varieties can supply the recommended daily allowance of vitamin A for children and non-lactating women.
Through exploiting its multiple roles in the food system, OFSP can make a difference.
Southern Africa has been at the forefront for developing the evidence base.

Efficacy study in South Africa

van Jaarsveld et al., AJCN 81, 1080-87, 2005.

Integrated Agriculture-Nutrition-Marketing in Zambézia, Province Mozambique


   Case of texture not color…

2) Phase II: Building the evidence base (2001-2009)
   - Efficacy study in South Africa
   - Towards sustainable nutrition improvement in Mozambique
   - Reaching end users (REU) in Uganda and Mozambique
   Clear published evidence of impact of using OFSP as part of an integrated approach leads to increased vitamin A intakes and status

3) Phase III: Addressing the bottlenecks to exploiting OFSP’s full potential (2009 to date)– SASHA project

4) Phase IV: Going-to-scale with adapted OFSP (2011 onwards)
INTEGRATED CONCEPTUAL FRAMEWORK

#1 Access to Beta-Carotene-Rich Sweetpotato Vines
- Substitute white-fleshed with orange fleshed, beta-carotene rich varieties
- Improved agronomic & storage practices to assure availability

#2 Demand Creation & Empowerment Through Knowledge
- BEHAVIORAL CHANGE
  Work with caregivers to improve feeding practices
- Increase Young Child Feeding Frequency & Diet Diversity

#3 Ensure Sustained Adoption & Use through Market Development
- Earn income from sales of roots & processed products
- Buy more Vitamin-A-Rich Foods & Health Services

Sustainably Improve Young Child Intake of Vitamin A & Energy

Improved Vitamin A Status
What is essential on the agricultural side?

1) Varieties that produce as well as the best local and taste good
2) Access to quality planting material – a challenge in drought prone areas
3) Better knowledge of disease (virus) & pest (weevil) management

Breeding in Africa for Africa

# of new OFSP since 2009
15 in Mozambique
5 in Malawi
3 in Zambia
2 in South Africa
7 in Angola
3 in Madagascar

Triple S Method

Storage in Sand & Sprouting
What kind of investments are needed on the nutrition side?

1) Investment in community-level nutrition education
   Repetition of consistent messages alongside demonstrations
   Group based sessions for a year sufficient for OFSP uptake & incorporation into the young child diet

2) Men matter--- don’t ignore them as they often control land access & also influence diet choices

3) Extension personnel need quality job aids

4) Sometimes can save costs by using existing farmer or social groups as an entry point
Essential messages to include in the nutrition component

OFSP has vitamin A. Vitamin A is good for your health.
  - Very easy to introduce if vitamin A known
  - Supporting messages on vitamin A role:
    - To fight common infections
    - To maintain normal vision

OFSP should not be promoted as a silver bullet; also include:
  1) Exclusive breastfeeding until 6 months
  2) Frequency of young child feeding
  3) Food combinations for young children
  4) Balanced diet and vitamin A rich foods

Trials for Improved Practices (TIPS) an effective approach for testing different practices with caregivers to determine which are likely to succeed at a group level.
Marketing component more complex

Awareness campaigns about health benefits, also help build market demand.

- Meaningful effort requires 3-5 years to build up surplus root supply and demand.

Lessons learned include:

1) Understand existing chains & relative prices
2) Health messages linked to the orange color is the demand pull for OFSP
3) Must understand preferences of distinct consumer sub-groups
4) Facilitate linking farmers to traders & traders to market opportunities
5) Train & treat retail traders as change agents
6) Include some larger producers from the outset to ensure consistent supply
To reach urban consumers, growing interest in OFSP processed products

1) Increased interest in diversified products from OFSP, esp. for urban consumers
2) Food processing can improve bioavailability by disrupting plant tissues, etc.
3) OFSP puree (boiled and mashed) more economically viable than OFSP flour
4) Challenge it to get products highly commercialized

Bread in Mozambique
Chips in Malawi
Power Biscuits in Rwanda
What are the OFSP processed products with the best nutritional value, cont.? 

Heat exposure during processing increases bioaccessibility by disrupting cell walls & breaking up the protein complexes in which β-carotene is embedded

Tumuhimbise et al. (2009) studied effect of traditional heat processing on in-vitro bioaccessibility of β-carotene among OFSP varieties in use in Uganda

- Bioaccessibility: raw < baking < boiling/steaming < deep frying
- RAE/100 gm fw: 194 224 330 302 472 for Kabode
  - Indicates that fat increases bioaccessibility

- Although heat processing reduces β-carotene retention, the loss in retention is compensated for by improved bioaccessibility because of the presence of fat.
- For young children, best product health wise, still would be mashed OFSP with a teaspoon of fat added and ideally a good protein source.
What about sweetpotato leaves?

1) Efforts in SSA focus on roots, not leaves, yet leaves are very nutritious & very popular in some African countries (Zambia, Sierra Leone)

2) Higher protein content of SP leaves (16% crude protein) compared to Napier grass (10% crude protein) appreciated by East African dairy industry

3) Leaves are moderate source of β-carotene (550 mcg/100 gm), rich source of lutein, higher levels of anthocyanins and phonolic acids that protect against diseases such as cancer, allergies, and cardiovascular disease.
Way Forward: Key recommendations for approaching rural households

1) Define which behaviors must be addressed.
2) **Target households** (i.e. both men and women)
3) Understand the cultural beliefs and practices around certain foods
4) **Behavior change messages should be clear, simple, and actionable**
5) Repeat behavior change messages frequently
6) Identify and promote the use of lowest cost fat source
7) **Raise awareness and create a supportive environment for change**
8) Focus on the skills that rural consumers need
9) Use pre-existing social networks
10) Involve structures within the community
11) **Build in an operations research component**
There are multiple ways to integrate OFSP into ag-nutrition-health efforts.

Pregnant women receive OFSP vouchers for vines from nurses at ante-natal care sessions.

Integrated with other vegetables in enhanced homestead gardens.
17 priority countries, 3 sub-regions

Now, 12 with activities under SPHI Umbrella >800,000 hhs by Dec 2013

Enhancing the Lives of 10 million African households by 2020
Thanks for your attention! Obrigada!

For more information, consult:
www.sweetpotatoknowledge.org

- 895 registered users as of June 2013 (add your own content!)
- 6,451 content items
- Visited by 35 different African countries