

Scaling Up Sweetpotato Through Agriculture and Nutrition (SUSTAIN)

Annual Progress Update

April 2017 - June 2018

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1. Executive Summary

The current report covers the period April 2017 to June 2018 of the *Scaling Up Sweetpotato Through Agriculture and Nutrition (SUSTAIN)* programme led by the International Potato Center (CIP). The report provides an update on progress against logframe outcome and output indicators, key lessons learned during the reporting period, and insights into value-for-money and risks.

Outcome

The expected programme outcome is “1.4 million small-farming households with at least one under-five child in the household growing and consuming OFSP by June 2018; and 400,000 rural and urban consumers purchasing an OFSP-based processed product.” **To date, the programme has reached close to 1.8m households.** Research indicates that the majority of farmers have retained OFSP as part of their mixed farming systems and in their diets after direct programme support has phased out. Commercial processing of OFSP has picked up strongly in Kenya and Rwanda and also in Malawi, while it has been slower to do so in Mozambique. In Kenya, **the programme has resulted in commercial sales of more than 220,000 loaves of nutritious OFSP bread per year** by one commercial bakery who estimate their current additional demand to be twice this amount.

Outputs

The programme has exceeded most of its output indicators, including these key indicators:

Output indicators / comments	30 June 2018	
	Target	Progress
<p>Output 1: HH with children <5 receiving OFSP vines</p> <p>The main indicators of beneficiary households reached have been exceeded in all participating countries, in some cases by over 50 percent, even after phasing out of direct CIP-led field operations. The participation of women has in all cases increased in response to targeted actions by the programme.</p>	1,400,000	1,796,518
<p>Output 2: Caregivers reached through nutrition training</p> <p>The main indicators of beneficiary households reached have been exceeded in all participating countries except Malawi, and continued delivery of nutrition support through partners continues after CIP. Research shows regular OFSP consumption during seasons of availability in both adult and child diets in most communities.</p>	1,400,000	1,427,921
<p>Output 3: Sales volume of OFSP products</p> <p>Commercial processing of OFSP has picked up strongly in Kenya and Rwanda where commercial food processors have started to invest in the utilization of OFSP puree as a major ingredient in the baking industry. Initial health concerns have been addressed. It is expected that commercial OFSP processing will further grow and diversify driven by these and new commercial partners.</p>	\$100,000	\$338,130 (Ke) \$212,809(Rw)
<p>Output 4: Studies of cost-effectiveness and sustainability of delivery models</p> <p>The programme has emphasized analysis, writing up, and dissemination during 2017/18. M&E framework and tools have been harmonized with HarvestPlus. Michigan State University completed a comprehensive 4-year Randomized Control Trial. Additional qualitative evaluations and case studies were carried out and results have been published and presented at international conferences.</p>	Complete evaluation studies	Randomized Control Trial completed

Key lessons learned

Key lessons of importance for future programming include:

a) *Diffusion and retention of OFSP in farmers' fields and diets.*

The programme's operational research and case studies substantiated the initial assumptions that OFSP will be retained and further diffused by farmers in their production system if they consider OFSP varieties to be competitive in yield and/or price as compared to other sweetpotato. Nutrition knowledge is an important additional motivator for increasing and maintaining regular consumption of OFSP but is in itself insufficient to drive either production or consumption.

b) *Partnering with commercial food processors.*

Conclusions on best practice of partnering with commercial food processors are limited by the small number of partnerships undertaken to date. Initial observations from these partnerships, however, indicate that research and commercial partners need to co-develop a collaboration model that focuses the role of the research organization on providing knowledge and technology support and initial linkages with service providers.

c) *Understanding rural-urban linkages in food systems.*

The development outcome of increased commercialization of OFSP through pathways such as commercial processing for urban markets is still uncertain and requires more rigorous research in both urban and rural areas. Urgent research questions include how OFSP-based products can be better customized to low-income urban consumers and how benefits for smallholder farmers selling OFSP roots into these value chains can be further increased.

Value-for-money (VfM)

The programme has exceeded its targets from the available fund allocation and has continued to do so in the reporting period when additional funds became available. The programme has also become more strongly networked with BMGF supported breeding, biotechnology, and delivery projects and with HarvestPlus to increase overall VfM from support to biofortification. CIP increased the number of scientific publications during 2017, markedly the number of ISI Thomson journal articles from 40 to 69 and total publications from 103 to 151 over the previous year. The programme has continued to realize savings from shifting towards partner-led delivery systems and invested these savings in research and innovation. It has also improved its inclusion of women who now supply at least 30 percent of all OFSP planting material.

Risks identified

The programme continues to monitor and actively mitigate risks and has identified no new risks emerging during the reporting period. The risks previously identified remain the same with a reduced risk level pertaining to security in Mozambique.

2. Achievement against logframe indicators

Programme implementation continued to meet and exceed annual targets. While there was a change in implementation modalities towards more indirect delivery through partner initiatives (rather than CIP-led field activities) from October 2017, the number of beneficiaries has continued to expand. Progress against outcome and output indicators is as follows:

2.1 Outcome level

The expected programme outcome is “1.4 million small-farming households with at least one under-five child in the household growing and consuming OFSP by June 2018; and 400,000 rural and urban consumers purchasing an OFSP-based processed product.” This includes an increased target by 200,000 from the January - June 2018 extension support.

To date, the programme has exceeded its target number of beneficiaries and has reached close to 1.8m households including those households directly engaged in CIP-led programme activities and those indirectly accessing OFSP and nutrition knowledge through farmer-to-farmer diffusion and related partner programmes linked to SUSTAIN. Research indicates that the majority of farmers have retained OFSP as part of their mixed farming systems and in their diets after programme activities have phased out. Representative quantitative evidence detailing the variances in adoption and retention will be available through the final report of the Randomized Control Trial that is currently available in draft form.

Commercial processing of OFSP has picked up strongly in Kenya and Rwanda and also in Malawi, while it has been slower in Mozambique. The main reason for this difference has been the larger capacity and management commitment of participating commercial partners in Kenya, Rwanda, and Malawi. In Kenya, **the programme has resulted in commercial sales of more than 220,000 loaves of nutritious OFSP bread per year** by one commercial bakery who estimate their current additional demand to be twice this amount.

2.2 Output level

The programme has exceeded most (34/37) of the output indicators across the four outputs areas.

OUTPUT 1: Access to OFSP planting material by smallholder households (HH) with children <5

The main indicators of beneficiary households reached have been exceeded in all participating countries, in some cases by over 50 percent. The continued delivery of outputs during the phasing out of direct CIP-led field operations in 2017/18 testifies to the effective mainstreaming of OFSP into partner initiatives by Governments, private sector and NGO's and the strong technical backstopping by CIP to these partners. Farmer-to-farmer diffusion and retention of OFSP in local farming systems has been substantiated through surveys and operational research. The different approaches to multiplication and delivery of OFSP planting material is reflected in the number of multipliers supported in each country. The participation of women has in all cases increased in response to targeted actions by the programme. Yield assessments are carried out routinely and show that locally selected OFSP varieties are increasingly competitive vis-à-vis less nutritious varieties.

Table 1. Progress on Output 1.

Indicators		Kenya	Malawi	Mozambique	Rwanda	Bangladesh	Total
HH with children <5 receiving OFSP vines	Milestone (30 June 2018)	35,000	75,000	35,000	60,000	5,000	210,000
	Progress in reporting period (1 April 2017 - 30 June 2018)	13,480	8,690	8,774	11,844	684	43,472
	Cumulative progress to 30 June 2018	44,448	95,585	53,737	113,882	7,527	315,179
	Total new adopters (direct and indirect HH)	253,352	544,832	306,302	649,127	42,906	1,796,518
	Percentage achievement against original logframe target	127%	127%	154%	190%	151%	150%
Vine multipliers operational	Milestone (30 June 2018)	8 per district	8 per district	8 per district	8 per district	n/a	n/a
	Progress in reporting period (1 April 2017 - 30 June 2018)	None added	None added	None added	None added	None added	None added
	Cumulative progress to 30 June 2018	66 (5 counties) (50% male and 50% female)	3 commercial (100% male)	96 (15 districts) (75% male, 25% female)	39 (8 districts), 46% (8 districts), 46% male, 54% female), 10 farmer groups	343 (21% male, 79% female)	547 (36% male, 64% female)
Yield assessment	Milestone (30 June 2018)	Yield assessment updated	Yield assessment updated	Yield assessment updated	Yield assessment updated	n/a	Yield assessment updated
	Progress in reporting period (1 April 2017 - 30 June 2018)	Yield assessment updated (13.7 t/ha)	Yield assessment updated (13.2 t/ha)	Yield assessment updated (12.4 t/ha)	Yield assessment updated (14.5 t/ha)	n/a	n/a

OUTPUT 2: Access to improved nutritional knowledge and diversified use of OFSP by both female and male caregivers

The main indicators of beneficiary households reached have been exceeded in all participating countries except Malawi where the repeated change of implementing partners has slowed down operations. Still, continued delivery of OFSP nutrition messages and, where feasible, nutrition counseling through Government and local partners keeps increasing beneficiary numbers in all countries. The programme placed special emphasis in 2017/18 on completing operational research and qualitative assessments of dietary behavior change amongst beneficiary households. Findings from this research show that regular OFSP consumption during seasons of availability has been established in both adult and child diets in most communities reached by the programme.

Table 2. Progress on Output 2.

Indicators		Kenya	Malawi	Mozambique	Rwanda	Bangladesh	Total
Caregivers reached through training	Milestone (30 June 2018)	35,000	75,000	35,000	60,000	5,000	210,000
	Progress in reporting period (1 April 2017 - 30 June 2018)	3,291	6,969	3,517	13,741	-	27,519
	Cumulative progress to 30 June 2018	35,362	50,600	38,691	115,779	10,080	250,513
	Total caregivers reached (direct and indirect HH)	201,562	288,420	220,541	659,943	57,456	1,427,921
	Percentage achievement against original logframe target	101%	67%	110%	189%	287%	119%
No. of training events	Progress in reporting period (1 April 2017 - 30 June 2018)	None added	None added	None added	51	None added	51
No. of other events	Progress in reporting period (1 April 2017 - 30 June 2018)	1 young child graduation	None added	2 field days	None added	None added	3
Reports of focus group discussions (FDG) and other qualitative data to assess behavior change	Milestone (31 July 2018)	At least 1 case study in each country on behavior change, based on evidence from focus group discussions and/or other methodologies Most activities are scheduled for Q1 201					
	Progress in reporting period (1 April 2017 - 30 June 2018)	1 report study completed	1 report study completed	1 report completed	1 report completed	-	4 reports completed
At least 1 case study in each country and 1 global analysis of behavior change	Progress in reporting period (1 April 2017 - 30 June 2018)	2 case studies completed	1 case study completed	1 case study completed	1 case study completed	-	5 case studies completed

OUTPUT 3: Commercially marketed processed products utilizing OFSP

Commercial processing of OFSP is a major innovation initiated and promoted by the programme. Progress has been very strong in Kenya and Rwanda where large commercial food processors have started to invest in the utilization of OFSP puree as a major ingredient in the baking industry. The puree-based products have exceeded market expectations twofold (Rwanda) or threefold (Kenya) and the apparent demand for OFSP puree is several times larger than current supplies can support. In Malawi and Mozambique, changes in management of the main commercial partners

have resulted in operational delays and have slowed down the utilization of OFSP puree. Still, in Malawi additional commercial partners have started to utilize OFSP puree as well as using OFSP for chipping and crisping. It is expected that the commercial processing of OFSP will further grow and diversify driven by the commercial partners that the programme has introduced to this technology.

Table 3. Progress on Output 3.

Indicators		Kenya	Malawi	Mozambique	Rwanda
Potential product options	Milestone (30 June 2018)	At least 1 OFSP products commercially available in each country in major markets	At least 1 OFSP products commercially available in each country in major markets	At least 1 OFSP products commercially available in each country in major markets	At least 1 OFSP products commercially available in each country in major markets
	Progress in reporting period (1 April 2017 - 30 June 2018)	Availability of OFSP puree and OFSP bakery products continues to expand	Availability of OFSP Beta Crisps and OFSP bread continues to expand	Products not yet commercially available	Availability of OFSP Golden Biscuits, OFSP Mandazi, and OFSP bread continues to expand
Farmers linked to supply chains	Milestone (30 June 2018)	At least 500 smallholder farmers selling to commercial processor	At least 300 smallholder farmers selling to commercial processor	At least 200 smallholder farmers selling to commercial processor	At least 400 smallholder farmers selling to commercial processor
	Progress in reporting period (1 April 2017 - 30 June 2018)	46 new farmers	None added	80 new farmers	None added
	Cumulative progress to 30 June 2018	619	300	130	400
	Percentage achievement against original logframe target	124%	100%	65%	100%
Sales volume of each product	Milestone (30 June 2018)	Sales levels exceed \$100,000 per year per product	Sales levels exceed \$40,000 per year per product	Sales levels exceed \$40,000 per year per product	Sales levels exceed \$100,000 per year per product
	Progress in reporting period (1 April 2017 - 30 June 2018)	Puree: \$103,900 Bread: \$338,130	Beta Crisps: \$14,865	Pilot bread products: \$11,809	Products by SINA Enterprises: \$212,809

OUTPUT 4: Evidence of achieving outcomes and disseminating findings

During 2017/18, evidence on outcomes from the previous years' activities has become more widely available and the programme has emphasized analysis, writing up, and dissemination. The M&E framework and tools have been further updated and CIP and partner staff have been trained in their use. This has been done in collaboration with HarvestPlus as a step towards fully harmonizing the M&E system between the two programmes in time for a next phase. The independent evaluator Michigan State University (MSU) has completed the comprehensive 4-year Randomized Control

Trial in Rwanda and submitted a draft report. Additional qualitative evaluations, assessments, and case studies by CIP and MSU researchers were carried out in all countries and results have been published and presented at international conferences.

Table 3. Progress on Output 4.

Indicators	Kenya	Malawi	Mozambique	Rwanda
Monitoring indicators and assessment tools developed, tested and published	Milestone (30 June 2018)	Additional assessment tools and methods for each intervention area developed with partners		
	Progress in reporting period (1 April 2017 - 30 June 2018)	<ul style="list-style-type: none"> • CIP M&E framework and tools updated • CIP M&E Manual broadly disseminated and applied through regional Community of Practice • Harmonization of M&E framework and tools with HarvestPlus advancing 		
Studies to capture cost-effectiveness and assess the degree of sustainability of the different delivery models	Milestone (30 June 2018)	Evaluation of adoption of OFSP and recommended dietary practices and cost-effectiveness of each country's experience, highlight different approaches effect on gender equity and efficiency documented through qualitative evaluation report. Additional publications through Extension Activities (Jan-Jun 2018): at least 4 peer-reviewed publications and 6 technical papers in key areas of gender, commercialization and nutrition behaviour change.		
	Progress in reporting period (1 April 2017 - 30 June 2018)	<ul style="list-style-type: none"> • Randomized Control Trial (Rwanda) by Michigan State University: Endline survey completed. Draft Evaluation Report completed. • Qualitative Assessment by Michigan State University: Assessments completed. Draft Evaluation Report completed. • 4 technical reports and 4 publications based on additional Extension activities completed in Draft form • 3 peer-reviewed publications have been produced and published 		
Conference contributions and publications	Milestone (30 June 2018)	Participated in regional and global conferences, presenting project findings; technical publications widely available online Through Extension Activities (Jan-Jun 2018): at least 4 national and regional dissemination workshops held for agriculture-nutrition community		
	Progress in reporting period (1 April 2017 - 30 June 2018)	<ul style="list-style-type: none"> • Scientists from CIP and partner institutions presented findings at international conferences including the Global Food Security Conference (Cape Town, 2017), Regional Symposium on Sustainable Food Systems for Healthy Diets and Improved Nutrition (Abidjan, 2017), A4NH Academy (Accra, 2018), and the International Conference of Agricultural Economists (Vancouver, 2018). • 4 regional dissemination workshops scheduled for August/September 2018 to present research findings to stakeholders. 		

3. Key lessons learned during the reporting period

Among the key lessons learned during the reporting period, the following warrant particular attention in view of future programming in this area:

a) *Diffusion and retention of OFSP in farmers' fields and diets.*

The programme's operational research and case studies substantiated the initial assumptions that OFSP will be retained by farmers in their production system if they consider OFSP varieties to be competitive in yield and/or price as compared to other sweetpotato. In such cases, OFSP varieties spread from farmer-to-farmer and through local markets. Nutrition knowledge is an important motivator for increasing and maintaining regular consumption of OFSP but is in itself insufficient to drive either production or consumption. When designing food-based interventions using OFSP, it is important to take into account agronomic and market conditions as well as the social and cultural context of food consumption.

b) *Partnering with commercial food processors.*

Conclusions on best practice of partnering with commercial food processors are limited by the small number of partnerships undertaken to date. Initial observations from these partnerships, however, indicate that programmes such as SUSTAIN need to invest ample time at the outset to co-develop a working collaboration model with private sector partners that focuses the role of a research organization like CIP on providing knowledge and technology support and some initial facilitation of partnerships with service providers. This worked very well in Kenya.

c) *Understanding rural-urban linkages in food systems.*

The development outcome of increased commercialization of OFSP through pathways such as commercial processing for urban markets is still uncertain and requires more rigorous research spanning both urban as well as rural stakeholders. Urgent research questions include how OFSP-based products can be better customized to low-income urban consumers and how benefits for smallholder farmers selling OFSP roots into these value chains can be further increased.

4. Value-for-Money

The programme has exceeded its targets, in some cases by over 50%, from the available fund allocation and has continued to do so in the reporting period when additional funds became available. This indicates that the CIP is operating efficiently and has a broad set of effective partnerships in place to deliver outputs and outcomes at increased funding levels in the participating countries.

The programme has also become more strongly networked within CIP's overall research and development work, specifically further deepening the linkages with BMGF supported breeding, biotechnology, and delivery projects. This has resulted in increased learning and adoption of lessons and technologies across these programs. Likewise, the collaboration with HarvestPlus has further strengthened in particularly in the area of M&E, knowledge management, and advocacy. Both CIP and HarvestPlus are drawing on SUSTAIN to promote agriculture-health linkages and commercial food processing investments in the context of advocating for increased policy and investment support for biofortification.

As a research-based organization, the number and quality of scientific publications is a key indicator of CIP's performance. 2017 saw a marked improvement in the number of most publication categories and specifically of ISI Thomson journal articles from 40 to 69 and total publications from 103 to 151 over the previous year. This indicates an effective research management process in place at CIP.

Year	ISI Thomson journal articles	Other journal articles	Open Access journal articles	Book chapters	Books, monographs	Conference abstracts
2011	51	16	27	29	19	12
2012	36	21	20	30	5	35
2013	46	21	30	28	4	67
2014	49	40	47	10	25	65
2015	51	30	32	33	6	22
2016	40	12	31	9	15	6
2017	69	27	75	6	31	12

The table below assesses the programme against the '4 E' framework, and presents an overall conclusion on the value for money of the programme during the reporting period:

4 Es	Summary and examples
Economy	<ul style="list-style-type: none"> • CIP have further scaled back their direct involvement in delivery of OFSP planting material at field level, instead providing technical backstopping support Government extensions services and other partners. This shift has resulted in significant savings to the programme, yet the number of farmers accessing OFSP planting material continues to grow. • The savings made have largely been invested in the operational research agenda, improving technical backstopping mechanisms, and exploring new, market-based delivery systems.
Efficiency	<ul style="list-style-type: none"> • The CIP team have further updated and harmonized their Monitoring and Evaluation system with the HarvestPlus programme for overall efficiency in tracking outcomes of investments in biofortification. • SUSTAIN's support to commercial OFSP processing has stimulated significant private sector investment in OFSP puree production and utilization in Kenya, Rwanda and Malawi.
Effectiveness	<ul style="list-style-type: none"> • The programme continues to perform very well against its stated objective and continues to exceed its augmented beneficiary target of 1.4m households.
Equity	<ul style="list-style-type: none"> • Monitoring and reporting of gender-disaggregated data against all key indicators has been fully mainstreamed following previous observations by DFID annual programme reviews. • The percentage of planting material sold by women has increased to at least 30%.

5. Risks identified

The programme continues to monitor risks and has identified no new risks emerging during the reporting period. The risks previously identified remain the same with a reduced risk pertaining to security in Mozambique.

Risk category	Gross risk description	Mitigation	Residual risk rating	Risk trajectory
Context	Security issues have affected SUSTAIN's progress in Bangladesh, and less so in Mozambique.	In Bangladesh and Mozambique, CIP adjusted its field sites and operations to focus on areas of relative security. With these adjustments, project implementation was able to go ahead according to schedule.	Moderate	
Delivery	There is a risk that the SUSTAIN programme will not achieve its objectives, particularly around commercialisation to reach urban consumers.	Good progress has been made with the commercialisation component during the reporting period, although this remains strongest in Kenya.	Moderate	
Operational	There is insufficient capacity to resources the programme within DFID.	DFID's internal management of the programme is sufficient however better links could be made with country programmes, building on the work between CIP and DFID Rwanda and Mozambique.	Moderate	
Safeguarding	A key risk identified in last year's annual review was the lack of gender disaggregated data. Without this data, it was not possible to determine the programme's impact on women and men.	CIP reports gender disaggregated data for all key indicators and has acted on trends emerging from this data to increase the proportion of women involved in planting activities.	Minor	
Fiduciary	There is an inherent risk in all commissioning activity that funds are not used for the intended purposes.	DFID completed a due diligence assessment of CIP during the reporting period. CIP has robust internal controls in place to mitigate the risk of fraud and corruption. CIP has demonstrated the capacity to implement and manage the financing of the programme, and has a strong track record of management and delivery of research programmes.	Moderate	
Reputational	As flagged in last year's annual review, there is a risk that processed OFSP-based foods may be relatively high in sugar and fat.	The Food and Nutritional Evaluation Lab (FANEL) has found that OFSP puree bread has significantly higher beta-carotene and pro-vitamin A than white bread. Products are also lower in salt and sugar than competing products.	Moderate	