

Jumpstarting Orange-fleshed Sweetpotato in West Africa through Diversified Markets

April 2014 to March 2017

We used various markets as entry points for developing value chains for orange-fleshed sweetpotato (OFSP) at pilot sites in Ghana, Nigeria and Burkina Faso. By the end of the project, farmers in each area were profitably growing increasing amounts of OFSP for market and home consumption, and viable seed businesses linked to national breeding programs were serving these farmers and other customers including private producers, NGOs and government extension programs.

- In Ghana, opportunities for local and urban markets for fresh and processed products (particularly bread, where OFSP purée partially substitutes wheat flour) were created and promoted, and many rural women and their families benefited through the nutrition counseling program of the Ghana Health Service, improving their awareness of vitamin A-rich foods including OFSP, and providing them with access to OFSP vines and roots.
- In Nigeria, the school feeding program of Osun State successfully included OFSP on the weekly menu in 186 schools, serving 41,000 children, and plan to expand to over 1,000 schools in the coming year.
- In Burkina Faso, OFSP was promoted and successfully introduced to existing wholesale market chains for white-fleshed sweetpotato.
- More than 117,000 households benefitted from the project.

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Fig. 1 Booming market for OFSP in Tamale, Ghana (credit Adam (Tolon District Department of Agriculture))

What was the problem?

Micronutrient deficiency is a serious public health problem in many developing countries, but unlike wasting, it is often difficult to recognize and thus referred to as Hidden Hunger. Ghana, Nigeria, and Burkina Faso in West Africa are no exception.

OFSP has the potential to provide a rich dietary source of vitamin A that can significantly contribute to the reduction of vitamin A deficiency among vulnerable populations (particularly young children and lactating mothers) at the community level in sub-Saharan



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Promouvoir
la patate douce à
chair orange en Afrique
de l'Ouest à travers
des marchés diversifiés



CIP
INTERNATIONAL
POTATO CENTER
A CGIAR RESEARCH CENTER



SPHI
Sweetpotato
Profit and Health
Initiative
Reaching 10 million
African households by 2020

Implementing partners:

- **NGOs**
 - iDE-Ghana
 - iDE-Burkina Faso
 - Association of Church-Based Development Projects (ACDEP)
 - Partnership for Child Development (PCD)
- **Private Sector**
 - E-Darkey Associates, Entrepreneur, Ghana
 - Vekon Bakery, Sogakofe, Ghana
 - Kokobila Nasia Farms Ghana
 - NAFASO, Seed Company, Burkina Faso
- **National programs**
 - Institut de l'Environnement et de Recherches Agricoles (INERA)
 - Council for Scientific and Industrial Research (CSIR) – Crops Research Institute (CRI)
 - CSIR – Savanna Agricultural Research Institute (SARI)
 - National Root Crops Research Institute (NRCRI)
 - University for Development Studies (UDS)
 - Ghana Health Service (GHS)
 - Ghana School Feeding Program (GSFP)
 - Ministries of Food and Agriculture, extension services (Ghana, Burkina Faso, Nigeria)



Africa (SSA). While sweetpotato is a well-known crop in West Africa, and is often commercially important, OFSP varieties were not widely available, the nutritional value of OFSP was not widely recognized, and as a result, OFSP was not yet sought after by consumers and marketers. Because of this lack of market demand, the potential of OFSP to contribute effectively to both combating vitamin A deficiency and to improving farmer incomes was held back significantly.

What did we want to achieve?

We wanted to demonstrate several sustainable and inclusive market-driven approaches for OFSP that would lead to increased incomes and improved health through consumption of vitamin A-rich OFSP, especially for women and children in Ghana, Burkina Faso and Nigeria. The work centered on the following four outcomes at each target location:

- 1) Formal and informal OFSP market opportunities identified and created (Fig. 1);
- 2) Viable seed systems, capable of responding to increased demand, established;
- 3) Households, including women and children, in target areas have increased their intake of vitamin A through OFSP consumption, and
- 4) Commercial planting material multipliers and OFSP producers, especially women, increase income through participation in OFSP value chains.

We intended to learn lessons from the different approaches we took across the pilot sites.

How did we make it happen?

The Jumpstarting project started with actor-centered theory of change workshops to help target markets and determine our impact pathways. In each location, we worked with an array of actors and partners, including NGOs and relevant government agencies, to identify markets, organize farmers into groups capable of serving those markets, and access inputs and credit, if required. By conducting awareness and demand creation campaigns, including training on utilization at the local level, and advocating for OFSP for food and nutrition security at all levels, demand was created in several formal and informal markets in each country. Different structured and informal markets were targeted at pilot sites across the three countries where sweetpotato varied in importance in the farming and food systems. Building capacity to achieve project outcomes was also a key element of project activities, as was building the partnerships to ensure and replicate success.

Where did we work?

Our pilot locations were in Ghana, Burkina Faso and Nigeria. In Ghana, we worked in communities in the Upper East and Northern Regions, where at the start of the project, sweetpotato ranged from being a most important cash crop (districts around Bawku), to being of moderate (districts

around Navrongo), to only minor importance in the farming system (Tolon and Kumbungu Districts near Tamale). In Burkina Faso, we targeted communities near Orodara in Kennedougou Province in the southwest of the country, which were major suppliers to sweetpotato fresh markets for white-fleshed sweetpotato in Burkina Faso and Mali. In Nigeria, we worked in Osun State, where we targeted a successful school lunch program as a market entry point, and root producers in adjacent Kwara State, traditionally a major producer of sweetpotato.

What did we achieve?

- **In each country, we established** decentralized vine (commercial) planting-material growers (Fig. 2), linking them to root producers while in turn, identifying or stimulating market opportunities for OFSP roots, including structured and informal markets. Capacity building exercises for producers and their households focused on both production and utilization to ensure that they understood how to use this nutritious new product in their traditional foods. Overall, 60 vine multipliers (14% women) and 61 groups of OFSP root producers (30% women) sold vines and roots under the project, exceeding our target by 50%. Marketing and sales of planting material was successful across countries, with planting material valued at over \$100,000 sold by multipliers over the course of the project. Over 50% of the revenue obtained by multipliers came from non-subsidized vine sales.
- In Ghana, we focused on developing local demand through the nutrition counseling program of the Ghana Health Service for pregnant and lactating women. We also conducted a 2-month pilot incorporating OFSP into meals for 788 pupils at 2 schools in the Northern Region with good results; all actors are ready to re-start the program when payment by the Government to caterers can be assured. Markets opportunities were also identified and created in the capital city Accra, where an aggregator marketed OFSP through supermarkets, high-end green grocers, embassies, and processed OFSP in bread and gari. Finally, more than 80 bakers were trained on using OFSP purée in bread baking, and at least three bakers (Volta Region and Greater Accra) produce sweetpotato bread for which there is a growing demand (Fig 3).



Fig. 2 Multiplier producing vines in the dry season in Nyankpala, Ghana with net tunnel to maintain quality stock (credit E. Abidin)



Fig. 3 Golden OFSP Bread from Vekon Bakery in Ghana (credit E. Carey)



Fig. 4 Pre-basic seed of the new OFSP variety CIP4 bred in Burkina Faso using CIP parental material (credit K. Some)

The nutrition counselling work conducted with the Ghana Health Service reached a total of 8,437 pregnant or lactating women with counselling and OFSP vines through clinics and volunteers in districts where the project was involved with vine multipliers and root producers. We used the counselling as an opportunity to conduct a willingness-to-pay study, providing OFSP planting material to 5,060 mothers, and roots to 4,110 mothers. We found that about 16% subsequently bought vines and storage roots. This intervention to create additional demand for OFSP was well-appreciated by producers and partners and presents an attractive opportunity for scaling-out to other locations.

In Burkina Faso, OFSP was not found in the markets at the beginning of the project. By the end of the project, commercialization of OFSP was well-established, with producers in the southwestern production zone targeted under the project serving markets in both Burkina Faso and Mali, and with customers including diverse small-scale processors as well as the fresh-boiled and fried root market vendors previously only selling white-fleshed sweetpotato. Wholesalers were aware of the market potential of OFSP, and producers and vine multipliers, backed by the national program, embraced OFSP. In addition to private producer demand for planting material, there was significant and expanding demand from NGOs and the Ministry of Agriculture, promoting new OFSP varieties (Fig. 4) for food security and livelihood improvement in other parts of Burkina Faso.

- In Nigeria, the O-Meals school-feeding program in Osun State presented an attractive market entry point at the beginning of the project. This long-standing program, implemented with state and local funding, effectively provides regular payments to its food vendors allowing them to purchase local agricultural products. Starting with a pilot effort in 8 schools in January 2015, the program expanded to 186 schools in 24 local government areas (LGAs) by the project's end, with more than 41,000 school children getting at least one provitamin A-rich OFSP meal weekly (Fig. 5). Sweetpotato bread was also accepted as a menu item and served on a different day of the week in several schools. Recognizing the potential for OFSP, the Osun Youth Empowerment Scheme (O-YES) encouraged

and assisted program members to take up sweetpotato farming and marketing as an enterprise, and these represent a new group of producers supplying O-Meals. They are also selling through other market channels to have alternative markets when schools go on vacation. Challenges of acceptance of the unfamiliar OFSP meal by students were best overcome by promotional children's songs. Availability of quality planting material of the newly-released OFSP variety was assured through involvement of staff from the National Root Crops Research Institute, operating from a sub-station in Osun State.

- The profitability of the diverse sweetpotato enterprises established under the project was assessed through interviews with value chain actors to determine returns on investment. All enterprises were found to be profitable. Cost and benefits to vine multipliers and root producers per hectare are shown in Table 1. Average monthly costs and marketing margins for traders in Ghana are provided in Table 2. For school lunch caterers (100% women) in Nigeria, the percent benefit relative to cost incurred for a reference meal in Nigeria was 105.6% when OFSP was the main ingredient, compared to 36.7% for rice and 59.8% for yam. For the woman-owned bakery in Ghana, OFSP golden bread was at least twice as profitable as sugar or butter bread and demand steadily increased throughout the project as consumers got to know the product.



Fig. 5 Primary school student enjoying OFSP-based meal (credit V. Atakos)

Table 1. Cost and returns per hectare to vine multipliers and root producers in Ghana, Nigeria and Burkina Faso

	Vine Multipliers			Root Producers		
	Ghana	Nigeria	Burkina Faso	Ghana	Nigeria	Burkina Faso
Total cost per hectare (ha)	877	2,164	2,089	190	483	285
Total revenue per ha	2,477	4,542	3,338	761	1,514	464
Gross margin per ha	1,599	2,379	1,249	570	1,031	179
% benefit relative to cost incurred	182%	110%	60%	299%	213%	63%

Source: 2016 Value Chain Field Study: 10 vine multipliers and 10 root producers interviewed in each country

Table 2. Average monthly cost and marketing margins for aggregators, wholesalers and retailers in the sweetpotato root trade in Northern Ghana

	Aggregators	Wholesalers	Retailers
Price per kg sold	0.12	0.16	0.36
Total cost per month	40.45	25.49	37.30
Total cost per bag	1.30	2.05	6.63
Marketing margin per bag	1.39	1.01	11.57
Marketing margin per month	43.40	12.56	65.10
% Benefit in relations to cost incurred	107%	49%	175%

Source: 2016 Value Chain Field Study: 5 aggregators, 5 wholesalers and 5 retailers interviewed.

- In each country, seed systems and breeding program linkages were strengthened under the project, with significant progress made toward use of pathogen-tested planting material, labels and implementation of systems of quality declared planting material. To strengthen and serve seed system and other value chain linkages, sweetpotato innovation platforms were established in Ghana and Burkina Faso. A platform was established in Nigeria after the end of the project. Our vision is that these platforms will provide a mechanism for industry-led development of value chains.
- Capacity development in each country was also conducted at various levels. In each country, extension and NGO training capacity was strengthened through implementation of a 10-day course – Everything you ever wanted to know about sweetpotato. The course in Ghana

was run twice at Kwame Nkrumah University of Science and Technology, the first time with project sponsorship of mostly Ghanaian Ministry of Agriculture staff from project target zones, and the second time attracting international students who paid to enroll. The course was run twice in French at CAP Matourkou, in Burkina Faso, attracting francophone students from several countries. Finally, in Nigeria, the course was run three times, attracting mainly Nigerian extension personnel. There was also intensive training of producer groups and other value chain actors on relevant aspects of production and processing throughout the project.

What next?

- **Partners in each country** (Fig. 6) will continue to monitor and foster the value chains initiated under the Jumpstarting project, seeking and encouraging investment to assure effective scaling-out of successful models.
- In Nigeria, school feeding is already expanding to other states, and in both Ghana and Burkina Faso, this and other institutional markets, present great opportunities.
- Across the region, major urban markets have appeared, with consumers hungry for affordable, nutritious and tasty foods, and with a great many untapped opportunities that enterprising individuals could capitalize on.
- Continued advocacy and demand creation using multi-channel communication is critical for ensuring market-led expansion of OFSP (Fig. 7). This will be backstopped by competent research and extension programs, bringing benefits to millions, as an important part of diversified and resilient African food economies.



Fig. 6 Jumpstarting Project partners at their final team meeting in May 2017



Fig. 7 OFSP advocates Nane and Kofi Annan visit roadside market promoting OFSP (credit E. Carey)