Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

Second Annual Technical Report (1 July 2018–30 June 2019)

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Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

Second Annual Technical Report

1 July 2018–30 June 2019

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Authors: Haile Tesfay, Berga Lemaga, Asheber Kifle, and Frezer Asfaw

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ACRONYMS

ATVETs	Agricultural, technical, and vocational education training
BoA	Bureau of Agriculture
BoH	Bureau of Health
CIP	International Potato Center
DA	Development agent
DVM	Decentralised vine multiplier
ELE	Egna Legna
FAO	Food and Agriculture Organisation of the United Nations
FTC	Farmer training centre
HEW	Health education worker
HH	Household
IEC	Information, education, and communication
IFAD	International Fund for Agricultural Development
MF	Model farmer
MoA	Ministry of Agriculture
MoANR	Ministry of Agriculture and Natural Resources
NSA	Nutrition-sensitive agriculture
OFSP	Orange-fleshed sweetpotato
RDMC	Root dry matter content
REST	Relief Society of Tigray
SARI	Southern Agricultural Research Institute
SASHA	Sweetpotato Action for Security and Health in Africa
SDS	System diagnostic study
SNNPR	Southern Nations Nationalities Peoples Region
SSP	System strengthening plan
TARI	Tigray Agricultural Research Institute
TC	Tissue culture
ToT	Training of trainers
WAT	Women's Association of Tigray

EXECUTIVE SUMMARY

The project "Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia" began in July 2017. Its goal is to contribute to improved nutritional status and food security among vulnerable populations in Southern Nations Nationalities Peoples Region (SNNPR) and Tigray regions of Ethiopia by strengthening agriculture and health systems and through institutional development. In both the SNNPR and Tigray regions, the International Potato Center (CIP) is implementing the project in collaboration with government institutions—Bureau of Agriculture (BoA) and Bureau of Health—and the NGOs Women's Association of Tigray and Egna Legna in SNNPR as implementing partners. In SNNPR the project coordinates its activities with another CIP-led project, Quality Diets for Better Health. This report highlights specific activities carried out and achievements by project objectives during its second year (Y2) of operation (1 July 2018–30 June 2019). The project has received a no-cost extension through 31 October 2019 and will be producing a final report at that time.

Key Y2 achievements are summarised below:

- Four scientific papers related to project activities were published in peer-reviewed journals.
- Tigray Agricultural Research Institute and Southern Agricultural Research Institute produced and sold 815,000 virus-free pre-basic cuttings produced in net tunnels and sold 1,845,000 basic seeds produced in open fields. These cuttings were sold to decentralised vine multipliers (DVMs) and commercial multipliers for multiplication of quality seed to support dissemination of vines to farm households (HH).
- A total of 834,360 basic orange-fleshed sweetpotato (OFSP) cuttings were produced at 17 farmer training centre (FTC) demo sites and distributed to 2,498 HH in the project kebeles in both regions (976 HH in SNNPR, 1,522 HH in Tigray). Each of the HH that received the vines is expected to share them with at least three other HH.
- OFSP demo and vine multiplication sites were established at four agricultural, technical, and vocational education training colleges (ATVETs).
- Three operational research studies were conducted: (1) evaluation of 12 new OFSP varieties on selected farmers' fields in SNNPR, (2) taste preference evaluation of new OFSP varieties in SNNPR, and (3) evaluation of 14 OFSP lines that have been introduced from Mozambique for their tolerance to dry conditions at three FTCs in Tigray.
- Seventy-nine BoA staff from Tigray and SNNPR were trained on OFSP agronomy, seed conservation, and post-harvest management. They conducted "step-down" trainings for woreda- and kebele-level agriculture officers.
- Eighty-one ATVET instructors from Tigray and SNNPR were trained in OFSP agronomy, vine multiplication and conservation, root production and harvesting, and utilisation.
- A total of 250 model farmers were trained in seed conservation using the Triple S (storage in sand and sprouting) method in Tigray.
- Twenty woreda BoA experts and development agents from SNNPR were trained on the Triple S vine conservation method.
- A total of 98 health and agriculture officers were trained on OFSP nutrition and utilisation and behaviour change communication techniques.
- OFSP recipes and cooking demos were conducted as part of on-going health extension programs at 10 kebele-level health centres and 10 FTCs.
- A total of 3,298 people (256 children, 450 males, 2,592 females) in Tigray attended cooking demos organised at five health posts and five FTCs.

- CIP, in collaboration with Irish Aid, organised the "CIP Program Systems Strengthening Multi-Country Learning Regional Workshop" for three days in Addis Ababa, Ethiopia. Around 50 participants from seven countries attended.
- A "Regional Agriculture Nutrition-Health Nexus Workshop" was organised in Hawassa to share lessons and evidence and to facilitate the coordination of nutrition interventions in the region.
- A linkage forum workshop was conducted in Tigray and SNNPR regions to strengthen linkages and coordination between vine producers and institutional vine buyers.
- An annual stakeholder project review and planning workshop was conducted in Tigray and SNNPR.
- Promotion and advocacy materials (sweetpotato community recipe book, flyer on biofortication for improved nutrition and health, sweetpotato evidence brief, sweetpotato agronomic, OFSP nutrition, and OFSP passport in English and Tigrigna) were developed and distributed to schools, health posts, health centres, government offices, and workshops to create demand for OFSP.
- CIP has commissioned a consultant to develop a video-based training material on sweetpotato agronomy and post-harvest management based on the manual "Everything You Ever Wanted to Know about Sweetpotato", developed by CIP.
- An end-of-project stakeholder project review and learning workshop was conducted in Tigray and SNNPR, aimed at reviewing project achievements, lessons learnt, and future directions.

1. INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The "Strengthening Institutional Systems for Scaling up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia" project is funded by Irish Aid and implemented by the International Potato Center (CIP) in collaboration with implementing partners. The project's overall goal is to contribute to improved nutritional status and food security among vulnerable populations in Southern Nations Nationalities Peoples Region (SNNPR) and Tigray regions of Ethiopia by strengthening agriculture and health systems and through institutional development.

Initially, the project was designed to be implemented for 21 months (1 July 2017–31 March 2019). However, due to a no-cost extension request from CIP, the project activities were extended for an additional 7 months, bringing the project to a total of 28 months.

This second year (Y2) technical report is structured to be aligned with project objectives and activities as listed in the project work plan. It provides an update of the on-going activities with emphasis on project management and intervention areas, activities accomplished, challenges, and monitoring and evaluation activities during the past 12 months. In addition, the achievements measured against the targets/output indicators stipulated in the project's work plan are summarised in Annex 1.

1.2 PROJECT INTERVENTION AREAS

The project is implemented in two regions, Tigray and SNNPR. Table 1 lists the intervention woredas (Figs. 1 and 2) and kebeles in the two regions.

Table 1. Project intervention woredas and kebeles

Tigray		SNNPR	
Woreda	**Intervention Kebeles**	**Woreda**	**Intervention Kebeles**
Endarta	Chelokot and Dedeba	Damot Gale	Buge and Gacheno
Raya Azebo	Tsgea and Genet	Boricha	Aldada Dela and Shondoliwo
Abergele	Agebi and Sheka Tekle	Loko Abaya	Sala Kewado and Dansha Gambela
Qolla Temben	Bega Sheka and Adeha	Humbo	Ampo Koysha and Gututo Larena
Hawzen	Debrebirhane and Hatset	Sodo Zuria	Warazelasho and Humbo larena

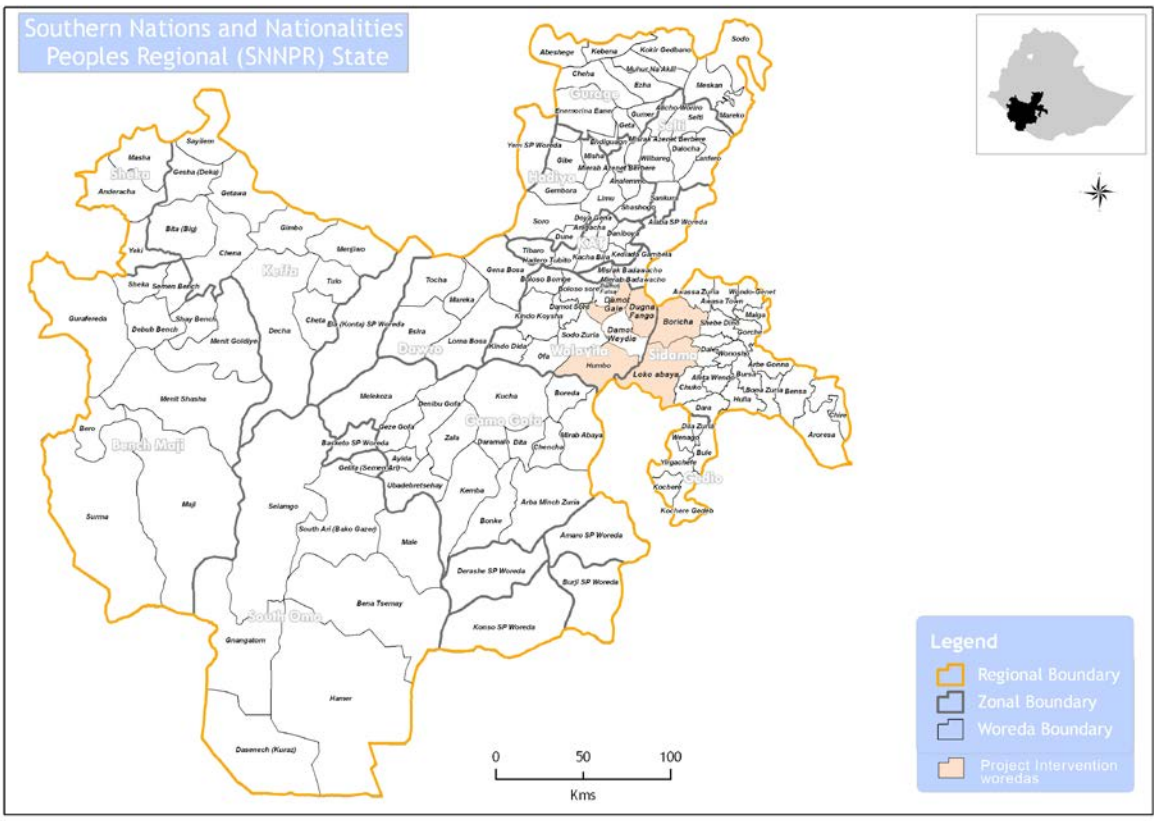

Figure 1. Project innervation woredas in SNNPR.

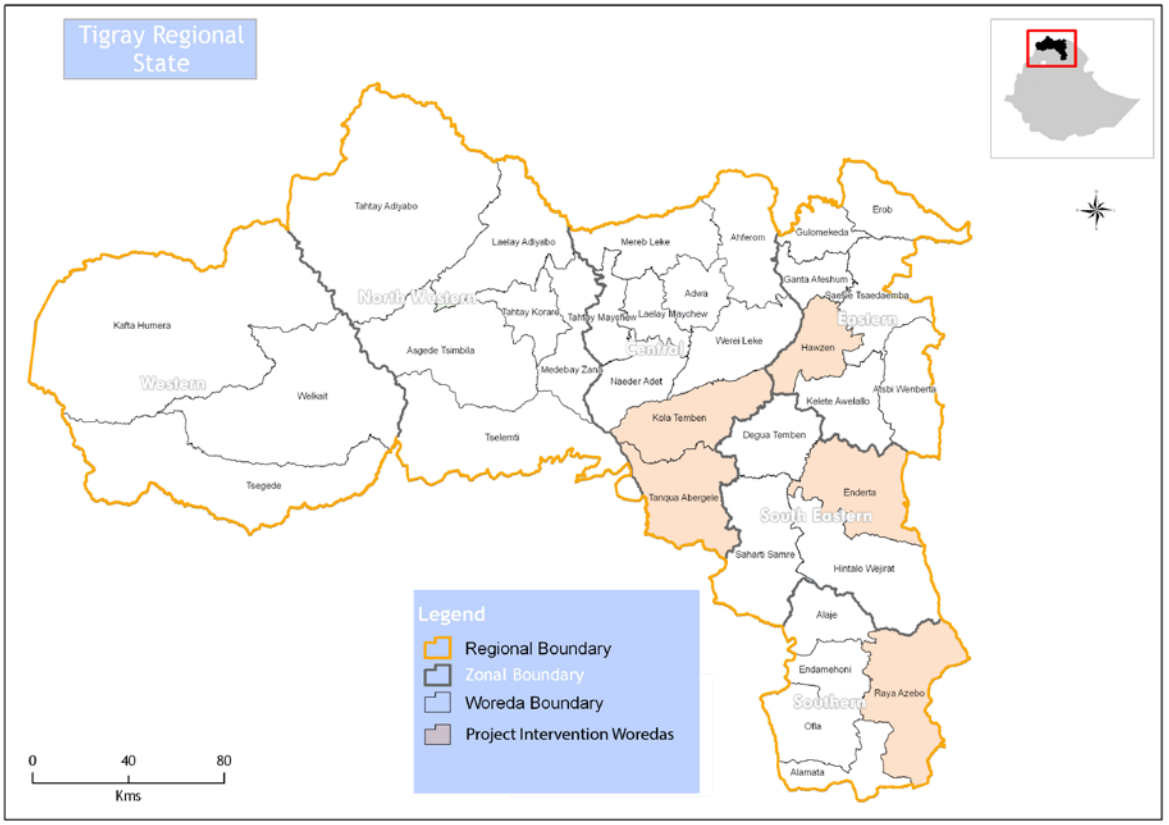

Figure 2. Project innervation woredas in Tigray.

1.3 Project Goals and Purpose

1.3.1 Goal

As set out in the project proposal, the goal of the project is to contribute to improved nutritional status and food security among vulnerable populations in SNNPR and Tigray regions of Ethiopia by strengthening agriculture and health systems and through institutional development.

1.3.2 Project objectives

The project seeks to achieve four key objectives, namely to:

- Diagnose key institutions, system linkages, coordination, and technical capability and review the evidence base for interventions focused on orange-fleshed sweetpotatoes (OFSP) so as to identify gaps and leverage points for system strengthening.
- Strengthen technical and institutional capacity of the Bureau of Agriculture (BoA), Bureau of Health (BoH), Southern Agricultural Research Institute (SARI), Tigray Agricultural Research Institute (TARI), agricultural technical and vocational education training centres (ATVETs), and other stakeholders in the OFSP value chain. The goal is to promote and implement sustainable OFSP technologies and services to smallholder farmers.
- Document and disseminate evidence-based best practices and lessons in using OFSP to improve food security and nutrition at national, regional, and local levels.
- Strengthen evidence-based advocacy to influence policies and programming in support of OFSP as an important part of healthy diets.

2. PROJECT MANAGEMENT AND INTERVENTION AREAS

2.1 Project Staff

Project staff, their roles, time dedicated to the project, and duty station are shown in Table 2. During the reporting period, the project recruited a new accountant to fill a vacant position in Tigray.

Table 2. Project staff as of June 2019

Name	Position	Duty Station
Wellington Jogo	Overall project coordinator (100% until August 2018)	Addis Ababa
Berga Lemaga	Country manager (15%)	Addis Ababa
Haile Tesfaye	Overall project coordinator (100% starting in September 2018)	Tigray
Sileshi Bereka	Finance & administrative specialist (40%)	Addis Ababa
Hemen Lemma	Accountant (50%)	Addis Ababa
Tewodros Berhanu	Driver (100%)	Addis Ababa/Hawassa
Ashebir Kifle	Agronomist (100%)	SNNPR
Azeb Haileselasie	Accountant (100%)	Tigray
Abreha G/Kidan	Driver (100%)	Tigray

2.2 Material Purchase

Items purchased by the project during the reporting period include (1) five desktop computers for 5 farmer training centres (FTCs) in SNNPR to improve their documentation; (2) two sets of drip irrigation materials for 2 FTCs to increase vine multiplication during the dry season; (3) planting material (OFSP cuttings) for 10 FTCs to support vine multiplication; (4) five desktop computers for 5 FTCs in SNNPR to improve documentation, database management, and reporting; (5) one Digital Green eco-projector so that Chelekot health centre (Tigray region) could introduce digital training for farmers using video presentations that are simple to use and effective for adult learners; (6) six cameras to be used by the Women's Association of Tigray's (WAT) project woreda coordinator; and

seven cooking demo materials (electrical fryer for chips, bread-baking oven, juicer/blender), one set for each of the three ATVET colleges in Tigray. All the materials were purchased to strengthen the grassroots institutes which, in turn, improve sustainable OFSP seed systems and services to smallholder farmers.

2.3 Project Partners and Their Roles

The project has signed sub-grant agreements with the following partners: BoAs in both Tigray and SNNPR, the BoH in Tigray, SARI and TARI, and the NGOs WAT and Egna Legna (ELE) in SNNPR. Because the project follows a partnership approach, most field activities are implemented with the project partners. The roles of the different project partners in the project are shown in Table 3.

Table 3. Partners and their roles

Partner	Role
BoA (Tigray, SNNPR)	Dissemination of technology and training, capacity building, and institutionalisation of successful practices
BoH	Capacity building and training, promotion of OFSP, and institutionalisation of successful practices
SARI/TARI	New OFSP variety development, production and dissemination of clean planting material to vine multipliers, adaptive research
University of Hawassa and Mekele	Diagnosis study
NGOs (WAT and ELE)	Capacity building, cooking demos, and promotion of OFSP utilisation
CIP	Project coordination and management, scientific and technical oversight, evaluation and research support, advocacy material development, capacity strengthening, and facilitation of regional and international technical exchange

3. PROGRESS BY OBJECTIVE

3.1 Objective 1: Diagnosis of Key Institutions; System Linkages; and Coordination, Technical, and Institutional Capacities and Review of the OFSP Evidence Base to Identify Gaps and Leverage Points for System Strengthening

3.1.1 Open-access publication

During the reporting period, the project, in collaboration with project partners, published four scientific papers related to project activities in open-access peer-reviewed journals. The published articles are summarised below.

1. Busse, H.A., Leverson, G., Jogo, W., and Tesfay, H. 2018. Food Security Prevalence, Spatial Variation, and Socio-Economic Determinants in Rural Households with Children Under Five Years in Tigray, Ethiopia. *Food Studies: An Interdisciplinary Journal* 8(3): 41–61. doi:10.18848/2160-1933/CGP/v08i03/41-61.

Summary

The study had three primary objectives: describe the prevalence of food insecurity among rural households (HH) in the Tigray region of Ethiopia; analyse associations between food security and SLA [Sustainable Livelihoods Approach] asset categories; and discuss how local data can inform the design and evaluation of multi-sectoral food security programs to better address the upstream, socio-economic determinants. According to the study, food insecurity was experienced seasonally within the study population. In addition, dietary diversity, age and education of the household head, and number of children were not significantly associated with food insecurity. The study concluded a policy and program strategies are needed that not only build single assets at the

individual and household levels, but also work across sectors and incorporate broader policy, systems, and environmental change to better address food insecurity's complex and underlying determinants.

The article can be accessed at:

https://cgscholar.com/bookstore/works/food-studies-an-interdisciplinary-journal-volume-8-issue-3?category_id=common-ground-publishing

2. Gurmu, Fekadu, and Mekonen, Shiferaw. 2019. Evaluation of root yield performance of newly bred orange-fleshed sweet potato genotypes in Ethiopia. *Journal of Agricultural and Crop Research* 7(1): 9–17. doi: 10.33495/jacr_v7i1.18.154

Summary

A crossing block was established in 2013 to combine selected OFSP varieties with white-fleshed varieties, with the objective of improving the root dry matter content of the OFSP varieties and which should enhance adoption rates of these varieties. Different lines were selected, and series of yield trials were conducted at four locations for two years (2016 and 2017) using 12 selected genotypes. Two varieties (Ukr/Eju-10 and Ukr/Eju-13) were identified as best candidates for release based on their fresh root yield, dry matter content, and resistance to sweet potato virus disease. Both varieties have deep orange flesh colour indicating high β-carotene contents even better than the standard check (Kulfo) according to the content analysis.

The article can be accessed at:

http://sciencewebpublishing.net/jacr/archive/2019/January/pdf/Gurmu%20and%20Mekonen.pdf

3. Gurmu, F. Forthcoming. Review of Sweetpotato Research and Development in Ethiopia. *Journal of Agricultural and Crop Research*. Accepted for publication, 27 June 2019.

Summary

A review was done on the research and development activities on sweetpotato In Ethiopia. This article highlights the major and important research and development work that has been conducted on sweetpotato in Ethiopia since 1966. It highlights the historical background of sweetpotato research in Ethiopia from early introduction to the current stages of modern breeding activities. The agro-ecological adaptation of sweetpotato in Ethiopia, area of production and number of households involved in sweetpotato production and contribution of sweetpotato to food and nutrition security are discussed.

4. Gurmu, F., Abele, W., Tsegaye, G., and Gezahen, G. Forthcoming. Sweetpotato Seed Business Model: the case of the South Agricultural Research Institute, Ethiopia. *Journal of Agricultural and Crop Research*. Accepted for publication, 27 June 2019.

Summary

This article discusses the model used in SNNPR to develop a sweetpotato seed business and support the seed multipliers to prepare their own business plans in order to sustain the sweetpotato seed business. According to the study, it has been established that the net cash flow is positive, and the business will remain profitable and able to sustain itself.

In addition, a research manuscript entitled "Diagnostic Study on Implementation Challenge for Agricultural Nutrition Link in Ethiopia", which was prepared by the project in collaboration with Mekelle University, is being published.

3.2 Objective 2: Technical Capacity of BoANRD, BoH, SARI/TARI, ATVETs, and Other Stakeholders in the OFSP Value Chain Strengthened to Promote and Implement Sustainable OFSP Technologies and Services to Smallholder Farmers

3.2.1 Strengthen capacity of regional agricultural research institutes

Building the OFSP seed system into a sustainable and resilient one is a prerequisite to enhancing production and productivity of the crop. Moreover, OFSP is a newly introduced crop in Ethiopia, so it would require substantial investment to develop a seed system for sustainable adoption by farmers.

Production of clean planting material through tissue culture (TC) is at the heart of any seed system for vegetatively propagated crops. Because of this, the project, working with the CIP Sweetpotato Action for Security and Health in Africa (SASHA) project, invested substantially to upgrade and build high-quality OFSP foundation material production facilities at TARI and SARI, two regional agricultural research institutes in Tigray and SNNPR. The two institutes were equipped with TC equipment and laboratory supplies and with a greenhouse/screenhouse for massive multiplication of early-generation OFSP seed—both pre-basic and basic material.

During the project implementation period, the CIP-Irish Aid project provided TARI and SARI with technical and material support: laboratory chemicals for the TC labs, funding for growth room maintenance, and wages for casual labour to prepare the facilities for the foundation material production and multiplication. In addition, the project helped the institutes with maintenance of the existing 27 mobile net tunnels (12 in TARI, 15 in SARI), which are field screenhouses covered with insect-proof nets 30 X 3 m in area (Fig. 3). The project also helped establish three new mobile net tunnels in TARI. Moreover, the government supported the establishment of an additional three net tunnels in Tigray. As a result of these investments, during the reporting period, TARI and SARI produced 815,000 pre-basic cuttings in net tunnels. In addition, 1,845,000 basic seeds were produced in open fields (Table 4 and Fig. 3). The pre-basic cuttings were sold to decentralised vine multipliers (DVMs) for multiplication of basic seeds to support dissemination of vines to farm HH, whereas the basic seed was sold to institutional buyers. Furthermore, 2,000 OFSP plantlets were acclimatised in TARI and SARI TC labs.

Table 4. Number of pre-basic and basic seed produced and sold during the reporting period

Research Station	No. of Pre-Basic Cuttings Produced in Net Tunnels	No. of Basic Cuttings Produced in Open Fields	No. of Cuttings Sold
TARI	315,000	200,000	515,000
SARI	500,000	1,645,000	2,145,000
Total	**815, 000**	**1, 845,000**	**2,760,000**

(PHOTO: AZEB, CIP-ETHIOPIA)

Figure 3. Pre-basic seed production at TARI and in open fields.

3.2.2 Evaluate new OFSP varieties in selected farmers' fields

The CIP-Irish Aid project, together with other CIP projects (SASHA and the Quality Food for Better Health EU-funded project), has been collaborating with SARI to conduct variety trials at four locations in SNNPR for the past 2 years. We have been using 12 selected genotypes to identify adaptable varieties with high root dry matter content (RDMC) and beta-carotene content for various agro-ecological zones. Fresh root yield was the major trait of concern, followed by RDMC and beta-carotene content. All the data samples were taken from each replicate at each location. Fresh root yield (t/ha) was measured from the two central rows and expressed as harvested fresh root weight in kilograms per plot and later converted to tonnes per hectare. RDMC was estimated as a percentage of root dry weight (g) to fresh root weight (g), where 100–200 g samples were taken from roots of sampled plants in the plot. The samples were dried in an oven at 80°C for 48 hours. Beta-carotene content was analysed at CIP–Uganda using near infrared reflectance spectrometry and expressed as milligrams per 100 g on a dry-weight basis. Farmer preference was captured on the following criteria through "taste tests": root flesh colour, sugariness of the boiled root, taste, powderiness, texture, and overall acceptance of the boiled roots (Table 5).

Table 5. Mean RDMC and beta-carotene content of sweetpotato clones evaluated over 2 years

S. No.	Genotypes		DM Content (%)			
		Other Names	2016	2017	Mean	Beta-Carotene Content (mg/100 g) (2016)
1	Ukr/Eju-10	Alamura	32.1	31.8	31.9	12.4
2	Ukr/Eju-13	Dilla	31.3	31.6	31.4	9.5
3	Res/Tem-14	Halaba	31.8	31.3	31.5	8.5
4	Res/Tem-23	-	25.3	24.2	24.8	7.3
5	Jewel	-	28.2	30.4	29.3	11.3
6	Carrot Dar	-	28.6	31.8	30.2	10.5
7	Res/Pip-21	-	29.0	31.6	30.3	2.4
8	SPK004/6/6	Kabode	30.2	30.3	30.2	8.5
9	Maputha-1	-	28.5	27.8	28.2	8.8
10	SPK 004/6	Vita	28.6	29.6	29.1	9.6
11	Tainung-15	-	28.6	27.6	28.1	10.3
12	Kulfo	-	23.3	22.5	22.9	8.3
	Mean		28.7	29.2	29.0	9.0
	LSD (5%)		2.1	2.4	2.2	2.5
	CV		10.2	8.3	8.5	6.3

The trials revealed significant differences among the varieties for RDMC and beta-carotene content (Table 6). Two genotypes have been identified as the best candidates for release based on their fresh root yield, RDMC, and resistance to sweetpotato virus disease. The study showed that two varieties, SPK 004/6 ('Vita') and Ukr/Eju-10 ('Alamura'), had a deeper orange colour, an indicator of high beta-carotene content, as compared with the standard control and were preferred by the farmers for their taste (Table 7). These varieties, when released, will solve the low DM problem of the currently produced variety 'Kulfo'.

Table 6. Summary analysis of variance of three traits of sweetpotato genotypes evaluated across six environments

Source of Variation	df	Sum of Squares (SS)	Mean Squares (MS)	%SS
Treatment	11	7,928.2	720.8**	26.0
Block (B)	2	23.6	11.8ns	0.1
Location	3	5,813.2	1,937.7***	19.0
Year	1	132.0	132.0*	0.4

Source of Variation	df	Sum of Squares (SS)	Mean Squares (MS)	%SS
Trt x Loc	33	3,087.8	93.6*	10.1
Trt x Year	11	1,447.5	131.6*	4.7
Loc x Year	3	1,890.2	630.1**	6.2
Trt x Loc x Year	33	2,427.9	73.6*	8.0
Error	190	7,769.7	40.9	25.5
Total	**187**			

Note: *, **, and *** = significant at $p < 0.05$, $p < 0.01$, and $p < 0.001$ probability levels, respectively; df = degrees of freedom; Trt = treatment; Loc = location.

Table 7. Mean farmers' preference for sweetpotato clones evaluated across locations

S. No	Genotypes	Other Names	Parameters						Avg.	Rank
			Colour	Sugariness	Test	Powderiness	Texture	Overall Acceptance		
1	Ukr/Eju-10	Alamura	4.7	4.0	4.7	4.3	4.6	4.7	4.5	1
2	Ukr/Eju-13	Dilla	3.1	3.4	3.1	3.4	3.3	3.4	3.3	2
3	Res/Tem-14	Halaba	2.7	2.5	2.7	2.6	3.3	2.5	2.7	4
4	Res/Tem-23	-	1.9	1.9	1.7	1.9	2.3	1.8	1.9	10
5	Jewel	-	1.6	1.9	1.8	1.6	2.2	1.9	1.8	11
6	Carrot Dar	-	1.7	1.7	1.7	1.6	2.3	1.9	1.8	12
7	Res/Pip-21	-	2.5	2.7	2.6	2.8	2.7	2.7	2.7	5
8	SPK004/6/6	Kabode	2.6	2.7	2.7	3.0	2.7	2.7	2.7	6
9	Maputha-1	-	2.5	2.3	2.8	2.6	2.2	2.7	2.5	7
10	SPK 004/6	Vita	2.3	2.2	2.6	2.5	2.2	2.5	2.4	9
11	Tainung-15	-	3.0	2.7	2.9	2.9	2.7	2.7	2.8	3
12	Kulfo	-	2.2	2.6	2.4	2.5	2.6	2.7	2.5	8
	Mean		**2.6**	**2.5**	**2.6**	**2.6**	**2.8**	**2.7**	**2.6**	

Details on the methodology used and result of the study can be accessed at: http://sciencewebpublishing.net/jacr/archive/2019/January/pdf/Gurmu%20and%20Mekonen.pdf

3.2.3 Establish OFSP demo/evaluation trials, root production and vine multiplication sites at FTCs

This project, together with SARI and regional BoAs, established 63 demo plots/evaluation trials at nine FTCs for five new, promising high beta-carotene and high RDMC OFSP varieties to be used by smallholder farmers in both rainfed and irrigated conditions. The objective of this demo was to allow farmers to compare and evaluate new OFSP varieties with those currently under production. The five new OFSP varieties were 'NASPOT 12', 'NASPOT 13', 'Dilla', 'Alamura', and 'Halaba'. The first two have been released in Uganda and, if approved for release in Ethiopia, they will be registered. The last three were bred in Ethiopia and, if approved, will be released and registered. The standard control varieties were 'Kulfo' (OFSP) and 'Awasa-83' (white-fleshed sweetpotato). The demo sites have been serving as training sites, where farmers can learn to multiply and conserve vines, produce good quality OFSP roots, and observe OFSP cooking demos.

On the basis of the taste preference (which is mostly based on texture and sugariness) of 45 farmers, varieties 'Alamura', 'Dilla', and 'NASPOT 13' were ranked first, second, and third. This indicates that the new OFSP varieties have better acceptance than the old OFSP variety 'Kulfo', which has low DM based on farmers' feedback and laboratory results. In addition, the taste-test data indicated that consumers preferred the taste of the new varieties to the popular white-fleshed variety ('Aawasa-

83'), which is a breakthrough because farmers have long resisted OFSP, mostly because of its low DM content and inferior taste compared with white-fleshed sweetpotato.

In Tigray, to identify varieties suitable to the dry conditions of the region, 13 OFSP lines introduced from Mozambique are being evaluated for yield, DM, and high beta-carotene content at three FTCs—Chelekot, Adiha, and Hawzien. Each site represents different agro-ecological conditions. The varieties introduced are 'Lourdes', 'Cecilia', 'Amelia', 'Delivia', 'Enrica', 'Irene', 'Sumalia', 'Tiojoy', 'Melinda', 'Bela', 'Jane', 'Gloria', and 'Ininda'. The evaluation activity is being done in collaboration with TARI and the BoA. Similarly, demo plots of two elite varieties that are in a verification trial elsewhere are also established at the above-mentioned FTCs. These plots will be used to assess performance of and collect farmers' perception of these varieties. Both activities will be conducted until September 2019 because of the delay in planting due mainly to extended frost. The results of the two research studies will be presented in the final project report.

3.2.4 Strengthen capacities of FTCs for multiplication of OFSP foundation material

To strengthen the capacities of government institutions to scale up OFSP, the Irish Aid project has collaborated with the BoAs in SNNPR and Tigray to improve the FTCs' capacity for OFSP demo and vine multiplication. During the reporting period, 834,360 OFSP cuttings were produced at 17 FTC demo sites and distributed to 2,498 HH: 976 in SNNPR and 1,522 in Tigray (Fig. 4). Each of the HH that received the vines is expected to share the vines with at least 3 others. In addition, 2,400 vine cuttings were also provided to Wolita sodo ATVET college in order to establish a demo plot.

(PHOTO: AZEB. CIP-ETHIOPIA)

Figure 4. Vine multiplication at Debrebrehan FTC, Hawaize, Tigray.

In Tigray agriculture offices in some woredas—for example, Hawzien and Quola Tembien—expanded OFSP multiplication to other FTCs using their own resources. Moreover, cooking demos of OFSP and other nutritious crops were conducted for pregnant and lactating mothers at the FTCs and health posts in the project areas. The cooking demos were organised to build local knowledge using hands-on instructions on recipe development and allowing tasting to encourage families to integrate OFSP in their diets. Because the crop is new, the target community has almost no knowledge of how to use it. After completing the cooking demos, OFSP roots produced by the FTCs were distributed to member farmers for home consumption.

The project procured pressurised drip irrigation equipment for two FTCs in SNNPR. The drip irrigation system has been installed and is poised to play a key role in enhancing the conservation of vines during the dry season. The project also provided a desktop computer to five FTCs in the SNNPR to facilitate digital documentation, computerised data management, and reporting. Moreover, the project, in collaboration with the Quality Food for Better Health project, a training of trainers (ToT) training manual ("Everything You Ever Wanted to Know about Sweetpotato: Reaching Agents of Change", produced by CIP) was translated into Amharic and Tigrigna and distributed to 10 FTCs in Tigray and 10 FTCs in SNNPR, both in hard and soft copies.

3.2.5 Establish OFSP demo and vine multiplication sites at ATVETs

During the reporting period, OFSP demo plots were established at Maichew, Wukro, and Shire ATVETs in Tigray and Welota Sodo ATVET in SNNPR (Fig. 5). These demo plots serve as training and learning sites for college students, including development agents (DAs), on (1) OFSP agronomy and disease and pest management, (2) multiplication and conservation of vines through Triple S technology, (3) post-harvest management, and (4) use of OFSP roots and cooking demos. Moreover, the demo plots are serving as a source of planting material for farmers living near the colleges.

(PHOTO: MERESIET. CIP-ETHIOPIA)

Figure 5. OFSP demo and vine multiplication sites at Shire ATVET college.

3.2.6 Train ATVETS, BoA and BoH staff, and model farmers (MFs) in relevant technical and management skills as identified in the systems strengthening plan

Activity 1: Training of BoA experts and DAs on Triple S technology

Limited access to quality OFSP planting material is a major constraint to OFSP adoption by smallholder farmers in the project areas. The problem is accentuated by low seed multiplication rates of sweetpotato; bulkiness, perishability, and transportation costs of vine cuttings to be used as planting material; ease of disease transmission; and degeneration of planting material quality. Most farmers in the project areas have limited access to irrigation and therefore depend largely on rain-fed crop production. Under long dry-spell conditions, conservation of planting material from one season to the next is difficult, at times resulting in loss of a significant proportion of the material. The extent of planting material loss increases during droughts. As a result, many farmers find it difficult to sustain OFSP production every year or season.

For these agro-ecological conditions, CIP developed an alternative strategy for planting material conservation that preserves selected roots in sand and enables early sprouting of vines at the onset of rains. Cuttings from these vines can then be used for timely planting using the storage in sand and sprouting (Triple S) technique. Once farmers are trained on Triple S, they are expected to retain their own planting material without having to rely on outside support for the next planting season. To promote this technology and reap the benefits from it, during the reporting period the project collaborated with CIP's Roots, Tubers and Bananas projects and the BoA to conduct a 2-day ToT training on the Triple S method for 20 (14 males, 6 females) woreda BoA experts and DAs from SNNPR. The training was held at the Framont Hotel in Shashemene town on 26–27 October 2018. It was based on effective theoretical and practical approaches (see Fig. 6). The training included:

- Introduction to Triple S (scientific explanation)
- Assessment of basic knowledge about Triple S
- Preparation to set up Triple S: what, when, why, and how?
- Practical exercises on how to train others on Triple S seed conservation
- Post-training assessment

Participants were provided with the training manual translated into Amharic. The manual helped guide the training and served as a key reference material. Those who attended the training are expected to conduct a step-down training for farming HH in target communities.

(PHOTO: ASHEBER, CIP-ETHIOPIA)

Figure 6. Triple S training participants in SNNPR receive theoretical training (left) and field-based practical training (right).

Activity 2: Organise kebele-level training on Triple S seed conservation technique to MFs

Access to quality vine cuttings will remain the key limiting factor to widespread and sustained adoption of OFSP by smallholder farmers. Most farmers rely on institutional buyers to get free vine cuttings every year, which is unsustainable. Most farmers in the project areas have limited access to irrigation and therefore depend largely on rain-fed crop production. Under long dry-spell conditions, conservation of planting material from one season to the next is difficult, resulting in loss of most of the material. As a result, many farmers find it difficult to sustain OFSP production every year or season, leading to farmers' continuous reliance on institutional buyers. To strengthen technical capacity of model MFs in climate-smart Triple S vine conservation technology, the project collaborated with the BoA in Tigray to train 250 MFs (Table 8 and Fig. 7).

Table 8. Number of MFs trained in Triple S seed conservation methods in five Tigray woredas

Woreda	Date (June 2019)	No. of Participants		
		Male	Female	Total
Endarta	8–9	2	48	**50**
Raya Azebo	13–16	35	15	**50**
Hawzen	14–15	30	20	**50**
Abergele	20–21	30	20	**50**
Qolla Temben	22–23	10	40	**50**
Total		**107**	**143**	**250**

Training covered both theoretical and practical sessions on setting up Triple S seed conservation by focusing on what, when, why, and how? The training was held in each project kebele. Experts from the Tigray BoA and instructors from Shire and Maichew ATVETs provided the training. Training manuals translated into Tigrigna (the local language in Tigray) were provided to each participant.

Farmers who attended the Triple S seed conservation training were given 500 OFSP cuttings each from FTC vine multiplications sites for HH-level backyard root production. They are expected to retain their own seed without having to rely on outside support for the next planting season.

(PHOTO: AZEB, CIP-ETHIOPIA)

Figure 7. Triple S seed conservation training participants in Tigray receive practical training.

Activity 3: Organise ToT course on OFSP nutrition, agronomy, seed system, seed conservation, post-harvest management, and utilisation to ATVETs instructors

As a continuation of last year's ToT training, in collaboration with the CIP Quality Food for Better Health EU-funded project, the project gave an intensive 5-day ToT course on 15–19 June 2019 on various aspects of OFSP nutrition, agronomy, seed system, pest management, and utilisation to seven people (two females, five males) (Table 9).

Table 9. Number of ToT participants (15–19 June 2019)

Participants	Male	Female	Total
ATVET instructors from Shire, Wukro, Maichew	2	1	**3**
ATVET instructors from Wolita Sodo	3	1	**4**
Total	**5**	**2**	**7**

Experts from SARI and CIP (Irish Aid and EU projects) facilitated the training, which covered both theory and hands-on practice in the field. The training manual "Everything You Ever Wanted to Know About Sweetpotato", translated into Amharic, was provided to each training participant to be used as main training or course material.

Participants indicated that they were very satisfied with the whole process of organising and conducting the course, as well as the content which they said was the first of its kind in terms of completeness. They indicated that the training has enriched their knowledge and added to their skills on sweetpotato production, utilisation, and marketing. They specifically mentioned that the newly gained knowledge on the nutritional value of OFSP in addressing vitamin A deficiency will help them transfer the knowledge and skills they have learned to their students. Participants also appreciated the practical sessions, which they said have helped them to exercise and practice the knowledge they learned in the classroom.

Activity 4: Organise training on "Everything You Ever Wanted to Know about Sweetpotato" to BoA staff and ATVET instructors

As a continuation of last year's ToT training, during this reporting period CIP collaborated with the Tigray BoA and two ATVETs (Wukro and Maichew) to organise a ToT course using "Everything You Ever Wanted to Know about Sweetpotato" as a training material. A total of 79 BoA staff and 74 ATVET instructors (Table 10) were trained on the following topics:

- Principles of adult learning

- Origin and importance of sweetpotato
- Sweetpotato varietal selection and characteristics
- OFSP and nutrition
- Sweetpotato seed system
- Sweetpotato production and management
- Sweetpotato pest and disease management
- Sweetpotato harvesting and post-harvest management
- Processing and utilisation
- Marketing and entrepreneurship
- Gender and diversity aspects
- Monitoring of OFSP dissemination and uptake

The training covered both theoretical and practical field sessions, following an adult learning methodology that included visual presentation, case studies, and practical hands-on exercises such as group discussions and plenary discussions. Participants tested different foods prepared from sweetpotato. At the beginning of the training, a pre-test was conducted and a post-training test was given at the end of the training to measure the difference in knowledge. At the beginning of the training, each participant was given the manual "Everything You Ever Wanted to Know about Sweetpotato" to guide the training and serve as a key reference material. Experts from TARI, ATVET, CIP, and the BoA conducted the trainings.

Table 10. ToT on "Everything You Ever Wanted to Know about Sweetpotato" for BoA staff and ATVET instructors in Tigray and SNNPR

Training Participants	Date	Number of Participants		
		Male	Female	Total
BoA staff (experts from region and woreda and DAs)	3–7/11/2018	54	25	**79**
ATVET instructors from Maichew	7–11/12/2018	18	4	**22**
ATVET instructors from Wukro	14–18/12/2018	19	3	**22**
ATVET instructors from Wolita Sodo	5–7/6/2019	27	3	**30**
Total		**118**	**35**	**153**

Activity 5: ToTs on OFSP nutrition and behaviour change nutrition counselling techniques

In many parts of Ethiopia, poor dietary practices are partly attributed to lack of nutrition knowledge among rural HH, particularly primary caregivers of children under 5 years. In addition, health extension workers (HEWs) who are directly responsible for nutrition promotion activities at community level seem to know about interventions to address malnutrition (ie, through nutrition- specific interventions), but are less knowledgeable about nutrition-sensitive agriculture (NSA) approaches. To improve the knowledge in this area, CIP, in collaboration with project partners, organised a 2-day ToT training in each region; 98 people (70 males, 28 females) were trained (Table 11).

Table 11. OFSP nutrition and behaviour change nutrition counselling techniques training

Description of the Training	Region	Date	Number of Participants		
			Male	Female	Total
OFSP nutrition and behaviour change nutrition counselling techniques	Tigray	12-14 Oct 2019	38	15	**53**
OFSP nutrition to BoA and BoH experts, DAs	SNNPR	29 Nov 2018	25	4	**29**
OFSP nutrition to BoA and BoH experts, DAs	SNNPR	11–12 Apr 2019	7	9	**16**
Total			**70**	**28**	**98**

The objectives of the training were to:

- Improve participants' understanding of the underlying causes and consequences of undernutrition and indicators for nutritional deficiencies, with a focus on vitamin A deficiency.
- Equip nutrition educators (health officers, HEWs, and WAT woreda-level nutrition coordinators) with knowledge about nutrition, the importance of vitamin A and the nutritional values of OFSP, behaviour-changing nutrition counselling techniques, and demand-creation campaigns.
- Enhance participants' knowledge of how to cook delicious sweetpotato dishes, process OFSP, retain the beta-carotene during processing, and enhance community-level transfer of knowledge to increase OFSP adoption and sustain the project's achievements in the long term.

In Tigray the project trained 53 (38 males,15 females) woreda- and kebele-level health officers and WAT woreda-level nutrition coordinators on various nutrition topics and behaviour-changing nutrition counselling techniques, with a focus on the following topics:

- Basic concepts of human nutrition
- Nutritional (micronutrient) deficiencies with a focus on vitamin A deficiency
- The underlying causes of malnutrition in Ethiopia/vulnerable populations
- Concepts of biofortification and basic facts about nutrient values of OFSP
- Health and nutrition benefits of OFSP
- Processing and utilisation of OFSP (how to cook delicious sweetpotato-based recipes)
- Behaviour-changing nutrition counselling techniques and demand-creation campaigns

Similarly, in SNNPR the project trained 45 participants (32 males, 13 females[1]), including DAs, HEWs, woreda BoA experts, and woreda BoH officers (Table 10) focusing on same topics shown above.

In each nutrition training session, participants were encouraged to prepare and taste different dishes prepared with OFSP. The sessions included practical hands-on nutrition exercises that improve skills, dialogue, and interaction amongst health, agriculture, and caregiver domains.

Nutrition experts from Tigray BoH and WAT provided the training there; in SNNPR the training was provided by nutrition experts from Hawassa University and ELE. The participants in the ToTs then conducted step-down training of farmers, women's development group leaders, and school science club members.

3.2.7 Organise an experience-sharing and learning workshop for ATVET instructors

During the reporting period, CIP, in collaboration with the BoA in Tigray, organised a 1-day experience-sharing and learning workshop for ATVETs instructors (from Wukro, Shire, and Miachew) to evaluate the execution of the curriculum which contains CIP's OFSP training modules as part of the learning and teaching process. The meeting was held in Mekelle on 1 June 2019 (Fig. 8). At the workshop the head of each ATVET college presented activities accomplished and results achieved in the establishment of OFSP demo and vine multiplication sites, training of staff, number of vines distributed to communities, challenges, and lessons learnt in a teaching and learning programme.

[1] Male dominance in the government staff in the agriculture sector is common phenomenon. However, because the target beneficiaries in the project are children under 5 and pregnant and lactating women, the male staff dominance will not affect the project's ability in reaching women.

(PHOTO: AZEB, CIP-ETHIOPIA)

Figure 8. Participants at the experience-sharing and learning workshop, Mekelle.

3.2.8 Co-design and co-implement good practice (planning-implementation-learning cycles) of OFSP production and nutrition interventions with BoA and BoH in alignment with the Agricultural Growth Programme, National Nutrition Programme, and other national programmes

Activity 1: Institutionalisation of OFSP recipes and cooking demos at kebele-level health extension systems

CIP and project partners organised practical training on OFSP and conducted cooking demos. The aim of the training was to equip BoH and BoA extension workers, women's development group leaders, model women farmers, and one to five network team leaders with the skills to prepare different sweetpotato dishes, and to integrate OFSP cooking demos into ongoing, government-led cooking demos and other health and agriculture extension activities. To this end, during the reporting period, the project trained 2,021 people (620 in Tigray, 1,401 in SNNPR) on conducting OFSP cooking demos in both regions. The training covered the following topics:

- How to process OFSP and add value
- Basic steps involved in preparing and storing quality sweetpotato flour
- How to prepare OFSP puree
- How to prepare and cook different sweetpotato dishes (bread, injera, chapati/kitta, porridge, and sweetpotato juice from root and leaves)
- How to preserve OFSP roots and other nutritious foods

In both Tigray and SNNPR regions, 90 women's development groups (each group containing 30 members) and HEWs were trained to provide nutrition counselling at health posts and at the house-to-house level, targeting women and children. The practical training on conducting cooking demos in each project area was led by staff of the WAT in Tigray and ELE in SNNPR. A sweetpotato recipe book was distributed to participants. Moreover, 3,298 people (256 children, 450 men, 2,592 women) in Tigray attended cooking demos organised at five health posts and five FTCs (Table 12).

Table 12. People trained on cooking and cooking demos conducted in Tigray and SNNPR

Region	Area of Training	Number of Participants			
		Children	Male	Female	Total
SNNPR	Practical training on conducting cooking demo sessions		690	711	**1,301**
	Training on nutrition counselling for women's development group leaders and HEWs			40	**40**
Tigray	Training on how to prepare different dishes from sweetpotato and cooking demos at FTCs and health centres		550	70	**620**
	Training on nutrition counselling for women's development group leaders and HEWs			50	**50**
	Practical training on conducting cooking demos	256	450	2,592	**3,298**
Total		**256**	**1,690**	**3,463**	**5,409**

Activity 2: Cascading training on OFSP utilisation and cooking demos by trained HEWs

The project employs a cascading training approach to reach many farmers. During this reporting period in Tigray, cascading training on cooking demos and preparing different sweetpotato dishes was provided for 375 women's development group leaders, school nutrition club leaders, and model women farmers (Fig. 9). This training was given by trained HEWs. The training consisted of both theory and practical sessions.

(PHOTO: ZUFAN, WAT)

Figure 9. Women leaders train farmers (left); school club leaders provide food demos to schoolchildren in Tigray (right).

3.3 Objective 3: Evidence, Best Practices, And Lessons on Using OFSP to Improve Food Security And Nutrition—Documented And Disseminated at National, Regional, And Local Levels

3.3.1 Conduct operational research to evaluate the response of new OFSP candidate varieties to low-cost drip irrigation for root and vine production

CIP, in collaboration with SARI and the BoA in SNNPR, planned to conduct operational research to evaluate the response of new OFSP candidate varieties to low-cost drip irrigation for root and vine production. However, this research was postponed because of delays in procuring drip irrigation materials. The main reason for the delay was the absence of suppliers. First, a request for local bids was aired at Hawassa town; there was not a single bidder. Then, the CIP–Addis Ababa office sought bids and had only one response. Because three bids are required, the effort again failed. Finally, the equipment was acquired in June, which is the onset of the main rain season. Therefore, the study will be conducted in the dry season (December–March) using SARI's own budget.

3.3.2 Organise a regional multi-country knowledge-sharing workshop for CIP/Irish Aid-funded projects in Malawi, Mozambique, and Ethiopia to exchange ideas, experiences, and lessons on system-strengthening approaches

CIP organised a workshop on 13–15 November 2018 to share, review, and analyse experiences and results from system-strengthening approaches across the potato and sweetpotato programmes in Ethiopia, Malawi, and Mozambique, as well as other initiatives that are working towards the same goal. The workshop in Addis Ababa, Ethiopia, brought some 50 participants from Ethiopia, Malawi, and Mozambique, together with staff from CIP headquarters in Lima and the CIP Africa Regional Office, as well as a delegation from Irish Aid and other interested partners from West Africa.

The three country programmes showcased during the workshop illustrated how different systems interact within the food and agriculture system and influence overall performance towards the envisioned sustainable development goals.

Innovation platforms initiated by CIP and partners demonstrate a new type of institutional arrangement for partnerships. Representatives from different systems meet and explore joint visions with win-wins for all stakeholders. CIP and partners increasingly engage in these new types of multi-stakeholder partnerships. A good example is the Roots and Tuber Crops Development Trust in Malawi, an institutionalised network where different partners agree to share investments and coordinate for synergy and stronger performance.

During the workshop, eight working groups each identified a set of highlights, lessons, and recommendations for how different aspects of current system-strengthening efforts could be improved. This key workshop output will allow CIP and partners to update their learning agenda as well as the design of future projects and programmes.

In the closing sessions on moving forward, some of the participants' main recommendations included making information and documentation on the link between nutrition and agriculture more available to the general public, both online and via integration in curriculums for young people. CIP was asked to consider creating a regional database on this topic for all interested stakeholders. In addition, workshop participants asked for more joint conferences and learning-exchange visits, including with farmers, for the three countries. These should showcase good practices in extension systems, multi-stakeholder platforms, and seed-based programmes. Consideration should also be given to creating an African learning group to link up with learning on other continents and learn from other crop and livestock success stories that have achieved nutrition results. Participants also recommended consideration of stronger learning by researchers and other stakeholders by jointly undertaking capacity gap analysis (analysing the enabling environment and institutional and technical performance/capacities) and developing a joint scale-up road map at country level and by CIP country actors joining the regional Irish Potato Coalition.

The workshop was ably facilitated by Jan Brouwers, from Wageningen University. A report on the workshop and research has been published as a working paper on the CIP website. The report (ISBN: 978-92-9060-515-7; DOI: 10.4160/9789290605157) can be accessed at www.cipotato.org.

3.3.2 Conduct regional end-of-project stakeholder review and learning workshops to jointly review achievements, lessons learnt, and future directions

CIP, in collaboration with project partners, organised an end-of-project stakeholder review and learning workshop in each of the regions: Mekelle (Tigray) and Hawassa (SNNPR). In Tigray the workshop was held on 1 June 2019, and in SNNPR on 28 June 2019 (Figs. 10 and 11, respectively). The objectives of the workshops were to (1) review progress and achievements of the project during the past 2 years, challenges faced, and lessons learnt and (2) jointly develop future directions.

(PHOTO: AZEB. CIP-ETHIOPIA)

Figure 10. Regional end-of-project stakeholder review and learning workshop participants in Tigray (Mekelle).

In Tigray 47 (39 males, 8 females) participants from TARI, WAT, the BoH and BoA, and others attended the workshop.

(PHOTO: ASHEBER. CIP-ETHIOPIA)

Figure 11. Regional end of project stakeholder review and learning workshop participants in Hawassa (SNNPR).

In SNNPR 39 participants (37 males, 2 females) attended, drawn from woreda administration, SARI, ELE, and the BoA.

During the 1-day workshop, presentations related to the theme of the workshop were given by project partners in each region followed by group discussions and suggestions. The topics of the presentations were focused on main changes and achievements during the past 2 years, drivers of change, gaps, challenges, and learning experiences with respect to system strengthening and institutionalising for scaling OFSP. The group discussions enriched the learning exchange of best practices and key lessons and identified ways forward.

Some main reflections that came out during discussions are summarised below:

- The training activities organised by CIP enhanced knowledge, skill, and attitude of experts about the nutrition and health benefits of OFSP as well as the agronomic practices of the crop. However, continuous training and awareness creation to reach more people in the community are needed, as the Triple S vine conservation method is currently only with few farmers and DAs.
- The experience-sharing visits organised by the project enhanced participants of the event to focus more on further scaling of the crop in their project areas.
- There was a serious shortage of vine cuttings. Participants suggested that each FTC in each intervention kebele multiply its own vines to meet local demand. In this regard, the BoA should strengthen OFSP demos and multiplication at FTC level.
- The role of institutional buyers continues to be vital to induce the production of adequate sweetpotato on a sustainable basis for some time to come.
- A well-organised stakeholder platform continues to be a necessary element to sustain production of the crop.

- Development of a robust market linkage in a value chain for fresh OFSP root benefits both producers and the food processing industry. This will help:
  - improve OFSP root supply in the market. Segmentation of target population in programme design was found important;
  - increase job creation for unemployed youth in sweetpotato production, marketing, and value addition; and
  - establish OFSP root producer groups, by working with established commercially oriented farmers or farmer groups with the required resources for urban root supply.

3.4 Objective 4: Evidence-Based Advocacy Strengthened To Influence Policies And Programming in Support of OFSP as Part of Healthier Diets

3.4.1 Engage with multi-sectoral nutrition-agricultural platforms for sharing evidence and lessons

In collaboration with Hawassa University, a regional stakeholder workshop was conducted on 22 December 2018 in Hawassa. Thirty-five people from different NGOs and government organisations who work on NSA participated. Eleven papers were presented by experts representing different organisations, to share their experiences with others. The presenters were from Hawassa University; Alive and Thrive; SARI; the BoA; and various projects being implemented by the International Maize and Wheat Improvement Center (Nutritious Maize for Ethiopia), (Capacity Development Support Facility), the BoH (Sustainable Undernutrition Reduction in Ethiopia), CIP–Irish Aid, and CIP–EU. Each presenter shared key achievements, challenges, and lessons learnt from their NSA project. The workshop was chaired by Ato Kasu, director of the regional BoA's extension and communication directorate. The following major issues, which could help enhance NSA benefits, were raised:

- Nutrition awareness creation should not rely on NGOs' or donors' budgets, but the government should support it from its own budget.
- A nutrition unit should be established independently as a core process in the agriculture and health sectors.
- More NSA efforts are required, and we need to create strong platforms to rigorously implement such efforts.
- The major challenges to the agriculture-health-nutrition linkage raised by the workshop participants were:
  - limited commitments and budget to step-down training to target groups/farmers;
  - nutrition activities not being considered in annual plans as important activities of relevant sectors such as the Bureau of Education and the BoA; and
  - lack of good reporting system to publicise nutrition-related activities.

The workshop culminated with an agreement to use a particular platform for activities and discussions in NSA and nutrition-related programmes and activities at regional level every quarter, and more frequently as deemed necessary. The workshop proceeding report can be accessed here: Annual Agriculture Nutrition linkage report.

In addition, during the reporting period, as part of the project's advocacy efforts, CIP staff attended eight platform meetings to share evidence and lessons at regional, national, and international levels. These included:

- A day-long validation workshop on the "National Nutrition Sensitive Agriculture Training Manual for Agricultural Development Agents", organised by the Ministry of Agriculture and Livestock, was held on 8 November 2018 in Bishoftu town.

- A workshop organised by the Ministry of Agriculture (MoA) on NSA was held in Addis Ababa on 22–24 December 2018.
- The Ninth Annual Sweetpotato for Profit and Health Initiative meeting, attended by two CIP–Irish Aid project staff, convened in Nairobi on 24–27 September 2018, organised by the CIP-SASHA project. More than 100 people from 14 countries in sub-Saharan Africa as well as the United States, the United Kingdom, Germany, and Peru attended. The meeting's theme was "Progress in Research for Development for Sweetpotato in Africa".
- CIP staff attended regional nutrition technical committee meeting organised by the BoH in Mekelle on 22–24 March 2018, aimed at sharing evidence and lessons on nutritious-dense crop.
- CIP staff attended a national consultative workshop for the development of the implementation modalities manual for the National Nutrition Sensitive Agriculture Strategy in Addis Ababa, on 4–5 April 2019. The workshop was organised by Food and Nutrition Coordination Office of the MoA. During the meeting, CIP shared evidence and lessons on biofortified OFSP crops.
- CIP's Tigray office staff participated in a National Partners Consultative Technical meeting on 30 May 2019. Organised by CIP's regional office, the meeting aimed at mapping priority areas for delivery of OFSP in Ethiopia. At the event we shared evidence and lessons on the scaling-up of OFSP for improving nutrition and food security of vulnerable HH in Tigray and SNNPR.
- CIP's Tigray office attended a sensitisation workshop on the newly-launched Food and Nutrition Policy, held on 24 May 2019 in Mekele to sensitise relevant sectors and nutrition development partners and obtain their commitment to the policy at regional level. The event was attended by various government line bureaus; nutrition development partners, including UN agencies; academia; members of the media; and civil society (Fig. 12). The policy will provide a legal framework that supports the country's efforts to improve food and nutrition system in Ethiopia. In addition, it will help to effectively coordinate efforts of NGOs engaged in the promotion of nutrition down to the lowest administrative levels.

(PHOTO: MENGISH. BOH, TIGRAY)

Figure 12. CIP's participation at regional food and nutrition sensitisation meeting, Mekelle.

- CIP and its partners (SNNPR and Tigray) attended the 11th consultation meeting of the Seed Systems and Crop Management Community of Practice of the CIP–SASHA project. The meeting was held on 14–16 May 2019 in Mekelle, Ethiopia. Some 55 participants (46 males, 9 females) attended from 12 countries (Ethiopia, Kenya, Uganda, Tanzania, Ghana, Nigeria, Malawi, Mozambique, Burkina Faso, Burundi, Zambia, and Rwanda).
- CIP–Ethiopia produced a paper entitled "A nutrition-sensitive agriculture project improved household and child dietary diversity and increased consumption of animal source foods: Evidence from Ethiopia." The paper was selected for oral presentation for the 4th Agriculture Nutrition Health Academy Week, held on 24–28 June 2019 in Hyderabad, India. The academy is a global research network in agriculture and food systems for improved nutrition and health to serve as a platform for learning and sharing. It aims to bring together researchers, practitioners, and policymakers working across disciplines and sectors to tackle the complex interactions

between agriculture-food systems, nutrition, health, and environment. At this event CIP–Ethiopia presented evidence, lessons, and impacts of the previous and on-going OFSP projects funded by Irish Aid.

3.4.2 In collaboration with project partners, CIP organised an OFSP seed demand and supply linkage workshop

To enhance coordination in the OFSP seed system, during the reporting period one linkage workshop was conducted in each region (Table 13). The meetings aimed to plan and coordinate the demand and supply of OFSP planting material before start of the 2019 meher rain season.

Table 13. Stakeholder consultation annual sweetpotato seed demand and supply linkage workshop

Region	Date	Participants
Tigray	19 November 2018	24
SNNPR	27 March 2019	33
Total		**57**

In Tigray the workshop was held on 19 November 2018 in Mekelle; 24 people (20 males, 4 females) participated (Fig. 13). Several international and local NGOs and projects participated in the workshop, including GIZ, Save the Children, International Fund for Agricultural Development (IFAD), Food and Agriculture Organisation of the United Nations (FAO), SURE, Relief Society of Tigray, Livelihood project, Development Response Impact project, Agricultural Growth Program, and CIP. At the workshop six institutional buyers (GIZ, REST, IFAD, Sasakawa Global 2000, Save the Children project in Tigray, and the Irish Aid-funded BoA Tigray Livelihood project) in Tigray procured vines for the 2019 *meher* season planting. They declared that they had allocated funding to purchase approximately 5m OFSP cuttings from recognised vine multipliers.

In SNNPR the meeting was held on 27 March 2019 attended by 33 participants. At the workshop four institutional buyers (ie, Save the Children, FAO, the CIP–EU project, and CIP's emergency project) declared their OFSP seed demand for this year, estimated at 17m OFSP cuttings.

During the discussion the following points were raised by seed-multiplier participants:

- Most of the time NGOs fail to keep their word to buy cuttings after we planned together.
- Hawassa Agricultural Research Center is not delivering the number of basic and pre-basic vines demanded by commercial vine multipliers.
- There is unfair competition among vine multipliers, some are trying to monopolise the business.
- The demand and harvesting times are not in synch and multipliers are suffering losses.
- Private multipliers need advice from research centres on chemical application to control sweetpotato insects and diseases.

The following major action points were agreed at the workshop:

- Because most of the institutional buyers work on the plans of the BoA, it was pointed out that the BoA should collect demand at village level. Regional demand should be documented by the BoA, and seed distribution should be done through the BoA in collaboration with concerned partners in each project area.
- FAO has a list of vine suppliers on their website, but unless multipliers are on that list it is impossible to place a bid. Thus, vine multipliers were advised to register their companies online at FAO's website.
- NGO programmes depend on donors' grants. Thus, it was suggested that vine multipliers should not depend solely on NGOs' purchases. They should also look for other customers such as farmers.

(PHOTO: HAILE, CIP–ETHIOPIA)

Figure 13. Participants in the OFSP seed demand and supply workshop, Mekelle.

3.4.3 Integration of video-based training material into regular BoA extension system

As part of the system-strengthening plan, during the reporting period CIP commissioned a consultant to develop video-based training material on sweetpotato agronomy and post-harvest management based on CIP's "Everything You Ever Wanted to Know about Sweetpotato". Topics covered include importance of sweetpotato, OFSP and nutrition, sweetpotato production and management, seed conservation using Triple S technology, sweetpotato pest and disease management, sweetpotato harvesting, and post-harvest management. All of these topics provided for cost-effective, efficient, and sustainable extension tools and approaches. The video was developed in collaboration with experts from the Tigray BoA and TARI. Soft copies of the developed video-based training material were provided to each FTCs in 10 project kebeles in Tigray. This should greatly improve access to information by extension workers and farmers, and help increase impact going forward.

3.4.4 Farmers' field day and cooking demos at FTCs

FTCs play significant roles in demonstrating and evaluating new agricultural technologies to the farmers in their vicinity. Since farmers have the opportunity to visit FTCs in their kebeles frequently, FTCs play a great role in scaling agricultural technologies and improving their adoption rates.

The project, in collaboration with partners in SNNPR (BoANRD, SARI, ELE, and project woreda health offices) organised two experience-sharing field day events. This was to expose farmers, agriculture and nutrition experts, woreda and kebele administrators, DAs, and HEWs to the production, harvesting, processing, and testing of the new OFSP varieties.

The first field day was conducted in the planting season (July 2018) at nine FTCs. Eighty farmers (50 males, 30 females) attended. The second field day took place during root harvesting in December 2018 attended by 370 participants (208 males, 162 females). They observed agronomic practices on OFSP vine and root production and crop management, vine multiplication and conservation practices, and post-harvest root management. In addition to agronomic practices, ELE staff, working with trained HEWs, gave a cooking demo using different OFSP recipes. The recipes included local bread with OFSP, kocho blended with OFSP, rice with OFSP sauce, and boiled OFSP.

Similarly, CIP coordinated with the BOA to organise a day-long OFSP field day on 29 December 2018. The objectives of the field day were to:

- Show HEWs, DAs, kebele administrators, and MFs the efforts being made by project partners to institutionalise the project activities within the on-going government health and agricultural extension system.
- Demonstrate best agronomic practices and preparation of different dishes using OFSP by host MFs.
- Expose participants to a comprehensive kitchen garden in a small plot of land (growing lima beans, OFSP, fruits, and other vegetables) by MFs.
- Discuss the major challenges farmers face in OFSP root and vine production and conservation.

The event was attended by 82 participants (28% women), including heads of kebele administrations, HEWs, DAs, and MFs from 10 project intervention kebeles. The field day was hosted by a Kalamino farm owned by Tigray Development Association and MFs producing OFSP vines and roots in Chelekot tabia of Enderta woreda. The field day allowed participants to share best practices related to appropriate OFSP production, vine conservation, post-harvest root management, and utilisation. The host farmers shared their achievements, such as practices for sustainable OFSP vine multiplication and vine conservation. Participants engaged in rich and vigorous discussions on various OFSP-related topics and got to learn from each other. The principal investigator from the regional BoA expressed appreciation for CIP's efforts to build the capacity of HEWs, DAs, and farmers by organising experience-sharing events. He described the events as "showcasing new knowledge" and said it was a successful field-based training.

3.4.5 Consolidate an evidence base on OFSP in Ethiopia and develop advocacy and demand-creation materials and tools

As part of a strategy to raise awareness and create demand for OFSP within and outside the project intervention areas, during the reporting period we collaborated with project partners to develop and distribute information, education, and communication (IEC) materials (Fig. 14 and Table 14). These include project briefs, flyers, leaflets, posters, t-shirts, a booklet called "Orange-Fleshed Sweetpotato—Your Passport to Good Health", and recipe books. The material presented key nutrition messages targeting all HH in the intervention communities as well as schools, government health and agriculture offices, farmers, and workshop participants.

Figure 14. Presentation of different types of IEC promotion material distributed.

Table 14. No. of promotional materials distributed during different promotional events in both region

IEC Material	No. of Promotional Materials Distributed		
	SNNPR	Tigray	Total
Project briefs	300	210	**510**
Project flyers and leaflets	130	422	**552**
Recipe booklet	134	1,315	**1,449**
Posters	40	1,050	**1,090**
T-shirts		270	**270**
"Orange-Fleshed Sweetpotato—Your Passport to Good Health" booklet	10	250	**260**
Total	**614**	**3,517**	**4,131**

3.4.6 Jointly with the MoA, develop a national potato and sweetpotato strategy linked to other agriculture and nutrition national strategies

During the reporting period, two consultants who have many years of experience in potato and sweetpotato were hired to develop a national potato and sweetpotato strategy document in consultation with CIP and the MoA. CIP received the initial draft report and provided feedback to consultants. With the technical approval of the MoA, the final working draft was to be shared with relevant institutions and presented at a final validation workshop, planned for the third week of March 2019. Following the validation, CIP plans to present the final document for government endorsement.

3.4.7 Develop small OFSP manual (print and video) and integrate into regular BoH nutrition promotion package

During the reporting period, a video-based training manual on the preparation of different sweetpotato dishes, which served as a cost-effective cooking demo, was developed in collaboration with experts from the Tigray BoH and WAT (Fig. 15). As part of this process, CIP and our project partners are also piloting the integration of a "digital green" approach into one of the project intervention kebeles in Tigray. (A digital green approach is a techno-social platform for disseminating agricultural extension information through low-cost videos.) The goal is to test the feasibility of such an approach in training and promotion using the local extension system. A digital green eco-projector and camera were procured, and training on the technology was planned for HEWs and DAs in February 2019:

- In collaboration with WAT, the project also updated the version of a sweetpotato recipe book, adapted to local food habits; it is now being finalised for printing. The book will be distributed to project-area health centres and integrated into their community nutrition counselling package. The project is also communicating with bookstores, namely Mega and Modern bookstores, to display the recipe book for sale when it is printed.
- The "Orange-Fleshed Sweetpotato—Your Passport to Good Health" booklet was translated into Tigrigna and distributed to FTCs, ATVET collages, OFSP champions, and elementary schools as well as to workshop and training participants. The booklet was also translated into Amharic and is being prepared for printing.

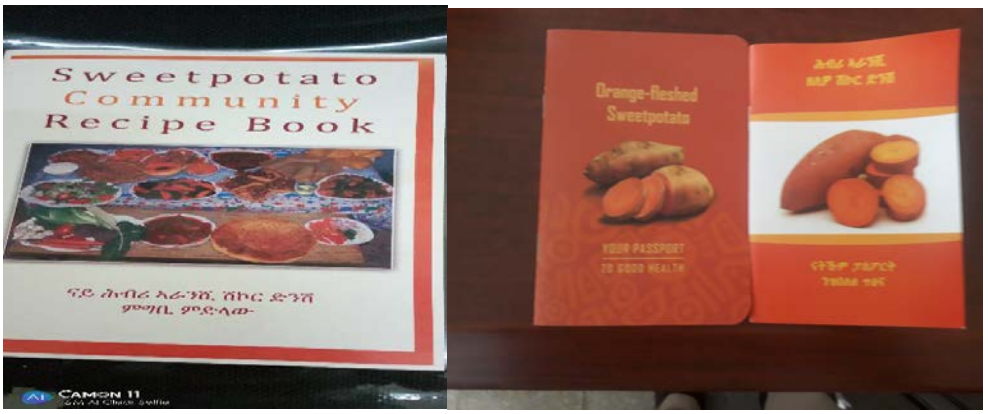

Figure 15. Updated sweetpotato community recipe book (left) and OFSP passport in English and Tigrigna (right).

3.4.8 Project partner annual planning and review meeting

During the reporting period in both regions, CIP, in collaboration with project partners, organised a day-long workshop to review progress towards project implementation and lessons to be integrated into planning Y2 of the project implementation cycle. These workshops were held in August 2018 in Hawassa and Mekelle (Table 15). Project partners presented their targets versus

achievements, lessons learnt, and challenges in the previous implementation period. The partners also prepared their work plans and budgets for the coming implementation cycle. After the work plans and budgets were developed, the project established sub-grant agreements with partners and started implementation. The review workshop provided an opportunity to share information among partners and make decisions on required follow-up actions.

Table 15. Annual review and planning stakeholder workshop participants

Region	Participants	No. Participants
SNNPR	Project implementing partners from BoA, SARI, ELE, woreda, and zone BoH, CIP	**16**
Tigray	Project implementing partners from BoA, BoH, TARI, WAT, CIP	**10**
Total		**26**

5. MONITORING AND EVALUATION

During the reporting period, CIP and partners regularly monitored project implementation using the following approaches:

- Six-month progress reports. The principal investigators of each project partner organisation (BoA, BoH, SARI, TARI, WAT, and ELE) prepared and sent their six-month progress reports detailing achievements in comparison with planned targets, budget utilisation, challenges encountered, responses, and case studies.
- Monitoring through field visits. Every month CIP's sub-office staff based in Mekele and Hawassa, in collaboration with partner staff, conducted regular monthly field monitoring visits and provided technical backstopping to partners. This helped to monitor programme design, approaches, and progress and take timely corrective measures as required.
- Performance monitoring by project participants. Woreda BoA and BoH staff and kebele HEWs and DAs also documented their activities in a report. This helped with proper follow-up.

6. CHALLENGES ENCOUNTERED AND MEASURES TAKEN

- Turnover of BoA staff and officials is very high in SNNPR, which delayed implementation of some project activities. In Tigray there was a major reshuffling of the BoA staff at regional and woreda levels. As a result many new staff came on board who needed orientation on the project and its objectives. This, however, was time consuming, especially in some project intervention woredas.
- In SNNPR there was sporadic political instability and civil unrest across the region which hindered movement to execute project activities. Wolaita Sodo ATVET was affected by violence in the town in June 2018. The college administration and academic deans were busy with normalisation and rehabilitation activities, which delayed incorporation of CIP's OFSP ToT training modules into the college curriculum.
- The consultants who were commissioned to develop the country sweetpotato and potato strategy document, together with CIP, submitted the draft document to CIP more than 6 months ago. CIP reviewed it thoroughly by working closely with the consultants and submitted the draft to the MoA over 2 months ago for their review before holding a national validation workshop. Since the ministry will "own" the document, the MoA insisted on reviewing it prior to any workshop held. Owing to overlap of activities, however, we have not heard from the ministry, but we are in regular contact with it. This delayed organising a national validation workshop and hence release of the strategy.

ANNEX 1: SUMMARY OF ACHIEVEMENTS VERSUS TARGETS

Description	Intervention Logic	Indicators of Achievement Outputs	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
Goal: Contribute to improved nutritional status and food security among vulnerable populations in SNNPR and Tigray regions of Ethiopia by strengthening of agriculture and health systems and through institutional development.		Food security and nutrition indices in target areas.		Achievement in relation to goal indictors will be reported in the final technical report.
Project purpose: Strengthen institutional capacities and processes among key stakeholders at national and sub-national levels to support scaling up of production and utilisation of vitamin A-rich OFSP.		• Number of HH cultivating micronutrient-rich sweetpotato varieties in target woredas. • Area under cultivation with micronutrient-rich sweetpotato varieties. • Consumption of micronutrient-rich sweetpotato and potato varieties marketed and processed.		Achievement in relation to purpose indictors will be reported in the final technical report.
Expected Results				
Result 1*: Diagnosis of key institutions, system linkages, and coordination, technical, and institutional capacities, and OFSP evidence base conducted and key gaps and leverage points for system strengthening identified.*	System diagnostic study (SDS) design and methodology documented and related data collection tools prepared.	SDS methodology document and related data collection tools.	• Prior to the assessment SDS methodology document and related data collection tools developed. • Participatory SDS conducted and final report produced. System gaps and leverage points identified and used in designing relevant partner work plans for Y1 and Y2, as well as the comprehensive SDS. • Stakeholders jointly developed a system strengthening plan (SSP) based on the findings of the SDS. The SSPs are integrated into Y2 partner work plans and budgets which were designed at project review and planning workshop.	
	System diagnostic report documenting findings on diagnosis of key institutions, system linkages, and coordination, technical, and institutional capacity gaps and leverage points in existing policies and strategies at different levels and evidence and lessons from past nutrition-sensitive interventions produced.	System diagnostic report		
	SSPs identifying key gaps and leverage points for system strengthening jointly developed and validated by stakeholders.	• SSPs available to all stakeholders. • At least two scientific publications co-authored with project partners.		Four scientific papers related to project activities are publicised co-authored with project partners.
Result 2: *Strengthened technical and institutional*	• Training plan for addressing key gaps	Training plan for target woredas developed and available to all stakeholders.	• Training plan for target project partners and woredas are identified	

Description	Intervention Logic	Indicators of Achievement Outputs	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
capacity of BoA, BoH, SARI/TARI, ATVETs, and other stakeholders for promotion and implementation of sustainable OFSP technologies and services to smallholder farmers.	identified in SSP developed.		and included in partner for Y2 annual work plan. • CIP has technical training manuals on sweetpotato for field staff and communities ("Everything You Ever Wanted to Know about Sweetpotato"). The manual was translated into Tigrigna and Amharic languages and made available to regional-, woreda-, and kebele-level agriculture and health extension offices. • OFSP modules integrated into curriculum of 3 ATVETs agricultural colleges (Wukro, Maichew, and Shire) and in agriculture (FTC) and health extension materials for HEWs and health centres. • Activity has been suspended because established multiplier groups ceased OFSP multiplication due to lack of market. • Established OFSP demo plots at 9 FTCs which are multiplying and disseminating vines to farmers in neighbouring communities by project. • During the reporting period, 100,000 OFSP cuttings produced at 3 FTC demo sites were distributed to 330 HH in Damot Gale, Humbo, and Sodo Zuriya woredas in SNNPR. • 13 instructors (9 ATVETs, 2 health college instructors from Tigray, and 2 ATVET instructors from SNNPR) trained and cascade down the training to woreda agriculture and health officers. • Trained 171 (13 regional and woreda BoA staff, 140 DAs, 26 health officers, and 5 WAT staff in Tigray) on OFSP	• Established 8 new and maintained 9 old FTCs demo plots which are multiplying and disseminating vines to farmers in neighbouring communities by the project. • A total of 734,360 OFSP cuttings produced at 17 FTC demo sites were distributed to 2,488 HH in the project kebeles. • Trained 81 ATVETS instructors and 79 BoA staff from Tigray and cascaded down the training to 250 MFs. • Trained 98 health and agriculture officers on OFSP
	• Training manuals for learning by doing ToT of agriculture and health training institutions (ATVETs, FTCs, health colleges, and woreda BoH and BoA officials) on technical aspects OFSP agronomy, utilisation, and nutrition and institutional aspects developed.	Training manuals developed and available.		
	OFSP modules adapted and translated into local languages for integration into curriculum of ATVETs, health colleges, FTCs, and in agriculture and health extension materials.	OFSP modules available.		
	At least 5 vine multiplier groups established and formally registered with the cooperative office, their capacities strengthened and linked to root producers.	At least five vine multiplier groups established and officially registered as formal cooperatives.		
	OFSP demo and multiplication sites established at 10 FTCs in the 10 target woredas.	10 FTCs multiplying and disseminating vines to farmers in neighbouring communities by project end		
	At least 100 instructors from ATVETs, health colleges, and FTCs trained as primary facilitators on OFSP agronomy, utilisation, and nutrition.	100 instructors trained and cascade down the training to woreda agriculture and health officers		
	At least 20 woreda	20 woreda agriculture and health officers trained.		

Description	Intervention Logic	Indicators of Achievement	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
		Outputs		
	agriculture and health officers trained in OFSP agronomy, utilisation, and nutrition.		agronomy and nutrition • Assessment of capacities, scope, and delivery modalities for OFSP done as part of the comprehensive SDS. • OFSP demo plots established at 9 FTCs jointly by CIP and the BoA. OFSP vines disseminated to 330 farmers in neighbouring kebeles from the FTCs. • Cooking demos that integrate OFSP dishes conducted at 20 health posts jointly by the BoH, BoA, WAT, ELE. • 10 project woredas includes OFSP as part of their annual work plan. Budget for capacity building and vine purchase covered by NGOs such as GIZ, REST, and Save the Children. • Three ATVET colleges in Tigray (Maichew, Wukro and Shire) integrate OFSP training materials in the ATVET teaching modules • CIP serve the MoANR with OFSP training manuals for integration into the ministry-developed NSA training manual and facilitator guide • Federal MoANR, integrated OFSP on NSA ToT manual that will be used by the agricultural extension system nationally.	nutrition, utilisation, and behaviour-change nutrition counselling techniques. • OFSP demo plots established at 17 FTCs jointly by CIP and the BoA. • Cooking demos that integrate OFSP dishes conducted at 20 health posts and FTCs and reached 3,968 people. • 10 project woredas include OFSP as part of their annual work plan. Budget for capacity building and vine purchase covered by NGOs such as GIZ, Save the Children, IFAD, SURE, REST, the Irish Aid-funded BoA Livelihood project, World Bank-funded BoA of Tigray Development Response Impact project, Agricultural Growth Programme–BoA project funded by multiple donors. • Three ATVET colleges in Tigray (Maichew, Wukro and Shire) and one in SNNPR (Wolita Sod) established OFSP demo plot. • CIP partially funded to federal MoANR to organise national validation workshop for NSA training manual that will be used by the agricultural extension system nationally.
	Capacities, scope, and delivery modalities of current training programmes at agriculture and health training institutions (ATVETs, health colleges, and FTCs) assessed.	Assessment report documenting the capacities, scope, and delivery modalities of at least 18 training institutions (ATVETs, Health Colleges, and FTCs).		
	Demos of OFSP multiplication and distribution and nutrition education cycle (planning, implementation, learning cycle) jointly implemented by project partners.	Demos of OFSP multiplication and distribution and nutrition education cycle implemented in the 10 target woredas.		
	OFSP recognised as a key food security and nutrition crop and integrated into government strategies, programmes, plans, and budgets.	• At least 6 of the target woredas include OFSP in their strategies, programs, plans, and budgets by project end. • OFSP included in programs, strategies, annual plans and budgets of the regional BoA and BoH in the two target regions.		
	OFSP modules integrated into training curriculum of agriculture and health training institutions.	• At least 10 training institutions (ATVETs, health colleges, and FTCs) integrate OFSP in their training curriculum by project end. • At least one OFSP module is integrated into the agriculture and health extension package by project end.		

Description	Intervention Logic	Indicators of Achievement	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
		Outputs		
Result 3: *Evidence, best practices, and lessons on using OFSP to improve nutrition and health documented and disseminated at national, subnational, and local levels.*	Evidence on OFSP impacts, lessons, and best practices from previous and on-going OFSP projects in Ethiopia and other countries synthesised.	At least three synthesis reports documenting OFSP impacts, lessons, and best practices produced.	• Evidence and lessons synthesised in 8 advocacy materials: 1 policy brief, 1 evidence brief, 1 factsheet on biofortification, 1 flyer, and 4 success stories. • Two stakeholder annual project review, learning and planning workshops conducted. • Operational survey on production and consumption of OFSP conducted jointly by the Irish Aid and CIP–Office of U.S. Foreign Disaster Assistance projects. • Evaluation trials of new improved OFSP varieties jointly established by SARI through joint funding from projects funded by CIP/Irish Aid and EU.	• Organised a regional multi-country learning workshop for CIP/Irish Aid-funded projects in Malawi, Mozambique, and Ethiopia to exchange ideas, experiences, and lessons learnt on system strengthening. • In collaboration with the CIP SASHA project, organised 11th Consultation meeting of the Sweetpotato for Profit and Health Initiative Seed Systems and Crop Management Community of Practice. The meeting was attended by 55 participants from 12 countries. • Two annual project review, learning, and planning workshops conducted. • Operational research under the title of evaluation trials of new improved OFSP varieties jointly established by SARI and CIP–EU-funded project. Data collection and analysis of the trial is underway. One early and medium maturing varieties will be released in 2019.
	Stakeholder workshops to review implementation progress and share lessons conducted bi-annually.	At least 3 stakeholder review and learning workshops conducted by end of project.		
	Operational research on production and consumption of OFSP and impacts on nutrition and health conducted in collaboration with other CIP-led OFSP projects.	At least two operational research papers produced.		
Result 4: *Evidence-based advocacy strengthened to influence policies and programming in support of OFSP as part of healthier diets.*	Evidence and lessons on OFSP shared among stakeholders at national and sub-national levels.	• Evidence and lessons from OFSP interventions shared with stakeholders in at least 10 multi-stakeholder platform meetings at national, regional, and woreda levels. • At least 6 field days and two exchange visits organised for members of national and sub-national platforms and other stakeholders.	• Evidence and lessons from OFSP interventions shared with stakeholders at 6 multi-stakeholder platform meetings (1 national, 4 regional, and 1 woreda levels). • Two field days and exchange visits (one in each region) organised for members	• Evidence and lessons from OFSP interventions shared with stakeholders at 7 multi-stakeholder platform meetings at international, national, and regional levels. • Two field days and exchange

Description	Intervention Logic	Indicators of Achievement Outputs	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
		• Existing OFSP advocacy materials reviewed, and revised advocacy materials (policy or evidence briefs, factsheets, highlights, brochures, leaflets, videos) prepared and shared with stakeholders.	of woreda, and regional stakeholders • Evidence and lessons synthesised in 8 advocacy materials: 1 policy brief, 1 evidence brief, 1 factsheet on biofortification, 1 flyer, and 4 success stories. • Jointly with the MoANR, CIP is developing a national potato and sweetpotato strategy paper that will be completed in Y2 of this project • Four organisations in Tigray promoting OFSP by including as part their project activities. • 20 targeted kebeles reached through collaboration between the BoH and BoA and other project stakeholders.	visits organised for members of woreda, zonal and regional stakeholders and farmers reached 450 (370 during harvesting and 80 during planting) people. • Evidence and lessons synthesised in 5 advocacy materials; translated into local language Amharic and Tigrigna including 2 project briefs, 2 project flyers, 2 posters, and 1 recipe books. • The final document will be shared and presented at validation workshop to be organised in the last week of August 2019. Final document will be submitted to government for its endorsement at the end of September 2019. • In SNNPR: Alive and Thrive FAO, World Vison, Save the Children, and the SURE project promoting OFSP by including it as part of their project activities in SNNPR. In Tigray 7 organisations (GIZ, Save the Children, IFAD, Irish Aid-funded BoA Livelihood project, REST, WAT, and Sasakwa Global 2000, Ethiopia) promoting OFSP by including it as part their project activities. • 20 targeted kebeles reached through collaboration
	Efforts to promote and utilise nutritious and biofortified OFSP are integrated into regional government and NGO agriculture and nutrition strategies and planning processes.	• Roadmap for institutionalisation of good practice OFSP and nutrition-sensitive interventions by the BoA and BoH developed. • At least 1 agriculture and 1 nutrition strategy or plan by the government of Ethiopia to promote nutritious and biofortified crops. • At least 6 OFSP champions identified in key institutions in the BoA, BoH, and other stakeholders at federal and regional levels to advocate for OFSP in their institutions and in relevant platforms. • At least 2 additional projects promoting OFSP by government or NGOs in the two regions. • 20 targeted kebeles reached through collaboration between the BoH and BoA and other project stakeholders.		

Description	Intervention Logic	Indicators of Achievement	Achieved in Y1 (1 July 2017–30 June 2018)	Achieved in Y2 (1 July 2018–30 June 2019)
		Outputs		between BoH and BoA and other project stakeholders • End of project stakeholder project review and learning workshop was conducted in Tigray and SNNPR, aimed at to review project achievements, lessons learnt, and future directions

The International Potato Center (known by its Spanish acronym CIP) is a research-for-development organization with a focus on potato, sweetpotato, and Andean roots and tubers. CIP is dedicated to delivering sustainable science-based solutions to the pressing world issues of hunger, poverty, gender equity, climate change, and the preservation of our Earth's fragile biodiversity and natural resources.
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For more information, please contact CIP Headquarters:
Av. La Molina 1895, La Molina Apartado 1558, Lima, 12 Peru.
5-11-3496017 m.bellido@cgiar.org www.cipotato.org