CIP
INTERNATIONAL POTATO CENTER
A CGIAR RESEARCH CENTER

Strengthening Institutional Systems for Scaling-up Orange-Fleshed Sweetpotato (OFSP) for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

Final Technical Report

(1 July 2017–31 October 2019)

Submitted to:
Irish Aid

Submitted by:
International Potato Center (CIP)

Irish Aid
Government of Ireland
Rialtas na hÉireann

Strengthening Institutional Systems for Scaling-up Orange-Fleshed Sweetpotato (OFSP) for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia

Final Technical Report

(July 1st 2017–October 31st 2019)

Grant No: CIP-2017

Grant No: PETH/2018/CIP

Grantee: International Potato Center (CIP)

Irish Aid Office: Addis Ababa, Ethiopia

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

Country: Ethiopia

TABLE OF CONTENTS

List of Tables

List of Photos

List of Figures

ACRONYMS

ATVET	Agricultural, technical, and vocational education training centre
BMGF	Bill and Melinda Gates Foundation
BoA	Bureau of Agriculture
BoH	Bureau of Health
CIP	International Potato Center
DAs	Development agents
DM	Dry matter
DVM	Decentralised vine multiplier
ELE	Egna Le'egna
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FTC	Farmer training centre
GoE	Government of Ethiopia
HCA	Host country agreement
HEW	Health extension worker
HH	Household
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
IPs	Implementing partners
MoA	Ministry of Agriculture
MF	Model farmer
MU	Mekelle University
NNP	National Nutrition Programme
NSA	Nutrition-sensitive agriculture
NVRC	National Variety Release Committee
OFDA	Office of U.S. Foreign Disaster Assistance
OFSP	Orange-fleshed sweetpotato
QDBH	Quality Diets for Better Health
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 diagnosis study
SNNPR	Southern Nations Nationalities Peoples Region
SSP	System-strengthening plan
TARI	Tigray Agricultural Research Institute
TC	Tissue culture
ToT	Training of trainers
USAID	United States Agency for International Development
WAT	Women's Association of Tigray
WFSP	White-fleshed sweetpotato

EXECUTIVE SUMMARY

The International Potato Center (CIP) and its partners successfully implemented the Strengthening Institutional Systems for Scaling-up Orange-Fleshed Sweetpotato (OFSP) for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia project. Funded by Irish Aid, the 28-month (1 July 2017–31 October 2019) project was an extension of two previous phases, a 2-year pilot phase followed by a 3-year scaling-out phase. The current phase applied an institutions-focused approach to improving the nutritional status and food security of vulnerable populations in the Southern Nations Nationalities Peoples Region (SNNPR) and Tigray regional states of Ethiopia through strengthening capacities of agriculture and health systems. This shift in approach from the previous project phases was based on the understanding that, having demonstrated the feasibility and effectiveness of OFSP technologies and intervention methods, impacts at scale required focusing on institutionalising these successes within the regular mandated work of the agriculture and health sector agencies. Accordingly, the project had four key objectives. Below we present the achievements made under each of the objectives during the 28 months of implementation.

Objective 1: Identify gaps and leverage points for system strengthening by analysing key institutions, system linkages, and coordination; technical and institutional capacity; and OFSP-based evidence.

- CIP, in collaboration with Mekelle University and the International Food Policy Research Institute-Ethiopia, designed and implemented a comprehensive system assessment of relevant agriculture and health institutions for nutrition-sensitive agriculture and identified and documented key gaps and leverage points for system strengthening.
- On the basis of the findings of the system assessment, key institutions in the two project target regions developed system-strengthening plans that were implemented during the project.

Objective 2: Strengthen technical and institutional capacity of 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 to promote and implement sustainable OFSP technologies and services to smallholder farmers.

- Strengthened capacities of tissue culture laboratories at TARI and SARI for increased production and availability of high-quality early generation sweetpotato planting material for further multiplication. The capacity for production of pre-basic OFSP seed by the two institutes (TARI and SARI) reached 815,000 cuttings per year. The annual capacity of the two institutes at the beginning of 2017 was 589,350 cuttings.
- Established public-private partnership in early generation seed multiplication for potato and OFSP.
- Introduced simple, low-cost irrigation technologies, such as water-harvesting ponds and pressurized drip irrigation, at two farmer training centres (FTCs) in SNNPR to support off-season vine multiplication.
- Established OFSP demo and vine multiplication sites at 17 FTCs and four ATVETs. To support the OFSP demos at the ATVETs, two water tanks and a submersible pump were provided to three of the ATVETs. A total of 1,234,360 OFSP cuttings were distributed to 3,758 direct beneficiary households (HH), 1,906 in SNNPR and 1,852 in Tigray.
- Through joint funding from CIP, the European Union (EU), and Irish Aid-funded projects, two new, improved, high dry matter OFSP varieties ('Alamura' and 'Dilla') bred in Ethiopia were officially released by the Ethiopia Institute of Agriculture Research (EIAR), and the variety 'Kabode', introduced from Uganda, was registered.

- To strengthen the capacity of agriculture and health extension delivery systems in OFSP, the project trained 959 people, consisting of 329 model farmers (MFs), 96 ATVET instructors, and 534 agriculture and health extension officers.
- Four main ATVET colleges in the country integrated OFSP training modules into their curricula. Similarly, two health colleges in Tigray integrated OFSP nutrition and utilisation training modules into their curricula.
- In Tigray and SNNPR, OFSP is integrated into the BoA's annual plan or programming of the institution.
- Integrated OFSP recipes and cooking demos as part of the ongoing health extension programmes at 20 health centres and reached 5,039 people.
- Conducted an annual seed demand and supply linkage forum in Tigray and SNNPR to strengthen linkages and coordination between vine producers and institutional vine buyers.

Objective 3: Document and disseminate evidence, best practices, and lessons on using OFSP to improve food security and nutrition at national, subnational, and local levels.

- Four field days and exchange visits were organised for stakeholders; MFs; and government officials from woreda, zonal, and regional levels. Through collaboration between BoH, BoA, and other project stakeholders, 20 targeted kebeles were reached.
- Developed video-based training material on sweetpotato agronomy and postharvest management based on the manual "Everything You Ever Wanted to Know about Sweetpotato". Six Digital Green eco-projectors were provided to six FTCs in order to conduct digital video-based training.
- A training of trainers manual on "Everything You Ever Wanted to Know about Sweetpotato: Reaching Agents of Change" and a Triple S seed conservation training manual were translated into Amharic and Tigrigna and distributed in hard and soft copies to FTCs in Tigray and SNNPR.
- Ten desktop computers and bookshelves were handed over to 10 FTCs in SNNPR and Tigray to improve their documentation system.
- CIP, in collaboration with Irish Aid, organised a multi-country, 3-day system-strengthening workshop in November 2018 in Addis Ababa. Fifty participants from seven countries attended.

Objective 4: Strengthen evidence-based advocacy to influence policies and programming in support of OFSP as part of healthier diets.

- CIP and Ministry of Agriculture jointly developed a National Potato and Sweetpotato Strategy that is key in institutionalising and scaling-up potato and sweetpotato for impact.
- Fourteen NGOs (7 in Tigray, 7 in SNNPR) promoted OFSP by including it as part of their project activities. Our project influenced uptake of OFSP by these NGOs.
- Evidence and lessons were synthesised in 12 advocacy materials that were translated into local languages Amharic and Tigrigna. The materials included two project flyers, two posters, one recipe book, one evidence brief, one factsheet on biofortification, one policy brief, and four case studies/success stories.
- The project identified and trained 30 "OFSP champions" to advocate for mainstreaming of OFSP at woreda, regional, and national levels.

Despite these achievements, the project encountered several challenges and adopted mitigation strategies to ensure that project targets were met. These, and the technical and management lessons learnt over the course of implementation, are presented in this report.

1. INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

About 5.8m (38%) children in Ethiopia aged under 5 years suffer from chronic malnutrition (EDHS 2016). Addressing malnutrition, especially among children and women of reproductive age, is one of the policy priorities of the Government of Ethiopia (GoE). Promoting production and consumption of nutritious biofortified crops is identified in government policy and strategy documents as one of the approaches to tackle malnutrition. Rich in both macro- and micronutrients, orange-fleshed sweetpotato (OFSP) is a biofortified crop that can contribute to addressing malnutrition. In general, sweetpotato of all flesh colours are rich in carbohydrates and dietary fibres. However, the OFSP varieties, which are very rich in beta-carotene (a precursor of vitamin A) and have a small quantity of roots (about 120g), can meet the recommended daily allowance of vitamin A for a young child. Sweetpotato is also a good source of employment and income in rural, often marginal areas for women and youth. OSPF easily adapts to a wide range of environments and uses: from a food and nutrition security crop to a cash crop; as feed for livestock and as raw material for industrial uses; and from fresh food to high-end processed products.

To help reduce food insecurity and malnutrition in Ethiopia, the International Potato Center (CIP), with funding from Irish Aid, implemented the Strengthening Institutional Systems for Scaling-Up OFSP for Improved Nutrition and Food Security in Tigray and SNNPR, Ethiopia project. The aim of the 28-month (July 2017–October 2019) project was to address vitamin A deficiency (VAD) at scale by strengthening institutional capacities of agriculture and health systems to deliver OFSP to smallholder farmers.

This final project report presents the major achievements implemented, challenges encountered, mitigation strategies adopted, lessons learnt, and next steps.

1.2 PROJECT GOAL AND OBJECTIVES

The goal, purposes, and objectives of the project are presented below.

1.2.1 Project goal

The overall goal of the project was to contribute to improved nutritional status and food security among vulnerable populations in the Southern Nations Nationalities Peoples Region (SNNPR) and Tigray regions of Ethiopia through the strengthening of agriculture and health systems and through institutional development.

1.2.2 Project purpose

The project's purpose was to 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.

1.2.3 Project objectives

The project sought to achieve four key objectives, which are also its expected outputs:

- Identify gaps and leverage points for system strengthening by analysing key institutions, system linkages, and coordination; technical and institutional capacity; and OFSP-based evidence.
- 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 to promote and implement sustainable OFSP technologies and services to smallholder farmers.

- Document and disseminate evidence, best practices, and lessons on using OFSP to improve food security and nutrition at national, subnational, and local levels.
- Strengthen evidence-based advocacy to influence policies and programming in support of OFSP as part of healthier diets.

2. PROJECT IMPLEMENTATION APPROACH

2.1 SYSTEM-STRENGTHENING APPROACH

This project was preceded by two previous phases, a 2-year pilot phase followed by a 3-year scaling-out phase. The current phase applied an institutions-focused approach to improving the nutritional status and food security of vulnerable populations in the SNNPR and Tigray regional states of Ethiopia through strengthening capacities of agriculture and health systems. This shift in approach from the previous project phases was based on the understanding that, having demonstrated the feasibility and effectiveness of OFSP technologies and intervention methods, impacts at scale required focusing on institutionalising these successes within the regular mandated work of the agriculture and health sector agencies. As such, the system-strengthening approach that was applied in this project is presented in Figure 1. The approach has four key pillars: (1) system analysis and development of a system-strengthening plan (SSP); (2) strengthening institutional capacities through joint planning, implementation, and learning; (3) knowledge management documentation and sharing evidence and lessons through stakeholder platforms; and (4) mainstreaming evidence, lessons, and recommendations into institutional programs and policy.

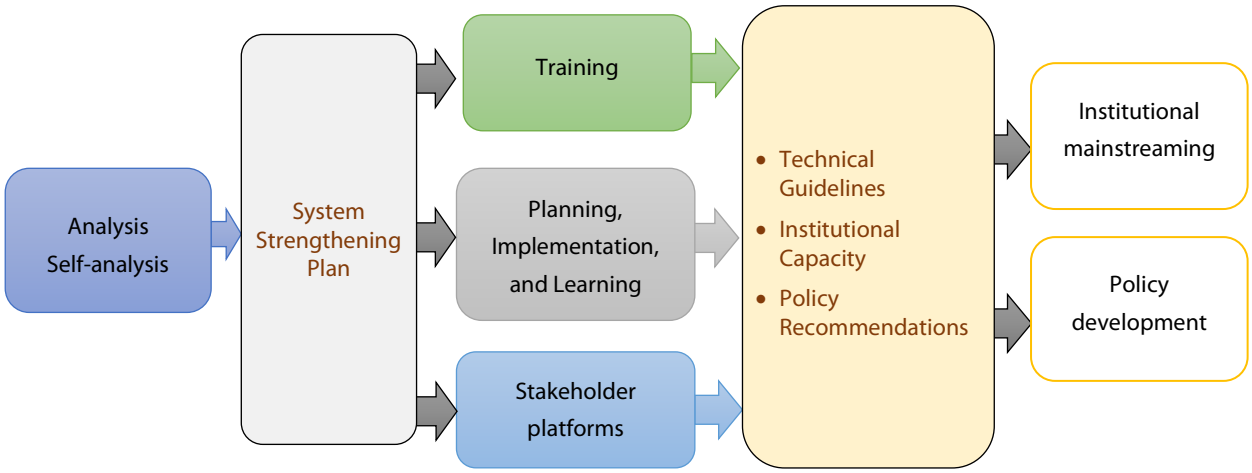

Figure 1. Project implementation approach.

2.2 PROJECT THEORY OF CHANGE

Figure 2 illustrates the project's theory of change.

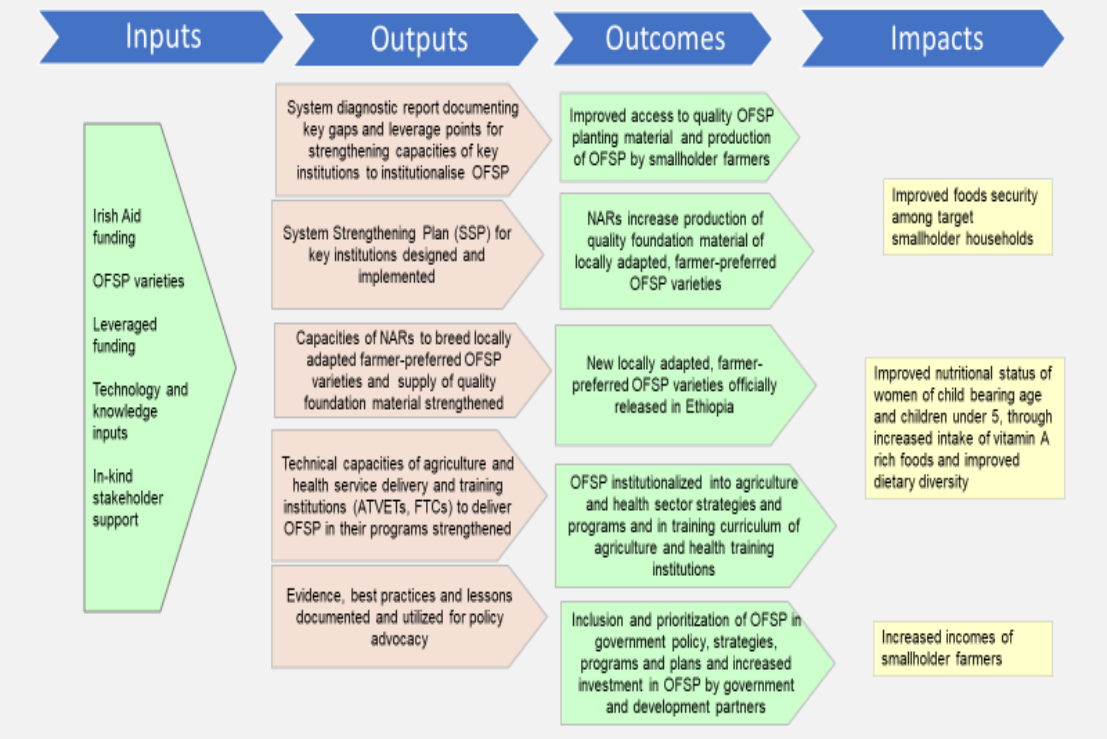

Figure 2. Project theory of change.

2.3 PARTNERS AND THEIR ROLE

The project aimed to facilitate institutionalisation of OFSP through strengthening the capacities of key public and private agriculture and health systems. It therefore was imperative that the project adopt a partnership approach by engaging government organisations, NGOs, universities, and private stakeholders. Project activities were mostly carried out by the project implementing partners (IPs) according to their respective core competencies (Table 1). The project established formal partnerships by signing sub-grant agreements annually with the following partners in the two target regions: BoAs in both Tigray and SNNPR; BoHs in Tigray, SARI, and TARI; and NGOs— Women's Association of Tigray (WAT) in Tigray, Egna Le'egna (ELE) in SNNPR—and Mekelle University (MU).

Table 1. Implementation role of project partners

Partner	Role
BoA (Tigray, SNNPR)	Dissemination of technology and capacity building, and institutionalisation of successful practices
BoH	Capacity building and training, promotion of OFSP, and institutionalisation of successful practices
SARI/TARI	OFSP variety development, production and dissemination of clean planting material to vine multipliers, and adaptive research
MU and Hawassa University	System diagnostic study
NGOs (WAT and ELE)	Capacity building, cooking demos, and promotion of OFSP utilisation
CIP	Overall project coordination and management, scientific and technical backstopping, evaluation and research support, advocacy and policy incidence, monitoring and evaluation, evidence documentation, advocacy material development, capacity strengthening, and facilitation of regional and international technical exchange

Although the project did not formally establish partnerships with the BoH in SNNPR, it worked with the bureaus at the zonal, woreda, and kebele levels through health officers and health extension workers (HEWs) for nutrition promotion.

2.4 Intervention Areas

The project was implemented in 10 woredas and 20 kebeles (2 in each woreda) of Tigray and SNNPR regions (Table 2).

Table 2. Project intervention woredas and kebeles in the two regions

Tigray		SNNPR	
Woreda	**Kebeles**	**Woreda**	**Kebeles**
Enderta	Chelekot and Didiba	Damot Gale	Buge and Gacheno
Raya Azebo	Tsgea and Genet	Boricha	Aldada Dela and Shondoliwo
Abergele	Agbe and ShekaTekhli	Loko Abaya	Sala Kewado and Dansha Gambela
Qolla Tembien	Bega Shekha and Adeha	Humbo	Ampo Koysha and Gututo Larena
Hawzen	Debrebirhan and Hatset	Sodo Zuria	Warazelasho and Humbo larena

3. PROGRESS TOWARDS ACHIEVEMENT OF PROJECT ACHIEVEMENTS

3.1 Achievements at Project Goal and Outcome Levels

Unlike the previous phases of the project in which the impacts and outcomes were directly measured in terms of nutrition and food security at household (HH) level, this phase of the project's outcome is assessed in terms of the extent to which OFSP was institutionalised in programmes of key agricultural and health institutions. Accordingly, the main achievements of the project at the outcome level are:

- Through joint funding from a CIP-led European Union (EU)-funded project and this project, SARI led the effort of breeding and evaluating two high dry matter (DM) OFSP varieties ('Alamura' and 'Dilla') that were officially released in Ethiopia; one variety ('Kabode') introduced from Uganda was registered. Institutionalisation of OFSP was partly constrained by the fact that the available OFSP varieties had very low DM and could hardly compete with the traditional white-fleshed varieties. Thus this achievement will go a long way in facilitating institutionalisation of OFSP.
- Four main ATVET colleges (three in Tigray, one in SNNPR) in the country integrated OFSP training modules into their curricula. Similarly, two health colleges in Tigray also integrated OFSP nutrition and utilisation training modules into their curricula.
- OFSP recipes were integrated into regular cooking demo programmes conducted by the health extension system at 20 health centres.
- CIP and the Ministry of Agriculture (MoA) jointly developed a National Potato and Sweetpotato Strategy which would be key in institutionalisation and scaling-up of potato and sweetpotato for impact at scale.
- Through continuous advocacy efforts by CIP and partners in Ethiopia, the MoA's policy on nutrition-sensitive agriculture (NSA) recognises OFSP as one of the biofortified crops for addressing malnutrition in Ethiopia. In line with this, the nutrition coordination office of the ministry developed a training manual and facilitator guide on NSA to be used by FTCs across the country. CIP helped fund the Federal MoA in organising a national validation workshop for training manual and facilitator guide on NSA.

3.2 Objective 1: Diagnosis of Key Institutions, Linkages, Capacities, and OFSP Evidence Base to Identify Gaps and Leverage Points for System Strengthening

3.2.1 Assessment of capacities, scope, and delivery modalities for OFSP done as part of the comprehensive system diagnostic study

The first stage of the system diagnosis was conducted through participatory system diagnostic analysis executed jointly by stakeholders during the regional stakeholder inception workshops. The results from that preliminary diagnosis informed the design and focus of the second stage comprehensive system diagnosis study (SDS). To conduct the study, CIP developed the terms of reference and contracted MU's School of Public Health, Department of Nutrition and Dietetics for its professional services. The contracting of a local university for this assignment builds the local capacity for designing and implementing similar SDS. To this end, MU, CIP, and the Agriculture for Nutrition and Health CGIAR Research Programme (led by the International Food Policy Research Institute) co-developed the methodology and tools for the study. Checklists for in-depth key informant interviews with qualitative questions around key themes were designed and used for face-to-face interviews with 94 key informants from agriculture and health sectors at kebele, woreda, zonal, regional, and federal levels; training institutions such as ATVETs and health science colleges; development partners; higher learning institutions; and community-level institutions (eg, FTCs and health posts). Interviews were also conducted in the selected intervention kebeles and woredas.

Some of the findings of the study on the implementation challenges and constraints for NSA, and specifically for OFSP, were as follows:

- Although the GoE designed excellent policy and strategy documents on NSA, there is limited technical capacity for implementation by sectors at all levels. Capacity-building efforts are given haphazardly and are not tailored to meet specific capacity needs.
- There is limited understanding of the respective roles and responsibilities of each sector at the different levels in implementing NSA interventions.
- Attention is given to NSA in the NSA strategy, in agriculture and health extension package, and training materials of training institutions. However, NSA is not included in the reporting system and is not evaluated regularly.
- The agriculture sector focuses primarily on increasing agriculture production and productivity, whereas the health sector pays more attention to nutrition-specific interventions.
- Nutrition is considered as an objective in the annual plans and activities of agriculture and health sectors, but it is not supported by budget allocation from the government. Funding for nutrition activities mainly depends on donors and is the first to be abandoned when funding is limited.
- There is a lack of common understanding and knowledge on NSA—biofortified crops in general and OFSP in particular—by agriculture and health experts in these two sectors and in training institutions.
- Limited awareness by government sectors at all levels and development partners of OFSP is one of the main constraints to institutionalisation.
- Poor communication skills of the experts, development agents (DAs), and HEWs in delivering the right message during the counselling and education sessions also contribute to the poor linkage between agriculture and health.
- Other constraints to OFSP institutionalisation identified were:
  - shortage of planting material

- available OFSP varieties have traits not preferred by farmers and consumers, notably, they are drought prone and have low DM content, especially compared with traditionally grown white-fleshed sweetpotato (WFSP)
- lack of empirical evidence on effectiveness of OFSP interventions, especially in the Ethiopian context
- inadequate training materials
- limited nutrition counselling sessions by HEWs
- limited coverage as the crop was only introduced to a few kebeles
- inadequate demos on OFSP at FTCs
- lack of awareness and knowledge on OFSP, its nutrition value, and efficacy in addressing malnutrition by decisionmakers, particularly members of zonal/woreda command posts and steering committee members at kebele level
- underdeveloped markets for OFSP
- lack of joint planning, monitoring, and evaluation by the agriculture and health sectors

3.2.2 Stakeholder workshop to validate findings of the SDS

To validate the preliminary findings of the SDS, a stakeholder workshop was conducted on January 11th–12th 2018, on the campus of the International Livestock Research Institute (ILRI), Addis Ababa. More than 44 participants (16 from SNNPR, 22 from Tigray, 7 from Addis Ababa) attended. They represented agriculture and health officials from project intervention woredas, zonal, and regional government offices; NGO project partners; and other stakeholders working on agriculture–nutrition interventions such as GIZ and the UN's Food and Agriculture Organisation (FAO); universities and regional research centres; and donors (Irish Aid). The general objectives of the workshop were to (1) present the preliminary findings of the SDS on implementation of NSA (OFSP) to stakeholders for validation and (2) develop an SSP based on the bottlenecks and opportunities identified in the SDS. The goal was to strengthen the capacity of government systems for institutionalisation of NSA interventions with OFSP as the entry point.

Reflection and issues raised during the discussions included:

- There is a lack of trust between the agriculture and health sectors regarding implementation of NSA interventions. For instance, health sector staff promote fortification, whereas agriculture sector staff promote biofortification.
- The report omitted community leaders, OFSP vine multipliers, root producers' cooperatives, and model farmers (MFs) in the in-depth interview.
- Most of the case studies are about Tigray; the final report should include cases from SNNPR.
- A lack of leadership commitment and coordination is the big challenge for implementation of OFSP interventions.
- Most individuals included in the in-depth interview are agriculture and nutrition experts, but do not know enough about OFSP and NSA. For example, in Wukro Agricultural College an animal science lecturer was interviewed but he was not familiar with OFSP.
- The final SDS report should be endorsed by decisionmakers in the two regions.

The feedback from the validation workshop and findings from the preliminary system diagnosis conducted during the inception workshops were used to revise the report. A final comprehensive SDS report was produced and shared with stakeholders. On the basis of the SDS report findings as well as the lessons from the previous Irish Aid-funded OFSP project and other related projects, participants from each of the two target regions developed a draft SSP to address the identified key gaps and leverage points.

3.2.3 Open-access scientific and technical publications on OFSP

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 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.

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

2. Gurmu, F., and Mekonen, S. 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

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

3. Gurmu, F. 2019. Sweetpotato Research and Development in Ethiopia: A Comprehensive Review. *J. Agric. Crop Res*. 7(7): 106–118. doi: https://doi.org/10.33495/jacr_v7i7.19.127

   (https://www.researchgate.net/publication/335595227_Sweetpotato_Research_and_Development_in_Ethiopia_A_Comprehensive_Review

4. Gurmu, F., Abele, W., Tsegaye, G., and Gezahen, G. 2019. Sweetpotato seed business model: the case of the South Agricultural Research Institute, Ethiopia. *J. Agric. Crop Res*. 7(8): 127–136. doi: https://doi.org/10.33495/jacr_v7i8.19.126

   (https://www.researchgate.net/publication/335796593_Sweetpotato_seed_business_modelthe_case_of_the_South_Agricultural_Research_Institute_Ethiopia

3.3 Objective 2: Technical and Institutional Capacity of BoA, BoH, SARI/TARI, ATVETs, and Other Stakeholders in the OFSP Value Chain Strengthened

3.3.1 Strengthening capacity of regional agricultural research institutes

Production of clean planting material through tissue culture (TC) is at the heart of any seed system of vegetatively propagated crops. Accordingly, the project, in collaboration with two other CIP-led projects—Sweetpotato Action for Security and Health in Africa (SASHA), funded by the Bill and Melinda Gates Foundation (BMGF), and the EU-funded Quality Diets for Better Health (QDBH)—invested substantially in strengthening the capacities of the regional research institutes TARI and SARI in production of quality OFSP foundation material.

During the project period, the project provided technical and material support for TARI and SARI, which included chemicals for the TC labs, financial support for growth room maintenance, and wages for casual labour for massive multiplication of pre-basic and basic planting (Table 3). In addition, the project supported the two institutes with the maintenance of 27 mobile net tunnels (12 in TARI, 15 in SARI) and establishment of three new mobile net tunnels in TARI. As a result of these investments, the capacity for production of pre-basic OFSP seed by the two institutes reached 815,000 cuttings per year by 2019. The annual capacity of the two institutes at the beginning of 2017 was 589,350 cuttings. Pre-basic seed was further multiplied by decentralised vine multipliers (DVMs), who were established, strengthened, and linked to the research institutes for constant supply of clean OFSP basic planting material. Moreover, in collaboration with the SASHA project, our project contributed to the adoption of revolving fund model by TARI and SARI to establish a sustainable early generation seed (EGS) production system.

Table 3. Number of OFSP pre-basic and basic seed/sweetpotato cuttings produced and sold by TARI and SARI supported by the project

Research Station	No. of Pre-Basic Cuttings Produced in Net Tunnels	No. of Basic Cuttings Produced in Open Field	No. of Cuttings Sold	Area Planted with OFSP (ha)
TARI	515,000	500,000	1,015,000	20.3
SARI	500,000	1,645,000	2,145,000	42.9
Total	**1,015, 000**	**2, 145,000**	**3,160,000**	**63.2**

3.3.2 Conduct operational research

Over the project period, CIP projects (Irish Aid, EU, and SASHA projects), in collaboration with SARI and TARI, conducted action research in the following two thematic areas.

Evaluate new OFSP varieties in selected farmers' fields

Three CIP projects—the EU-funded QDBH, SASHA, and this Irish Aid-funded project—collaborated with SARI to evaluate OFSP varieties at four locations in SNNPR for the past 2 years for official release. Twelve selected genotypes were used to identify adaptable varieties with high root DM content (RDMC) and beta-carotene content for various agro-ecological zones. The trials revealed significant differences among the varieties for RDMC and beta-carotene content. 'Dilla', 'Alamura', 'Halaba', 'Vita' and 'Kabode' varieties were selected for a national variety trial which was conducted for two consecutive seasons. Finally, the GoE officially approved the release of 'Alamura' and 'Dilla' varieties in November 2019. In addition, 'Kabode' variety, which was previously released in Uganda, was officially registered in Ethiopia. The three varieties can now be officially disseminated to farmers.

Evaluation and demonstration of new OFSP varieties in selected FTCs

The project, in collaboration with SARI and BoA-SNNPR, established 63 demo plots/evaluation trials at nine FTCs for five new OFSP varieties. 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 were introduced from Uganda; the other three were bred in Ethiopia. The standard control varieties were 'Kulfo' (OFSP) and 'Awasa-83' (WFSP). The demo sites also served as training sites where farmers learned to multiply and conserve vines, produce good quality OFSP roots, and observe OFSP cooking demos.

In Tigray, to identify varieties suitable for the region's dry conditions, 13 OFSP varieties were introduced from Mozambique are under evaluation at three FTCs—Chelekot, Adiha, and Hawzien. Each site represents different agro-ecological conditions. The varieties introduced are 'Lourdes', 'Cecilia', 'Amelia', 'Delvia', 'Erica', 'Irene', 'Sumalia', 'Tio Joe', 'Melinda', 'Bela', 'Jane', 'Gloria', and 'Ininda'. TARI and BoA were leading the evaluation with support from the project. Similarly, demo plots of two elite varieties that are in a verification trial in SNNPR are also established at the above-mentioned FTCs. These plots will be used to assess performance and collect farmers' perception of the varieties. The evaluation will continue until November 2020 using TARI's budget

3.3.3 Strengthened institutional capacities of FTCs and ATVET colleges for multiplication and demonstration of OFSP planting material

To strengthen the capacities of government institutions for scaling-up OFSP, the project established OFSP demo and vine multiplication sites at 17 FTCs (8 in Tigray, 9 in SNNPR). From these FTCs a total of 1,234,360 OFSP cuttings were produced and distributed to 3,758 HH: 1,906 in SNNPR, 1,852 in Tigray.

Access to irrigation was one of the key bottlenecks to sustainable vine multiplication in most of the project areas identified by stakeholders during the inception workshops. To address this problem,

CIP collaborated with BoA in SNNPR and constructed two water-harvesting structures with 50m^3 water-holding capacity (the structures can irrigate 400m^2 of land for 4 months). Three two-pressured 2,500m^2 drip irrigation structures were installed at two FTCs, which will lead to efficient use of harvested water.
To strengthen the institutional capacities of the ATVET colleges for scaling-up of OFSP, the project established four OFSP demo plots at Maichew, Wukro, and Shire ATVETs in Tigray (Photo 1) and at Wolaita Sodo ATVET in SNNPR.


Photo 1. OFSP-producing farmers in Chelekot kebele, Tigray.

The project also provided two water tanks to Maichew and Wukro ATVETs and a submersible water pump for Shire ATVET to support vine multiplication and demonstration. These demo plots serve as training and learning sites for college students, including DAs, on (1) OFSP agronomy and disease and pest management, (2) multiplication and conservation of vines through Triple S technology, (3) postharvest management, and (4) use of OFSP roots and cooking demos. The demo plots also served as a source of planting material for farmers living near the colleges.

To improve the training manual documentation system of FTCs, CIP collaborated with BoA to design a system of having OFSP training manuals registered in log book and handover to kebele-level DA coordinator in the presence of kebele administrators. In this way when they leave the kebele, the coordinator takes the responsibility of handing over the manuals to the kebele administrator. To improve documentation at the FTCs, the project provided 10 document registration log books and document placement glass shelves to 10 FTCs. It also provided a desktop computer with printer to 10 FTCs (5 in SNNPR, 5 in Tigray) to facilitate digital documentation, computerised data management, and reporting.

3.3.5 Strengthened institutional capacities of ATVETs, health colleges, FTCs, and woreda-level BoA and BoH through staff capacity building in technical aspects of OFSP agronomy, utilisation, and nutrition

To strengthen the capacity of agriculture and health extension officers in OFSP agronomy, postharvest, nutrition, utilisation, and behaviour change nutrition counselling techniques, the project conducted several trainings.

Over the life of the project, 956 people (315 agriculture extension workers, 96 ATVET instructors, 219 HEWs, and 329 MFs) were trained on various aspects of OFSP agronomy and postharvest management, root and vine conservation and nutrition, and behavioural change counselling techniques (Table 4). The achievement was two times the planned target. Experts from TARI, SARI,

ATVETs and the BoA gave the trainings, which covered both theoretical and practical field-based aspects.

Additionally, to facilitate the sharing of knowledge and experiences, the project organised four experience-sharing field days for 698 people (418 males, 250 females; see Table 5 and Photo 2). Deputy head of the BoA, regional and woreda BoA and BoH staff, DAs, HEWs, researchers from TARI and SARI, and MF attended. The topics covered during the field days were agronomic practices on OFSP vine and root production and crop management, vine multiplication and conservation practices, and postharvest root management and utilisation.

Table 4. Number of people trained in OFSP agronomy, postharvest, nutrition, utilisation, and behavioural change nutrition counselling techniques

Region	Course	Participants' Organisation	Participants		Total
			Male	Female	
SNNPR	"Everything You Ever Wanted to Know about Sweetpotato"	Instructors from Wolaita Sodo ATVET	32	4	36
		BoA staff regional, woreda, and kebele level	23	6	29
		Subtotal	55	10	65
Tigray	"Everything You Ever Wanted to Know about Sweetpotato"	Instructors from Shire, Wukro, and Maichew ATVETs	50	10	60
		BoA staff regional, woreda, and kebele level	148	83	234
		Subtotal	198	93	291
Total			**253**	**103**	**356**
SNNPR	Triple S seed conservation technology	BoA woreda experts and DAs	14	6	20
Tigray	Triple S seed conservation technology	25 BoA woreda experts, DAs, and 329 MFs	107	257	364
Total			**121**	**263**	**384**
SNNPR	OFSP nutrition and behavioural change counselling techniques	BoH woreda officers, HEWs, and health colleges instructors	32	63	95
Tigray	OFSP nutrition and behavioural change counselling techniques	BoH woreda officers, HEWs, and health colleges instructors	51	73	124
		Subtotal	83	136	219
Total			**457**	**502**	**959**
SNNPR	Knowledge and experiences-sharing field days	Project woreda and kebele administrators, regional woreda BoA, BoH staff, DAs, HEWs, and MFs	330	244	574
Tigray	Knowledge and experiences-sharing field days	Project woreda and kebele administrators, regional woreda BoA, BoH staff, DAs, HEWs, and MFs	88	36	124
Total			**418**	**280**	**698**

Table 5. Number of people attending experience-sharing field days

Region	Course	Participants Organisation	Participants		Total
			Male	Female	
SNNPR	Knowledge and experiences-sharing field days	Project woreda and kebele administrators, regional woreda BoA, BoH staff, DAs, HEWs, MFs	330	244	574
Tigray	Knowledge and experiences-sharing field	Project woreda and kebele administrators, regional woreda BoA, BoH staff, DAs, HEWs, MFs	88	36	124
Total			**418**	**280**	**698**

Photo 2. Experience-sharing participants from K/Tembien project woreda in Tigray.

3.3.6 Institutionalisation of OFSP recipes into regular cooking demo programme by health extension systems

One of the major challenges for institutionalisation of OFSP in the agriculture and health extension system was limited technical knowledge on sweetpotato utilisation. To integrate OFSP into their regular cooking demo programme and other health extension activities, CIP collaborated with nutrition promotion project partners (WAT and ELE) and the BoH in both regions to organise practical training on OFSP cooking demos. The aim of the training was to equip HEWs, women's development network leaders, and female MFs with the skills on how to prepare different sweetpotato dishes. It also taught them how to integrate OFSP cooking demos into ongoing, government-led cooking demos and other health and agriculture extension activities. Accordingly, over the life of the project, CIP and project partners in both regions organised cooking demo trainings that integrated OFSP recipes for 2,131 people (Table 6). The training focused on:

- Preparation of different sweetpotato dishes (bread, injera, chapati/kitta, porridge, and sweetpotato juice from roots and leaves)
- Steps for preparing sweetpotato flour
- Sweetpotato puree processing
- Incorporation of OFSP in common recipes to substitute for other ingredients
- Preparation of OFSP weaning food and chips
- Sweetpotato root storage

Moreover, OFSP recipes and cooking demos were integrated into the ongoing health extension programmes at 20 health centres (100% of the planned target) and reached 5,039 people (3,724 females, 848 males, and 467 children) (Table 6). At each cooking demo event, innovative sweetpotato dishes were displayed and community members were able to taste them.

Table 6. Number of people reached through cooking demos and trainings

Region	Topic of Training	Participants			
		Male	Female	Children	Total
SNNPR	Practical training on how to prepare different dishes from sweetpotato and conducting cooking demo sessions	690	711		1,301
Tigray	Practical training on how to prepare different dishes from sweetpotato and conducting cooking demo sessions	25	635	70	730
Total		**715**	**1,346**	**70**	**2,131**
SNNPR	No. of people reached through cooking demos at health centres/posts	271	662		933
Tigray	No. of people reached through cooking demos at health centres	577	3,062	467	4,056
Total		**848**	**3,724**	**467**	**5,039**

3.3.7 Relevant OFSP technical and institutional training modules adapted and translated into local languages (Amharic and Tigrigna) for integration into curriculum of ATVETs, health colleges, FTCs, and in agriculture and health extension materials

Facilitate integration of OFSP modules into curriculum of ATVETs and health colleges

During the project period, four main ATVET colleges (three in Tigray, one in SNNPR) in the country integrated OFSP training modules into their teaching curricula. Similarly, two health colleges in Tigray also integrated OFSP nutrition and utilisation training modules into their curricula. The ultimate goal of this effort was to ensure that the pre-service training curriculum is tailored to equip DAs and HEWs graduates with knowledge and skills on OFSP nutrition, production, management, and utilisation during training so that they have the technical capacity to train farmers on OFSP during their service.

Since October 2018, all ATVET colleges in Tigray and SNNPR have started to provide a lecture on OFSP with different topics as part of the course at different levels: for level one on nutrition and utilisation; for level two on agronomy and seed conservation; and for level three on OFSP pests, diseases, and postharvest management.

Two health colleges in Tigray also integrated OFSP nutrition and utilisation training modules into their curricula. Starting from November 2019, two health colleges in Tigray have started to provide OFSP nutrition and utilisation modules as part of the course for levels three and four.

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

As part of the SSP developed during the project period, CIP commissioned a consultant to develop video-based training material on sweetpotato agronomy and postharvest management based on CIP's "Everything You Ever Wanted to Know about Sweetpotato" manual. Topics covered included the importance of sweetpotato, OFSP and nutrition, sweetpotato production and management, seed conservation using Triple S technology, sweetpotato pest and disease management, sweetpotato harvesting, and postharvest management. The video was developed in collaboration with experts from the Tigray BoA and TARI. Soft copies of the developed this training material were provided to each of the FTCs in the 10 project kebeles in Tigray. This is expected to greatly improve access to information and knowledge by extension workers and farmers, interaction among farmers themselves and between farmers, and extension workers and researchers, eventually resulting in increased impact going forward.

Moreover, the project, in collaboration with the QDBH project, translated a training of trainers (ToT) manual "Everything You Ever Wanted to Know about Sweetpotato: Reaching Agents of

Change" (produced by CIP) into Amharic and Tigrigna and distributed to 20 FTCs (10 each in Tigray SNNPR) in hard and soft copies.

3.4 Objective 3: Evidence, Best Practices, and Lessons on Using OFSP to Improve Food Security and Nutrition Documented and Disseminated at National, Subnational, and Local Levels

3.4.1 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 November 13th –15th 2018 to share, review, and analyse experiences and lessons from system-strengthening approaches from three Irish Aid-funded CIP country programmes in Ethiopia, Malawi, and Mozambique, as well as other initiatives that are working towards the same goal. The workshop was attended by 50 participants from the three target countries (Ethiopia, Malawi, and Mozambique) and other CIP staff from headquarters in Lima and regional office for sub-Saharan Africa in Nairobi. Also attending were a delegation from Irish Aid and other interested partners from West Africa.

The three country programmes shared their experiences and lessons. Next steps were articulated in a workshop report, and the salient lessons from the workshop were documented and published as a working paper on CIP's website. The report (ISBN: 978-92-9060-515-7; DOI: 10.4160/9789290605157) can be accessed at www.cipotato.org.

3.4.2 Conduct regional end-of-project stakeholder review and learning workshops

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

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. But 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 a few farmers and DAs.
- The experience-sharing visits organised by the project prompted participants of the event to focus more on further scaling-up 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 in stimulating demand for production of sweetpotato planting material was noted.
- 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 to be important

- increase job creation for unemployed youth in sweetpotato production, marketing, and value addition
- establish OFSP root producer groups, by working with established and commercially oriented farmers or farmer groups with the required resources for urban root supply

3.4.3 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, had 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 due to delays in procurement of drip irrigation equipment. In the end, the equipment was procured in June, which coincided with the main rain season. Therefore, the study will be conducted in the dry season (January 2020–April 2020) using SARI's own budget.

3.5 Objective 4: Evidence-Based Advocacy Strengthened to Influence Policies and Programming in Support of OFSP as Part of Healthier Diets

3.5.1 Organise at least two annual stakeholder project review and learning workshops to review project implementation and share lessons

The project conducted two annual stakeholder project review and planning workshops in Tigray and SNNP regions. The objectives of the workshops were to discuss project annual achievement, challenges, and lessons learnt during each year of project implementation, and subsequently develop partner work plans and budgets for the year that followed.

Some reflections that came up during discussions are summarised below:

- The agronomy and postharvest trainings as well as the experience-sharing visits organised by the project encouraged participants of the event to focus more on further scaling out of the crop in their project areas.
- There is still limited knowledge of sweetpotato agronomy, postharvest management, and utilisation. More investment on capacity building and technical assistance is required to have a common understanding of the crop.
- There is a need for practical experience-sharing visits to facilitate farmer-to-farmer knowledge exchange.
- More investment, time, follow-up, and technical backstopping are needed to institutionalise OFSP in the training programmes of FTCs, and cooking demo and promotion activities with ongoing health and nutrition activities of the health centres. Health centres need to give more orientation to pregnant women about the health and nutrition benefits of OFSP consumption when they visit health centres for regular check-ups.
- There was serious shortage of vines. Participants suggested that each FTC in each intervention kebele should multiply vines to meet local demand. In this regard, the BoA should strengthen OFSP demos and multiplication at FTC level.
- Linking the postharvest training with practical demos of OFSP dishes was greatly appreciated. Participants highly appreciated and liked the bread containing OFSP as one of its ingredients, which showed that there are potentially feasible utilisation options for OFSP.
- The project needs to do more on commercialisation of OFSP through direct engagement with commercial agriculture investors to engage in OFSP root production for market and linkage of out-grower smallholder farmers to the market.
- More follow-up and technical support is needed to ensure that OFSP is integrated into annual work plans and budgets of FTCs and health centres.

3.5.2 Consolidate evidence base on OFSP in Ethiopia and develop advocacy and demand creation materials (policy briefs, fact sheets, brochures, etc.)

An external consultant (a communication specialist) was hired to design communication or advocacy tools such as evidence briefs, policy briefs, factsheets, and case studies to use for advocacy to increase awareness of and investments in OFSP by government, donors, and other stakeholders. The consultant was provided with evidence, best practices, and lessons which were documented in project reports, research reports, and published scientific papers and designed the advocacy materials which were disseminated to stakeholders, including government officials and policymakers. Using the evidence, experiences, and lessons generated from the previous Irish Aid-funded OFSP projects in Ethiopia and other CIP-led OFSP projects in Ethiopia and other sub-Saharan Africa countries, the project compiled 12 advocacy tools: two project flyers, two posters, one recipe book, one evidence brief, one factsheet on biofortification, one policy brief and four case studies/success stories (Table 7). These advocacy materials were distributed to schools, government health and agriculture offices, farmers, and participants in workshops and trainings.

Table 7. No. of promotional materials distributed during different promotional events in both regions

Advocacy Tools	No. of Promotional Materials Printed and Disseminated		
	SNNPR	Tigray	Total
Project briefs	300	210	510
Project flyers and leaflets	130	2,722	2,852
Recipe booklet	134	1,415	1,549
Posters	40	1,150	1,190
T-shirts		270	270
"Orange-Fleshed Sweetpotato—Your Passport to Good Health" booklet	10	750	760
Matte Vinyl banner		15	15
Handout - Triple S seed conservation		400	400
Total	**614**	**6,932**	**7,546**

3.5.4 Promotion through radio messages

In October 2019 CIP contracted a local radio station to produce six radio messages to promote quality sweetpotato seed and consumption of OFSP for improved nutrition in Tigray. The content of the radio message focused on the following subject areas:

- The first and second radio messages highlighted the importance of vitamin A, nutritional value of OFSP, its benefits to children and mothers, and words of encouragement to grow and consume OFSP.
- The third and fourth radio messages focused on educating farmers on basic sweetpotato production methods, including land preparation, planting, weeding, and pest control.
- The fifth and sixth radio messages focused on harvesting and postharvest management and steps and care needed to prepare sweetpotato puree.

The radio spots were aired twice a day at prime time for 40 days (October 18th–December 6th 2019). It is believed that the radio messages increased farmers' awareness and knowledge of OFSP, and the radio broadcasts were key to increased media attention at local and regional levels, leading to heightened visibility of the project.

3.5.5 In collaboration with project partners, CIP organised seed demand and supply linkage workshops

During the project period, sweetpotato annual seed demand and supply linkage workshops were conducted (two in Tigray, two in SNNPR). The primary objectives of the workshops were to exchange information and create linkages amongst sweetpotato seed value chain actors, and discuss constraints and potential strategies to address seed value chain challenges, including planning and coordination in the chain. Along with CIP staff, different OFSP seed value chain actors participated in the workshops.

The following constraints and potential strategies to address value chain challenges were raised by participants.

Major constraints:

- Most of the time institutional buyers (NGOs) fail to honour their commitment to buy cuttings after planning for such purchases together with suppliers.
- Agricultural research centres did not deliver the number of basic and pre-basic vines demanded by commercial vine multipliers.
- There was unfair competition among vine multipliers; some were trying to monopolise the business.
- The demand and harvesting times were not in synch and multipliers were suffering losses.

Potential strategies:

- Regional BoA and BoH should convince additional international and local NGOs to include biofortified crops such as OFSP as part of their annual work plan by allocating budget for OFSP-related activities.
- The regional BoA needs to produce a consolidated OFSP demand for each woreda and circulate to stakeholders for comments and consideration prior to the start of the upcoming rainy season.
- Woreda offices of agriculture and natural resources development need to allocate budget for the purchase of vines and include this activity in their annual work plan.
- The procurement of OFSP should start early to be delivered to each kebele at the start of rainy season.
- 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 assessed and quantified by the BoA, and seed distribution should be done through the BoA in collaboration with concerned partners in each project area.
- NGO programmes depend on donor funds. Thus, it was suggested that vine multipliers should not depend solely on NGOs' purchases. They should also look for other customers such as BoA.

3.5.6 Engage with multisectoral nutrition-agricultural platforms for sharing evidence and lessons

During the project period, CIP staff attended 14 platform meetings to share evidence and lessons at national and subnational levels:

- CIP and partners produced three research papers for oral presentations and one for poster presentation at the National Nutrition Program review meeting, held at the Hilton Hotel on December 20th–21st 2017 in Addis Ababa. The papers were mostly based on research evidence generated from operational research conducted in the previous and ongoing Irish Aid-funded OFSP project. The titles of the papers and poster were as follows: (1) Multi-sectoral

efforts and coordination for better nutrition: a preliminary finding from systems diagnostic study on implementation challenges and opportunities for nutrition-sensitive agriculture interventions in Ethiopia; (2) Presentation of impact pathways linking orange- fleshed sweet potatoes to child and household nutrition outcomes: A cluster randomized effectiveness study in rural Ethiopia; (3) The impact of school nutritional campaigns on Scaling- Up Nutrition-Sensitive Agriculture in Tigray region, Ethiopia; and (4) Kitchen gardens for improved nutrition: Evidence from cultivation of sweetpotato, potato and other nutritious crops in rural Tigray, Ethiopia (poster).

- In Tigray CIP staff actively participated in a 2-day Tigray Region Nutrition Programme Planning review meeting on January 4th–5th 2018 in Wukro town.
- CIP disseminated evidence, lessons, and impacts from operational research done in the previous and ongoing OFSP projects and findings of the SDS to stakeholders at the stakeholder validation workshop (January 11th–12th 2018).
- CIP attended two platform workshops organised by Seqota Declaration team of the Federal Ministry of Agriculture and Natural Resources in Mekelle on March 22nd–24th 2018, and in Bahir Dar on May 1st–3rd 2018, aimed at sharing evidence and lessons on nutrition-dense crops. During these two platform meetings CIP staff presented the evidence, lessons, impacts, and challenges of previous CIP-led OFSP interventions in Tigray and SNNPR. Additionally, as part of an effort to institutionalise OFSP in the curriculum of ATVETs, CIP shared evidence and lessons on biofortified OFSP crops at the Nutrition Sensitive Agriculture Technical Update training for agriculture college instructors, organised by Save the Children in Maichew town on May 5th 2018.
- CIP staff in Tigray and SNNPR regional offices participated in a 1-day from-Field-to-Table event organised by CultivAID, an Israeli NGO, in collaboration with Tigray Development Association at Kalamino multipurpose farm on May 19th 2018. At this event CIP displayed roots of new high DM OFSP varieties that were at the time under evaluation and supplied 100kg of OFSP roots to event organisers to include in the participants lunch buffet.
- CIP participated in the "National Nutrition Sensitive Agriculture Training Manual for Agricultural Development Agents" workshop, organised by the MoA, held on November 8th 2018 at Bishoftu town.
- CIP participated in a workshop organised by the MoA on NSA, which was held in Addis Ababa on December 22nd–24th 2018.The Ninth Annual Sweetpotato for Profit and Health Initiative meeting, attended by two CIP–Irish Aid project staff, convened in Nairobi on September 24th–27th 2018. It was organised by the CIP-SASHA project. 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 March 22nd–24th 2018, aimed at sharing evidence and lessons on nutrition-dense crops.
- 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 April 4th–5th 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 participated in a National Partners Consultative Technical meeting on May 30th 2019. Organised by CIP's regional office, the meeting aimed at mapping priority areas for delivery of OFSP in Ethiopia. On 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 May 24th 2019 in Mekelle to sensitise relevant sectors and nutrition development partners and obtain their commitment to the policy at regional level.
- CIP and its project partners (SNNPR and Tigray) attended the 11th consultation meeting of the Seed Systems and Crop Management Community Practice of the CIP–SASHA project. The meeting was held on May 14th–16th 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 on 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 June 24th–28th 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. At this event CIP–Ethiopia presented evidence, lessons, and impacts of the previous and ongoing OFSP projects funded by Irish Aid.

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

During the project period, two consultants with extensive experience in potato and sweetpotato research and development in Ethiopia were hired to lead the joint development of a national potato and sweetpotato strategy by CIP and the Federal MoA. After producing a draft, the MoA and CIP jointly called for a national consultation workshop which was held on October 15th 2019 in Addis Ababa, Ethiopia. The workshop was aimed at bringing together stakeholders in the potato and sweetpotato sector to review and provide input into the draft strategy and recommend the way forward on implementation strategy. Fifty participants, including from the Federal MoA; Ethiopian agricultural research institutes; regional agricultural research institutes from SNNPR, Tigray, Oromiya, and Amhara; regional BoA from Amhara, Tigray, and Oromiya, SNNPR; universities; private sector; staff from CIP–Ethiopia and the CIP's Africa regional office; and a delegation from Irish Aid attended.

To further guide the development of the potato and sweetpotato sector in Ethiopia, the government has requested CIP to technically support the development of a national strategy for these crops. The comments received on the draft document require a more detailed economic, environmental, and institutional analysis of the sector, which is proposed for the first half of 2020, following the methodology of similar sector development analyses in other countries.

3.5.8 Identify and train "OFSP champions"

During the project period CIP, in collaboration with project partners in Tigray, identified 30 (26 males, 4 females) influential, high-profile OFSP champions from government, NGOs, and community-based organisations. The selected champions were from Federal MoA, Tigray BoH, BoA, Bureau of Education, TARI, Women's Affairs Bureau, Sasakawa Global 2000, International Fund for Agricultural Development, Save the Children, Relief Society of Tigray (REST), WAT, MU, the private sector, journalists, and artists. In line with this, a half-day training was organised on August 22nd 2019. The aim of the training was to equip OFSP champions with basic concepts and methods of biofortification, health, nutrition, and income benefits of OFSP. It also aimed to give participants a better idea on the progress made so far and the challenges to increase OFSP production and utilisation that would help them transfer their knowledge of OFSP to others at different meetings.

Moreover, different promotional materials (eg, flyers on sweetpotato agronomy, utilisation, and OFSP recipes booklet, OFSP passport, posters, etc.) were distributed to the participants to serve as references.

3.5.9 Develop video-based OFSP training manual and integrate into regular BoA and BoH nutrition promotion package

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. As part of this process, CIP and project partners were also introduced to the integration of a "digital green" approach in five 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. Seven digital green eco-projectors were procured, and training on the technology was provided for five HEWs and five DAs.

The "Orange-Fleshed Sweetpotato—Your Passport to Good Health" booklet was translated into Tigrigna and Amharic and distributed to FTCs, ATVET colleges, OFSP champions, and elementary schools as well as to workshop and training participants.

4. MONITORING AND EVALUATION

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

- Operational survey on production and consumption of OFSP conducted jointly by the Irish Aid and CIP-OFDA projects, and draft survey report produced.
- Four stakeholder annual project review, learning, and planning workshops conducted.
- Six-month progress reports. The principal investigators of each project partner organisation (BoA, BoH, SARI, TARI, WAT, and ELE) prepared and sent their 6-month progress reports detailing achievements against targets, budget utilisation, challenges encountered, responses, and case studies.
- Monitoring through field visits. Every month CIP's sub-office staff based in Mekelle 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 a proper follow-up.

5. CHALLENGES ENCOUNTERED AND MITIGATION STRATEGIES

- Like other CGIAR centres in Ethiopia, CIP does not have a host country agreement (HCA) with the GoE. Instead it is hosted by ILRI, which is the only CGIAR centre with an HCA with the GoE. Without its own HCA, it was difficult for CIP to convince other government departments, most notably the BoH in SNNPR, to sign an SGA with CIP, as they demanded to see CIP's operating license in Ethiopia. Attempts to provide ILRI's HCA and CIP's hosting agreement were not enough to convince some of the government officials. Although the project failed to secure a formal agreement with the regional BoH, project activities were implemented with the full cooperation of BoH officials in the target woredas. Moreover, the BoH at regional level was engaged in the project through their formal agreement with ELE, one of the project partners. Thus, the BoH activities were led by CIP and ELE.
- In SNNPR there was sporadic political instability and civil unrest across the region which hindered staff movement to execute project activities. Wolaita Sodo ATVET was affected by civil unrest in June 2018.

- One of the major constraints to a wider adoption of OFSP was the limited varietal base. During the project period only two varieties ('Kulfo' and 'Tula') were distributed. But they are less preferred by farmers and consumers due to their low DM content.
- Turnover of BoA staff and higher officials was very high in SNNPR region, which delayed implementation of some project activities. In Tigray there was a major reshuffling of the BoA staff at regional and woreda levels, and the new staff who came on board needed orientation on the project and project objectives. This was time consuming, especially in some project intervention woredas.
- Limited access to land and irrigation was a major constraint to the project's effort to capacitate FTCs through the establishment of OFSP multiplication plots, in both target regions. Moreover, at some of the FTCs, sweetpotato multiplication was difficult due to a number of factors, like invasion of multiplication plots by livestock and damage by frost.

6. LESSONS LEARNT, OPPORTUNITIES, AND NEXT STEPS

During the project period, several lessons were learnt:

- We learnt that (1) diagnosis of the system is an essential first step to understand key system elements, gaps, and leverage points for system-strengthening planning; (2) system strengthening is quite complex and challenging; and (3) strengthening institutional systems alone is not sufficient, but other multiple interdependent systems (and subsystems)—for example, OFSP raw root and product market systems—need to be strengthened for the desired sustainability and impact at scale to occur.,
- Institutionalisation of good agricultural practices achieved by the CIP-Irish Aid project within government and community systems proved effective. But it is very challenging and time consuming, hence 28 months of the project period was not enough. Success in system strengthening needs a long-term political commitment and a continuous engagement through collaboration with other organisations, both at national and subnational levels.
- It is important to consider gender for the different activities (eg, production, postharvest, processing, marketing, and utilisation) that are planned for the project, at different levels, from HH to institutional, given the key role that women play in making nutrition-related decisions.
- Experience in biofortified crops, especially OFSP, is not the same across the various sectors. Hence, cross-sharing of experiences and knowledge among actors is vital. Continued evidence-based advocacy is needed to raise awareness on OFSP among policymakers and other stakeholders to enhance mainstreaming of OFSP in government agriculture and health sector systems and increased investment in OFSP.
- The project invested resources in designing and translating training materials into local languages for use in the agriculture and health extension systems. However, we learnt from the feedback by agriculture and health experts that visual aids such as videos are a more effective in training, particularly at the kebele level where literacy rates are quite low.
- It is important to strengthen technical capacities of relevant government systems to facilitate scaling-up of OFSP. However, this has to be complemented with efforts to strengthen inclusive OFSP market value chains development. This can be done by targeting more commercially oriented resourceful farmers who have access to sizeable plots and irrigation and are close to urban markets to consistently produce larger volumes of quality OFSP root to meet market demand. Private sector engagement and investments in processing of OFSP roots into puree should be encouraged to increase the demand for sweetpotato processed products, which would in turn encourage large-scale production.

- At the policy level, potato and sweetpotato are recognised in the horticulture and NSA strategies of the MoA. However, because of the prioritisation of cereals, these two crops do not receive enough attention and prioritisation that are commensurate with the key role they play in the food and nutrition security of a significant proportion of the population in the country. To increase the attention paid to potato and sweetpotato at policy level, and to facilitate efforts towards institutionalisation of the two crops, there is need for more detailed sector development analysis, including socioeconomic, environmental, and institutional analyses. Lack of awareness on OFSP by government officials and experts at all levels of the government ladder is one of the impediments for institutionalisation of the crop. Accordingly, there is still need to put more effort in evidence-based advocacy to increase awareness and prioritisation of the crop in government programmes, plans, and strategies. Sweetpotato in particular, is a very robust crop suitable for vulnerable, lowland areas where there are still significant nutrition-related challenges.
- A critical component for the dissemination of suitable OFSP varieties is the development of more sustainable sweetpotato seed systems, which can include a business-oriented component. If seed producers can make additional income from seed-related activities, the dissemination process would be more sustainable. However, more work and time are needed to institutionalise OFSP seed demand and supply linkage within the BoA system
- Importance of a "food basket" approach supported by making available a variety of biofortified crops to address dietary deficiencies of micronutrients among vulnerable populations needs due attention. This can be done by working together with other players. In fact, this requires more financial resources.

Opportunities

- Leveraging previous and ongoing related OFSP initiatives by government and other stakeholders: for instance, existence of delivery structures or systems such as ATVETs, health colleges, FTCs, and health posts.
- Increased investments in OFSP initiatives by other stakeholders/NGOs, which are prioritising nutrition-related interventions.
- Supportive policies policy environment, which incorporates biofortified crops as part of food and nutrition security crops: NSA Strategy, National Nutrition Programme II, National Food and Nutrition policy, Seqota Declaration, Agricultural Growth Programme, and others.
- OFSP champions at high levels of government (regional and federal levels) would support advocacy on the importance of biofortified crops for nutrition, particularly OFSP.
- CIP's sweetpotato breeding programme is accelerating the development and making available new improved new varieties that can meet consumer preferences.
- As part of CIP's Global Sweetpotato Agrifood Systems Programme, this project has been one in the portfolio and has had complementarity with other CIP projects financed by other donors such as SASHA (BMGF), EU, and USAID/OFDA.
- Previous and ongoing related OFSP initiatives by government and other stakeholders that the project leveraged on or complemented: (1) existence of functional delivery structures or systems: ATVETs, health colleges, FTCs, health posts; (2) existence of coordination and technical platforms for nutrition at different levels; and (3) availability of training resources.
- ATVET and health college curriculum revised to mainstream nutrition with inclusion of modules on applied basic nutrition and NSA through efforts by MoA, MoH, and Save the Children.
- MoA-led initiative on mainstreaming nutrition into the agriculture extension package.

ANNEX 1: SUMMARY OF ACHIEVEMENTS VERSUS TARGETS

Description	Intervention Logic	Indicators of Achievement (OVI)	Achieved from July 2017 to October 30th 2019
		Outputs	
Goal: Contribute to improved nutritional status and food security among vulnerable populations in SNNPR and Tigray regions of Ethiopia through the strengthening of agriculture and health systems and through institutional development.		Food security and nutrition indices in target areas	Data on impact of the project on food and nutrition indictors were not collected due to lack of funding for endline survey.
Project purpose: Strengthen institutional capacities and processes among key stakeholders at national and subnational levels to support scaling up of production and utilisation of vitamin A-rich OFSP.		Numbers of HH cultivating micronutrient-rich sweetpotato varieties in target woredas.	A total of 3,758 HH cultivating micronutrient-rich sweetpotato varieties
		Area under cultivation with micronutrient-rich sweetpotato varieties	Area under cultivation of micronutrient-rich sweetpotato varieties is 63.2 ha.
		Consumption of micronutrient-rich sweetpotato and potato varieties marketed and processed	Data not available
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.	SDS design and methodology documented and related data collection tools prepared.	SDS methodology document and related data collection tools	Prior to the assessment system diagnostic study, methodology document and related data collection tools developed
	SDR 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 nutrition interventions produced.	SSDR documented.	Participatory system diagnosis conducted, and final report produced. System gaps and leverage points identified and used in designing relevant partner work plans for Years 1 and 2, as well as the comprehensive SDS.
	SSP identifying key gaps and leverage points for system strengthening jointly developed and validated by stakeholders.	SSP available to all stakeholders	Stakeholders jointly developed a SSP based on the findings of the SDS. The SSP were integrated in year 2 partner work plans and budgets which were designed at project review and planning workshop.
		At least two scientific publications co-authored with project partners	Four scientific papers related to project activities were published co-authored with project partners.
Result 2: Strengthened technical and institutional capacity of BoA, BoH, SARI/TARI, ATVETs, and other stakeholders for promotion and	Training plan for addressing key gaps identified in SSP developed.	Training plan for target woredas developed and available to all stakeholders.	Training plan for target project partners and woredas are identified and included in partner annual work plan.
	Training manuals for learning by doing ToT of agriculture and health	Training manuals developed and available.	CIP has technical training manuals on sweetpotato for field staff and communities "Everything You Ever

Description	Intervention Logic	Indicators of Achievement (OVI)	Achieved from July 2017 to October 30th 2019
		Outputs	
implementation of sustainable OFSP technologies and services to smallholder farmers.	training institutions (ATVETs, FTCs, health colleges, and *woreda* BoH and BoA officials) on technical aspects OFSP agronomy, use, and nutrition and institutional aspects developed.		Wanted to Know about Sweetpotato". This manual was translated into Tigrigna and Amharic languages and made available to regional, woreda- and kebele-level agriculture and health extension offices.
	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	OFSP modules integrated into curriculum of 4 ATVETs agricultural colleges (Wukro, Maichew, and Shire, Wolayta Sodo), and 2 health colleges in Tigray. OFSP training modules (hard and soft copy) are available in 20 project kebeles.
	At least five 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.	Activity has been suspended because established multiplier groups ceased OFSP multiplication due to lack of market.
	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.	Established demo and vine multiplication plots at 17 FTCs. From these, 934,360 OFSP cuttings were produced and distributed to 3,158 HH (1,306 in SNNPR, 1,852 in Tigray). In addition, 3 ATVET colleges in Tigray (Maichew, Wukro, and Shire) and 1 in SNNPR (Wolaita Sodo) established OFSP demo and vine multiplication plots.
	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.	96 ATVET instructors and 315 BoA staff trained on OFSP agronomy and seed conservation and cascaded down the training to 329 model farmers.
	At least 20 woreda agriculture and health officers trained in OFSP agronomy, utilisation, and nutrition.	20 woreda agriculture and health officers trained.	Trained 219 health and agriculture officers on OFSP nutrition, utilisation, and behavioural change counselling techniques.
	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).	Assessment of capacities, scope, and delivery modalities for OFSP done as part of the comprehensive system diagnostic study.

Description	Intervention Logic	Indicators of Achievement (OVI)	Achieved from July 2017 to October 30th 2019
		Outputs	
	Demos on 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 recipes and cooking demos were integrated as part of the ongoing health extension programmes at 20 health centres and reached 5,039 people.
	OFSP recognised as a key food security and nutrition crop and integrated in government strategies, programmes, plans, and budgets.	At least six 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.	10 project woredas included OFSP as part of their annual work plan.
	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 end of project.	Three ATVET colleges in Tigray (Maichew, Wukro, and Shire) and 1 in SNNPR integrated OFSP training materials into the ATVET teaching modules. OFSP nutrition- and utilisation-training modules were integrated into the curriculum of two health colleges in Tigray.
		At least one OFSP module is integrated into the agriculture and health extension package by project end.	CIP served the MoA with OFSP training manuals for integration into the ministry-developed NSA training manual and facilitator guide. Federal MoA integrated OFSP into NSA ToT manual that will be used by the agricultural extension system nationally.
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 ongoing OFSP projects in Ethiopia and other countries synthesised.	At least three synthesis reports documenting OFSP impacts, lessons, and best practices produced.	Operational survey on production and consumption of OFSP conducted jointly by the Irish Aid and CIP-OFDA projects. Draft evaluation report produced.
	Stakeholder workshops to review implementation progress and share lessons conducted bi-annually.	At least 3 stakeholder review and learning workshops conducted by project end.	Nine stakeholder review and learning workshops conducted during the project period: one regional multi-country learning workshop for CIP Irish Aid-funded projects, one Agriculture Nutrition-Health Nexus Workshop, annual stakeholder project review, and planning workshop was conducted (two in Tigray and two in SNNPR). End of project stakeholder project review and learning workshop was conducted in Tigray and SNNPR and 1 National consultation workshop on potato and sweetpotato strategies.

Description	Intervention Logic	Indicators of Achievement (OVI)	Achieved from July 2017 to October 30th 2019
		Outputs	
	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.	Evaluation trials of new improved OFSP varieties jointly established by SARI through joint funding from CIP Irish Aid- and EU-funded projects. Finding of the research outcome published.
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 subnational levels.	Evidence and lessons from OFSP interventions shared with stakeholders in at least 10 multi-stakeholder platform meetings at national, regional, and woreda levels.	Evidence and lessons from OFSP interventions shared with stakeholders at 14 multistakeholder platform meetings.
		At least six field days and two exchange visits organised for members of national and sub-national platforms and other stakeholders.	Four field days and exchange visits organized for members of woreda, zonal and regional stakeholders and farmers reached 698 people.
		Existing OFSP advocacy materials reviewed, and revised advocacy materials (policy or evidence briefs, factsheets, highlights, brochures, leaflets, videos) prepared and shared with stakeholders.	Evidence and lessons synthesised in 12 advocacy materials translated into local languages: Amharic and Tigrigna including 2 project briefs, 2 project flyers, 2 posters, 1 recipe book, 1 policy brief, 1 evidence brief, 1 factsheet on biofortification, and 4 success stories.
	Promotion and utilisation of nutritious and biofortified OFSP is integrated into regional government and NGO agriculture and nutrition strategies and planning processes.	Roadmap for institutionalisation of good practice for OFSP and nutrition-sensitive interventions by BoA and BoH developed.	Jointly with the MoA, CIP developed a national potato and sweetpotato strategy.
		At least one agriculture and one nutrition strategy or plan by GoE promote nutritious and biofortified crops.	Ten project woredas included OFSP as part of their annual work plan, and budget for capacity building and vine purchase covered by NGOs.
		At least 6 OFSP champions identified in key institutions in BoA, BoH, and other stakeholders at federal and regional levels to advocate for OFSP in their institutions and in relevant platforms.	30 'OFSP champions' trained to advocate for mainstreaming of OFSP at woreda, regional and national levels.
		At least two additional projects promoting OFSP by government or NGOs in the two regions.	In SNNPR: Alive and Thrive, FAO, World Vison, Save the Children and SHUR project promoting OFSP by including as part of their project activities. While in Tigray 7 organizations (GIZ, Save the children, IFAD, Irish Aid funded BoA livelihood project, REST, WAT, and Sasakwa Global 2000, Ethiopia) promoting OFSP by including as part their project activities.
		20 targeted kebeles reached through collaboration between BoH and BoA and other project stakeholders.	20 targeted kebeles reached through collaboration between BoH and BoA and other project stakeholders

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.
www.cipotato.org

CIP is a member of CGIAR.

CGIAR is a global research partnership for a food-secure future. Its science is carried out by 15 research centers in close collaboration with hundreds of partners across the globe.

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