ORANGE-FLESHED SWEETPOTATO (OFSP) INVESTMENT GUIDE

RAC Reaching Agents of Change
Support Vitamin A Sweetpotato

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Why invest in OFSP? (1/4)

- **43 million children** under 5 yrs old are vitamin A deficient (VAD) in Sub-Saharan Africa
- Vitamin A deficiency results in:
  - reduced immunity to disease, higher rates of disease-related death
  - increased burdening of already stretched health care systems
  - the indirect cost of lost productivity and economic development
- Undernourished children are at high risk of impaired mental development, which affects a nation's productivity and growth
- Young children, and pregnant and lactating women are at particularly high risk of VAD due to their rapid growth

Why invest in OFSP? (2/4)

- OFSP is a high energy food with a very high beta-carotene content
- Beta-carotene is converted to vitamin A in our bodies
- OFSP can help prevent vitamin A deficiency
- 500m^2 of OFSP provides sufficient vitamin A for a family of 5
- OFSP can be enjoyed in many ways

Why invest in OFSP? (3/4)

- Vitamin A deficiency can be addressed in different and complementary ways

Vitamin A supplementation

Provision of vitamin A capsules twice a year to children under 5 increases child survival and reduces child mortality by ~24%

However:

- The benefits are short-term (2-3 months)
- It targets the under 5's but not the rest of the population
- Vitamin A supplementation (VAS) campaigns are largely donor dependent and may not be sustainable long-term

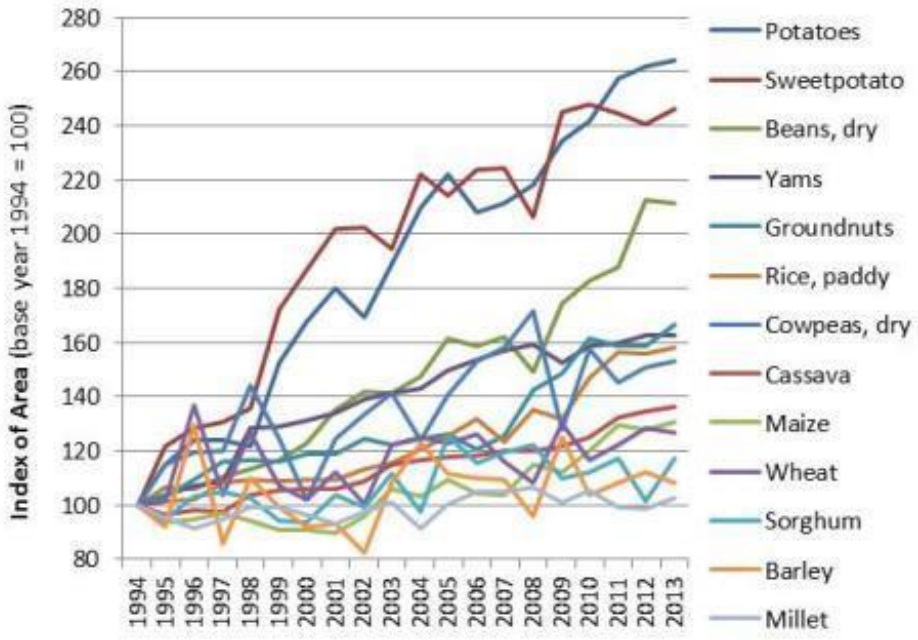
Why invest in OFSP? (4/4)

Sweetpotato …

- has always played an important role in saving people from famine
- produces more biomass and nutrients per ha than any other food crop
- is a low input, early maturing, flexible, low risk crop
- is grown mainly by women

Across SSA sweetpotato production is increasing

Rapid urbanisation is expected to lead to an increase in demand for fresh sweetpotato roots and the processed products



CAADP informed investment plans for reducing vitamin A deficiency (1/2)

- The importance of investing in agriculture for economic growth is recognised
  - Most countries have few other options for tackling mass rural poverty in the short to medium term
- BUT – longer term they are envisioning future economies based on complex service and industr economies
- Child malnutrition needs to be addressed now, otherwise the human resources for these econo transformations will be missing
- Agricultural investment and growth does NOT automatically reduce poverty, malnutrition and food insecurity
- Pro-poor nutrition-sensitive agricultural growth is needed
- OFSP promotion is an obvious win-win investment area

More food does not automatically mean better nutrition

Reducing vitamin A deficiency through CAADP informed investment plans (2/2)

I. Extending the area under sustainable land and water management

The area under sweetpotato is already rapidly increasing across SSA, due to its high productivity, low input and widespread suitability. Investments will ensure OFSP promotion includes:

- improved soil management (fertility and moisture capacity);
- crop rotation;
- use of drought tolerant, early maturing varieties;
- reduction of wasteful pre and postharvest losses;
- targeted irrigation for timely planting material production.

Competition for land may occur, but will reduce as OFSP health and income

II. Improving market access

Investments will promote:

- sustainable OFSP planting material multiplication and dissemination skills and supply chains;
- improved fresh root storage and transport to reduce gluts and losses and extend the market season;
- commercially attractive processed products for different market segments.
- household processing and storage for own consumption throughout the year as well as local marketing.

III. Increasing food supply and reducing hunger

Investments will promote:

- increased nutritional understanding among rural women who are easily accessed via agriculture;
- reduced hunger season through use of early maturing varieties;
- more diverse food supply and reduced asset depletion, through cultivation of high yielding OFSP varieties and agricultural production and processing training;
- low cost sustainable food-based approaches to addressing micronutrient deficiencies , e.g. VAD;
- incorporation of OFSP into dietary guidelines especially for infant and young child feeding;
- use of OFSP planting materials to rapidly revive agricultural production in post-emergency rehabilitation situations

IV. Improving agricultural innovation systems

Investments will promote:

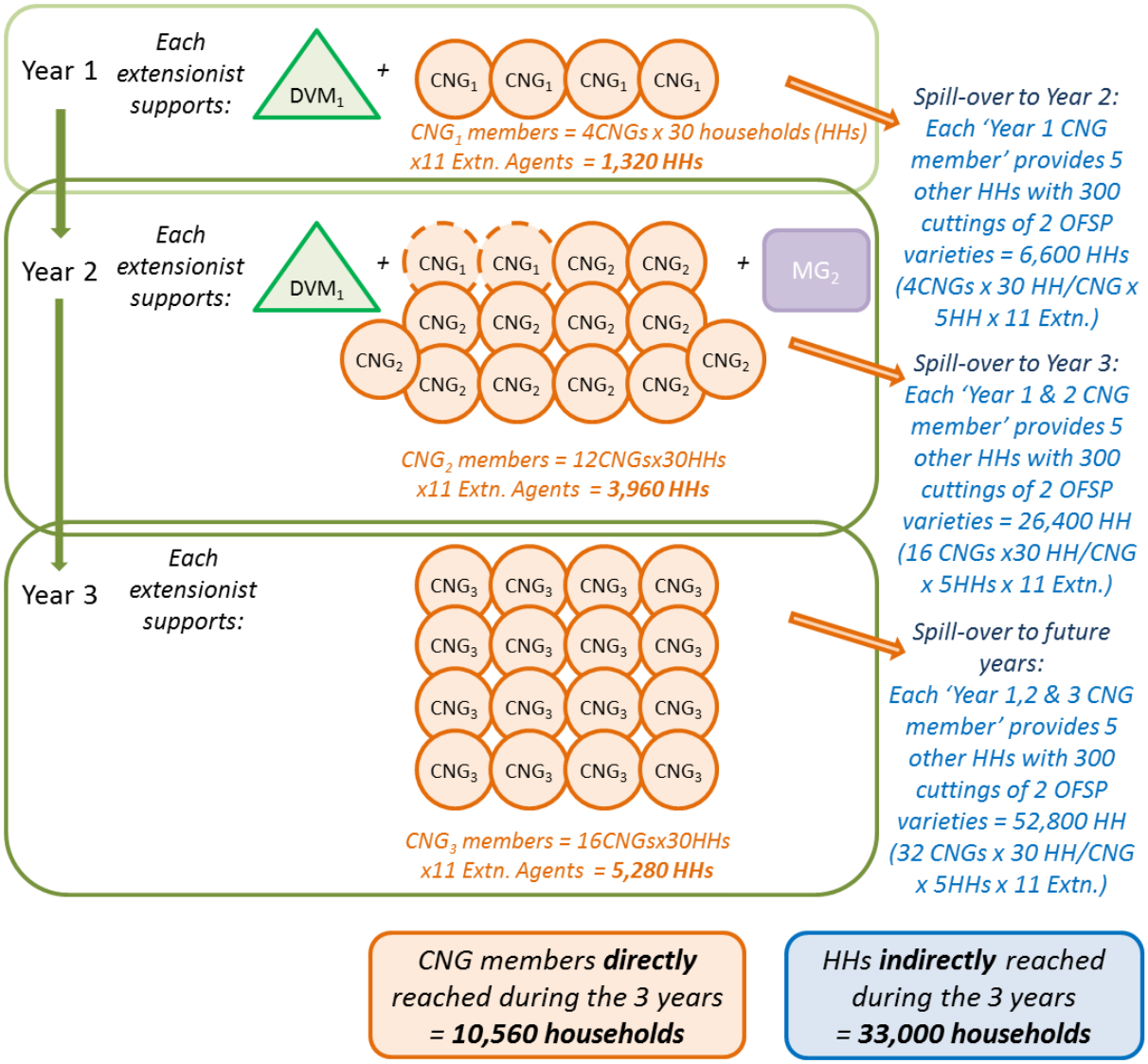
- strengthened agricultural innovation systems, whereby multi-sectoral stakeholders from government, private and donor communities have the relevant capacities and are committed to working together to reduce VAD amongst the focal communities by raising nutritional awareness, timely production and dissemination of clean OFSP planting materials, and increasing production and marketing skills among community members using cultural and gender sensitive approaches;
- more coordinated and effective public investments, with high level political support for reducing VAD and child malnutrition in order to boost long-term pro-poor agricultural and economic growth in their nation;
- strengthened research and extension capacity for improving availability of nutrient dense crops.

Decision points along the OFSP value chain (1/1)

Decision points along the OFSP value chain	Description of current situation	Example
Current interventions to address VAD	No or limited vitamin A fortification of sugar, oil, or flour	
	Vitamin A capsule coverage of >60% of under 5 year olds	X
	Widespread long-term promotion of food-based approaches to addressing VAD (including high dietary diversity index scores), plus vitamin A capsules for under 5 year olds	
Availability of OFSP varieties	No OFSP varieties available	
	<3 OFSP varieties available	
	≥3 OFSP varieties available	X
Technical capacity to implement an OFSP programme	0 field staff familiar with key OFSP topics	
	<50 field staff familiar with key OFSP topics; programme leaders not familiar with multi-sectoral approach	X
	> 50 extensionists or NGO field staff highly familiar with OFSP and vitamin A, clean planting material production, processing, farmer training, and multi-sectoral approaches	
Sources of clean OFSP seed/ planting materials	No disease-free or "clean" OFSP planting materials available	
	Trained vine multipliers who understand how to produce healthy looking planting materials	X
	Tissue cultured plantlets of ≥2 OFSP varieties & protected basic planting material in screen houses	
Multiplication of OFSP planting materials	No trained OFSP vine multipliers	
	1-200 trained decentralised vine multipliers	X
	>200 trained decentralised vine multipliers	

OFSP value chain investment program overview (1/2)

- Directly reaching 10,500 households with practical training on sweetpotato crop production and utilisation and OFSP planting materials, and indirectly reaching a further 33,000 households within a 3 year timeframe



CNG members **directly** reached during the 3 years = **10,560 households**

HHs **indirectly** reached during the 3 years = **33,000 households**

OFSP value chain investment program overview (2/2)

Summary of the resources required for a 3 year OFSP investment programme reaching 43,500 households

OFSP INVESTMENT PROGRAM BUDGET SUMMARY	Year 1	Year 2	Year 3	TOTAL BUDGET (USD$)
SALARIES - across activities	108,840	114,786	120,525	344,151
COMMON EXPENSES - across activities	31,650	26,710	27,286	85,645
EQUIPMENT - across activities	189,900	-	-	189,900
ACTIVITY COSTS (total for all activities)	370,612	383,273	403,519	1,157,404
Act 1. Understanding the role of sweetpotato in the food system	*15,000*	-	-	*15,000*
Act 2. Availability and acceptability of OFSP varieties	*35,740*	*53,848*	*36,280*	*125,868*
Act 3. Strengthening the capacity of OFSP service providers	*68,390*	*4,017*	*4,139*	*76,546*
Act 4. OFSP vine conservation, multiplication and dissemination	*59,998*	*161,330*	*193,851*	*415,179*
Act 5. Improving sweetpotato production and postharvest management	*3,586*	*10,758*	*14,344*	*28,688*
Act 6. Promoting OFSP to improve health and wealth	*44,398*	*14,100*	*5,070*	*63,568*
Act 7. Nutrition education for behavioural change at community level	*12,420*	*28,260*	*31,680*	*72,360*
Act 8. Strengthening OFSP marketing	*18,460*	*27,840*	*5,940*	*52,240*
Act 9. Processing OFSP	*1,080*	*20,480*	*1,000*	*22,560*
Act 10. Enhancing multi-sectoral collaboration	*2,400*	*600*	*1,800*	*4,800*
Act 11. Monitoring, measuring and sharing the impact of your investment	*109,140*	*62,040*	*109,415*	*280,595*
Sub-total	**701,002**	**524,769**	**551,330**	**1,777,100**
OVERHEADS	70,100	52,477	55,133	177,710
GRAND TOTAL BUDGET	**771,102**	**577,245**	**606,463**	**1,954,810**

An investment of:
USD$45 per beneficiary household (direct and indirect), or
USD$185 per direct beneficiary household.

1. Understanding the role of sweetpotato in the food system

- To plan strategic investments it is necessary to understand the current role of sweetpotato in the focal food system:
  - Sweetpotato consumption and marketing
  - Trends affecting sweetpotato
  - Sweetpotato calendar
  - Main constraints to production, consumption and marketing of sweetpotato
  - Roles and responsibilities within the sweetpotato value chain
  - Nutritional behaviour and awareness
  - Other relevant initiatives




RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	**Total (USD$)**
Sweetpotato in the food system - 2 week situation analysis	15,000	0	0	**15,000**

2. Availability of OFSP varieties

- Breeding a new sweetpotato variety is complex and expensive, shortcuts exist by importing clean planting materials from neighbouring countries

- Some of the OFSP varieties now available in SSA countries

Country	Released OFSP varieties
Mozambique	Tio Joe, Namanga, Bela, Lourdes, Ininda, Irene, Cecilia, Erica, Delvia, Melinda, Amelia, Sumaia, Esther, Jane, Gloria
Tanzania	Mataya, Kiegea, Ejumula
Nigeria	King J (Umuspo/1) and Mother's Delight (Umuspo/3)
Ghana	Bokye, CRI-Apomuden
Burkina Faso	Tiebele, Bagre, Jewel, BF138, BF139 *(registered in 2014)*
Malawi	Zondeni, Ana Akwanire, Kadyaubwerere, Mathuthu, Kaphulira, Chipika
Uganda	SPK004 (Kakamega), Ejumula, NASPOT 8, Vita (NASPOT 9 O), Kabode (NASPOT 10 O), NASPOT 12 O, NASPOT 13 O
Kenya	KENSPOT-3, KENSPOT-4, KENSPOT-5, SPK004 (Kakamega), Kabode (NASPOT 10 O), Vita (NASPOT 10 O)
Rwanda	97-062 (Gihingamukungu), SPKOO4 (Kakamega), Caceapedo, RW11-2560, RW11-4923 and RW11-2910 (Ndamirabana)

RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	Total (USD$)
Importation of OFSP varieties*	2,650	0	0	**2,650**
Tissue culture plantlets and support	8,040	27,608	0	**35,648**
Demonstration trials	19,150	14,975	15,600	**49,725**
OFSP variety promotion field days and hand-outs	5,900	11,265	20,680	**37,845**
TOTAL	***35,740***	***53,848***	***36,280***	**125,868**

3. Strengthening the capacity of OFSP agents of change

- In 2012, the Reaching Agents of Change (RAC) project supported the development of a 10 day hands-on learning course and manual to build the capacity of extension and NGO personnel in '*Everything you ever wanted to know about sweetpotato*'
- To date 224 OFSP 'change agents' have been trained through this ToT course at centres in Nigeria, Mozambique and Tanzania, and they have trained 4,000 others
- OFSP investors should select two enthusiastic staff to participate in the ToT, these trainers can then train the field offers on all aspects of OFSP enterprise

RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	**Total (USD$)**
Sponsor 2 staff to attend '*Everything you ever wanted to know about sweetpotato*' ToT training	8,000	0	0	***8,000***
12 '*Everything you ever wanted to know about sweetpotato*' manuals	840	0	0	***840***
Preparation and production of counselling cards and job cards	43,800	0	0	***43,800***
Training of 12 field officers, plus refresher training	13,000	4,017	4,139	***21,156***
Community leader sensitisations & trainings in 11 communities	2,750	0	0	***2,750***
TOTAL	***68,390***	***4,017***	***4,139***	**76,456**

4. OFSP vine conservation, multiplication & dissemination

- Selecting healthy planting materials
  - Viruses severely reduce yields
- Conserving planting materials through the dry season
  - Dry season conservation of vines – near moisture or shade
  - Triple S root preservation – Storage, Sand, Sprouting
  - Dry season irrigation of vines
- Rapid multiplication of planting materials
- Large-scale planting material dissemination approaches (single shot vs on-going access)
- Centralised or decentralised vine multiplication (DVMs)
  - DVMs are able to continue to produce clean planting materials after the project
- Advanced planning for timely production of planting materials
  - To build up sufficient quantities of planting materials of new varieties at least 7 months is required

4. OFSP vine conservation, multiplication & dissemination

RESOURCE REQUIREMENTS

The following costs are based on directly reaching 10,500 households with 300 cuttings of two OFSP varieties, and indirectly reaching a further 33,000 households using DVMs within 3 years

Activity	*Year 1*	*Year 2*	*Year 3*	***Total (USD$)***
If required, partner identification for dissemination (travel costs)	3,000	0	0	**3,000**
Identification of, contracting of and training of DVMs	2,000	9,000	6,600	**17,600**
Provide & install irrigation equipment for DVMs (50% cost share)	1,000	4,500	0	**5,500**
Procure & establish 4 net tunnels, signs, labels & string per DVM	4,800	3,800	2,250	**10,850**
Train 4 QDPM inspection agents, & 2 inspection visits/yr/DVM	3,440	3,520	3,520	**10,480**
Transport of vines from 1^{ry} site to DVM & 6 monitoring visits	680	3,540	2,640	**6,860**
Community Group Promoters (CGP) identify & group formation	11,220	33,660	44,880	**89,760**
Establish demonstration sites at CGP farms	8,800	26,400	35,200	**70,400**
Dissemination day to Community Nutrition Group Members	5,940	18,216	24,816	**48,972**
Dissemination day to Marketing Group Members and data entry	780	3,350	300	**4,430**
1 training visit to CNG and MG on Quality Planting Material, Virus detection, Weevil management and Planting	1,840	5,720	7,480	**15,040**
2 training visits to CNG on Vine conservation, Triple S(incl. 2 basins/gp & brochure for those in semi-arid areas)	4,178	12,664	16,885	**33,727**
Vine sharing & promotion day to wider community	11,000	33,000	44,000	**88,000**
Certificates for CNG and MG completing sweetpotato training	1,320	3,960	5,280	**10,560**
TOTAL	***59,998***	***161,330***	***193,851***	**415,179**

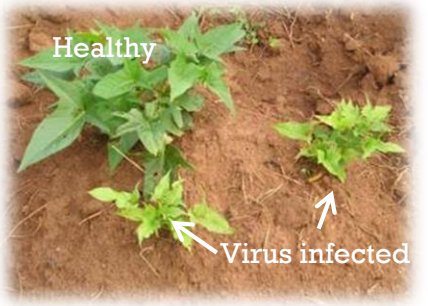
5. Improving sweetpotato production and postharvest management

Trained field agents will train farmers at relevant times throughout the year on:

- Conserving and multiplying healthy vines
- Land preparation
- Planting
- Intercropping
- Weeding and hilling up
- Virus management
- Weevil management
- Harvesting
- Storage of fresh sweetpotato
- Storage of dried sweetpotato





RESOURCE REQUIREMENTS

Activity	*Year 1*	*Year 2*	*Year 3*	***Total (USD$)***
2 training visits to CNG demonstrating in-ground skin toughening, careful harvesting & fresh root storage, plus poster	3,586	10,758	14,344	**28,688**

6. Promoting OFSP to improve health and wealth

Why

- Consuming OFSP can reduce vitamin A deficiency (43 million under 5's in SSA are VAD)
- Nutritional awareness is a public good

How

- Use existing nutritional knowledge,
- Create awareness about importance of vitamin A,
- Develop behavioural change strategies for different groups

RESOURCE REQUIREMENTS

Activity	*Year 1*	*Year 2*	*Year 3*	***Total (USD$)***
Radio programs design & translation for advertising dissemination days	1,200	3,300	3,300	**7,800**
Design & production of banners and extensionists t-shirt	1,298	1,000	770	**3,068**
Painting & decorating vehicles and motorcycles	5,900	0	0	**5,900**
Painting and decorating market stalls	0	8,800	0	**8,800**
Attending 2 agricultural fairs or other promotion events/yr	1,000	1,000	1,000	**3,000**
Producing promotional cloth (*kitenge, capulanas*) to sell at cost	35,000	0	0	**35,000**
TOTAL	***44,398***	***14,100***	***5,070***	**63,568**

7. Nutrition education for behavioural change

- Economic growth and human development require well-nourished populations
- 35% of African children under 5 yrs. old are chronically malnourished & stunted
- There is a need to create awareness about:
  - the importance of a **diverse and balanced diet** and the different food groups
  - the **importance of vitamin A**
  - the **high vitamin A content in orange-fleshed sweetpotato**, pawpaw, mango, carrots, spinach, liver, egg yolks, milk
- There is a need to enable nutritional behavioural change:
  - improving **young child feeding practices**
  - **diversifying the overall diet** at the household level
  - improving **marketing chains** for OFSP roots, leaves a products

RESOURCE REQUIREMENTS

Activity	*Year 1*	*Year 2*	*Year 3*	***Total (USD$)***
Local nurses working on mother & child nutrition– 1 day w/ shop	4,500	4,500	0	**9,000**
Community nutrition group training on vitamin A rich foods – ½d	1,760	5,280	7,040	**14,080**
CNG training on balanced diets and diet diversification – ½day	1,760	5,280	7,040	**14,080**
CNG training on nutrition during pregnancy, breastfeeding and young child feeding principles – ½day	1,760	5,280	7,040	**14,080**
CNG training on young child feeding including cooking demo–½d	2,640	7,920	10,560	**21,120**
TOTAL	***12,420***	***28,260***	***31,680***	**72,360**

8. Strengthening OFSP marketing

- Analysis of the sweetpotato value chain will identify the weak links and opportunities for strengthening them.

- Marketing activities could include:
  - market assessment;
  - root price monitoring;
  - trader identification and OFSP training;
  - formation of OFSP farmer marketing groups and training on business skills and negotiations, OFSP crop management, OFSP postharvest handling;
  - OFSP promotional events.

RESOURCE REQUIREMENTS

Activity	*Year 1*	*Year 2*	*Year 3*	***Total (USD$)***
Rapid market assessment – value chain functioning	5,000	0	0	**5,000**
Price monitoring (weekly)	220	220	220	**660**
Training of extension staff on market assessment findings	9,000	0	0	**12,000**
Identification of traders (wholesale & retail) & training	720	6,480	0	**7,200**
Market group (MG) formation – 3 visits	240	1,080	0	**1,320**
MG training	640	2,880	0	**3,520**
2 joint MG negotiations with traders (pre & post training)	2,000	9,900	0	**11,900**
MG promotion materials & events, including radio adverts	400	6,200	4,400	**11,000**
Supervisory visits	240	1,080	1,320	**2,640**
TOTAL	***18,460***	***27,840***	***5,940***	**52,240**

9. Processing OFSP

OFSP Golden Power Biscuits

– USD$342,000

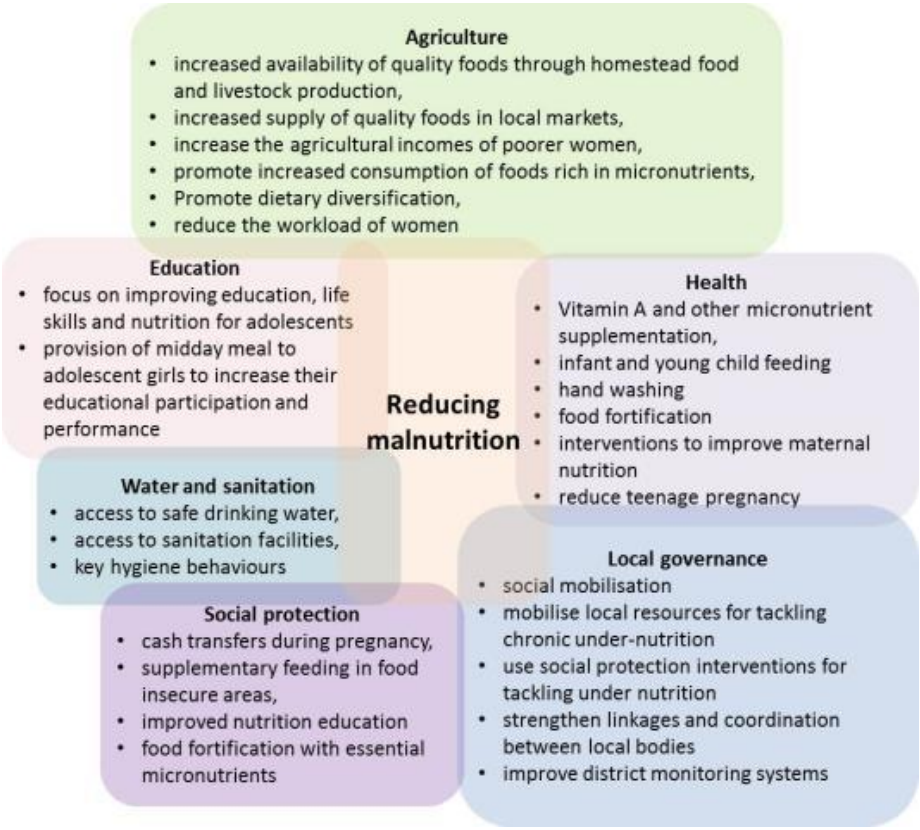
of sales from one factory in 2 years

RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	**Total (USD$)**
Identify 3-5 local mandazi/ snack makers, 1 day training on substituting wheat flour with OFSP, promotional signs & aprons	1,080	4,380	0	**5,460**
Identify 1 medium-size bakery interested in using OFSP, TA on products refinement & packaging, subsidise puree processing equipment	0	12,300	0	**12,300**
Consumer study to assess product acceptability	0	2,000	0	**2,000**
Nutritional analysis of products	0	800	0	**800**
Promotional materials and events	0	1,000	1,000	**2,000**
TOTAL	***1,080***	***20,480***	***1,000***	**22,560**

10. Enhancing multi-sectoral collaboration

- Malnutrition is a complex and multifaceted problem, suggesting that a single organisation cannot solve it
- Political commitment increases the success of multi-sectoral actions
- Such collaboration cannot happen after a one-off workshop,
  - shared understanding, vision, strategy, personal relationships and trust take time to build
- Multi-sector plans can often be very broad and propose too many measures and actions in each sector
  - leading to problems with downstream implementation
- Strategic entry points should be identified and prioritised in each sector

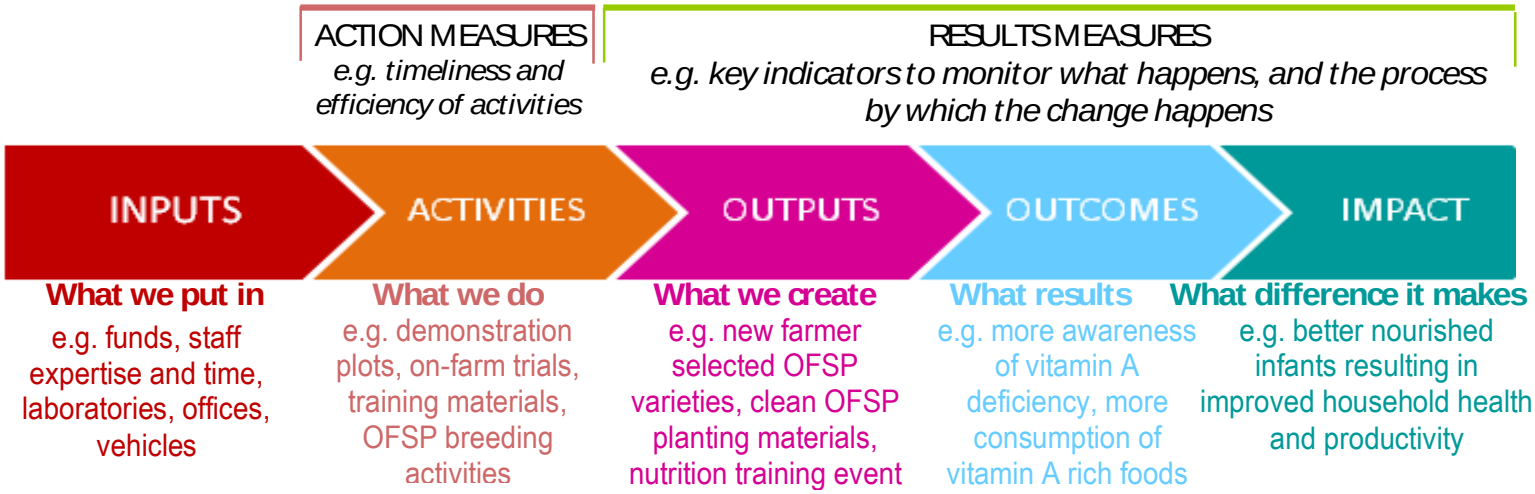


RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	**Total (USD$)**
Planning/ sharing meeting (12 pers. x 3 days)	1,800	0	0	**1,800**
Implementation activities and visits	600	600	600	**1,800**
Lesson learning/ refining workshop (12 pers. x 2 days)	0	0	1,200	**1,200**
TOTAL	***2,400***	***600***	***1,800***	**4,800**

11. Monitoring, measuring and sharing the impact of your investment

- Are your OFSP investments are making a difference and to whom, in what ways, at what scale, and over what timeframe?



RESOURCE REQUIREMENTS

Activity	Year 1	Year 2	Year 3	**Total (USD$)**
Technical assistance and workshop to develop impact pathway and design M&E system with team	13,600	0	0	**13,600**
Training of partners in M&E systems	3,500	0	0	**3,500**
Fuel and per diem costs for manager and monitoring officer	20,640	20,640	20,640	**61,920**
Baseline study	30,000	0	0	**30,000**
Monthly staff review meetings & refresh training (2d/m 15 pers.)	32,400	32,400	32,400	**97,200**
Mid-term gender review & stakeholder meetings at district level	0	8,000	0	**8,000**
End line study	0	0	35,000	**35,000**
Technical support in M&E study analysis and write-up	9,000	0	9,375	**18,375**
Stakeholder dissemination meetings (at national & district level)	0	0	10,000	**10,000**
Best practice briefs	0	1,000	2,000	**3,000**
TOTAL	***109,140***	***62,040***	***109,415***	**280,595**

OFSP value chain investment program overview

Summary of the resources required for a 3 year OFSP investment programme reaching 43,500 households

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