

Niassa and Inhambane Utilising Sweetpotato for Nutrition and Development Project

Interim Phase

Project Annual Technical Report

January–December 2018

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International Potato Center (CIP)



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Acknowledgments

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ACRONYMS

CHWs	Community health workers
CIP	International Potato Center (<i>Centro Internacional de la Papa</i>)
DPASA	Provincial Directorate of Agriculture and Food Security (<i>Director Provincial da Agricultura e Segurança Alimentar</i>)
DVM	Decentralised vine multiplier
FCS	Food Consumption Score
GoM	Government of Mozambique
HDDS	Household dietary diversity score
HH	Household(s)
IDDS	Individual Dietary Diversity Score
LGA	Local government authority
M&E	Monitoring and evaluation
NGO	Non-governmental organisation
OFSP	Orange-fleshed sweetpotato
SDAE	<i>Serviço Distrital de Actividade Economicas</i>
SETSAN	<i>Secretariado Técnico de Segurança Alimentar e Nutricional</i>
SNV	Smart Development Works
SO	Specific objective
SWOT	Strengths, weaknesses, opportunities, threats analysis
Triple S	Storage in sand and sprouting
WDDS	Women's Dietary Diversity Score

EXECUTIVE SUMMARY

Chronic malnutrition remains an important development challenge in Mozambique, despite the sustained efforts by the Government of Mozambique (GoM), partners, and donors such as Irish Aid to address this constraint. Mozambique is among the African countries with the highest malnutrition rates: chronic malnutrition prevalence is 44%, and women of childbearing age and children in the first 2 years of life are particularly affected (SETSAN 2014; Li et al. 2003).¹ Although the northern provinces of Mozambique are considered high production areas, they also have the highest prevalence of malnutrition: Cabo Delgado (50%), Nampula (50%), and Niassa (44%).² The southern provinces have the lowest prevalence, but Inhambane Province still has 31% chronic malnutrition.³ Recognising the importance of malnutrition and micronutrient deficiencies, the GoM has prioritised the improved food and nutrition security national plans and programs. To date, however, progress in tackling key nutrition indicators such as child stunting and vitamin A deficiency has been less than ideal. One of the approaches that the GoM has recommended is food-based approaches to fighting malnutrition, which promotes the production and consumption of biofortified crops, such as vitamin A-rich orange-fleshed sweetpotato (OFSP), that have great potential and offer an opportunity for improving micronutrient intake for the poor, agriculture-dependent households (HH).⁴

It is in this context that the International Potato Center (CIP) and its partners are leading the Niassa and Inhambane Utilising Sweetpotato for Nutrition and Development project to strengthen the capacity of local authorities in planning and accountability, production, utilisation, and consumption of OFSP. Funded by Irish Aid, the project seeks to ensure increased consumption of OFSP by HH with pregnant women and children under 5 years. In 2017 CIP specifically supported stakeholder efforts to have access to nutritious OFSP varieties through capacity building in planning and delivery of technical services among government staff. In addition, CIP worked with government, private sector, and non-governmental organisations (NGOs) to collect ideas for a future 4-year intervention. In 2018 CIP proposed to further develop these ideas and lay the groundwork to support scaling up production and utilisation of vitamin A-rich OFSP for improved food and nutrition security beginning in 2019.

The 2018 interim 1-year ‘design phase’ continues to be implemented by CIP and partners in 13 districts: 9 in Niassa Province (Lago, Sanga, Lichinga, Ngauma, Mandimba, Metarica, Maua, Cuamba, and Mecanheles) and 4 in Inhambane Province (Massinga, Mabote, Govuro, and Vilankulo) from 1 January to 31 December 2018. By mid-March 2018 CIP decided to move to Inhambane Province as of 15 April. The project aims to (1) strengthen the capacity of local government and NGO service providers in Niassa and Inhambane in planning, implementation, and evaluation of agriculture and nutrition interventions in order to overcome malnutrition and poverty; (2) strengthen the contribution of OFSP to food security and dietary diversity for pregnant women and children aged under 5 in the target communities in Niassa and Inhambane; and (3) increase opportunities for HH in Niassa and Inhambane to increase their family incomes through sale of OFSP and OFSP-based products.

1. SETSAN. 2014. Relatório de Estudo de base de segurança alimentar e nutricional de 2013.

Li, H., Stein, AD., Barnhart, HX., Ramakrishnan, U., and Martorell, R. 2003. Associations between prenatal and postnatal growth and adult body size and composition. *Am J Clin Nutr.* 77(6): 1498–1505.

2. SETSAN. (ibid).

3. SETSAN. (ibid).

4. Forsman, CF. 2014. Fortification of staple foods in Mozambique. Mozambique Support Program for Economic and Enterprise Development (SPEED). USAID report. Maputo, Mozambique.

This report summarises the activities during the year 2018 in Niassa and Inhambane provinces. The following activities were carried out:

- A detailed work plan was developed in alignment with the project.
- Coordination meetings were held in Niassa and Inhambane to present the lessons learnt and to develop a plan to be implemented by the District Service of Economic Activities (*Serviço Distrital de Actividade Economicas* [SDAE]) partners. The lessons from this implementation were considered during the 2018 planning.
- The office in Niassa Province was temporarily closed from mid-April 2018 and the project transferred to Inhambane Province.
- Baseline surveys were conducted on 107 HH in Vilankulo and Massinga by 22 enumerators (6 women) from SDAE under CIP's supervision.
- Decentralised vine multipliers (DVMs) were identified in Inhambane to ensure that OFSP vines were multiplied.
- The capacity of 293 technicians, DVMs, association group members, and community health workers (81 women) was strengthened on participatory planning, data collection, OFSP production, Triple S (storage in sand and sprouting), market, and nutrition in Niassa and Inhambane provinces in 13 districts.
 - With 154 technicians trained (30 women), the project reached 67 SDAE technicians (11 of them women) from nine districts of Niassa; 76 newly recruited technicians (17 women) in Niassa; and 11 *Associação de Iniciativa Para o Desenvolvimento Comunitário* members (2 women) in Lichinga.
 - In Inhambane Province, 139 (51 women) received training: 73 SDAE technicians (21 women) from four districts of Inhambane, 28 DVMs (8 women), and 38 nutrition agents (22 women) at community level.
- An awareness campaign on the importance of OFSP as the first step in the community selection process. The communities were selected if more than 50% of HH were interested in OFSP production and nutrition. Each SDAE technician selected one or two communities for the implementation of the lessons from the previous project.
- OFSP vines were distributed to 12,100 HH (59% women) from January to 10 December 2018, surpassing the objective of 5,000 HH.
- Agriculture fairs were held in Lichinga in April during an investors conference. CIP also participated in different events in April, June, August, and September in Meheleme Chocimo, Mucuaqua, and Massinga in Massinga District; in Machanane in Govuro District; and in Inharrime District during the visit of the Inhambane governor and Mozambican president.
- Agriculture campaign 2018–2019 was launched in Mapinhane Vilankulo on 25 October 2018 (see cover photo). It was led by the minister of education and human development, the Inhambane governor, the administrator of Vilankulo, and the provincial director of agriculture and food security. The official event was celebrated by the planting of OFSP vines of varieties 'Namanga', 'Alisha', and 'Sumaia'.

1. INTRODUCTION

Vitamin A-rich, nutritious orange-fleshed sweetpotato (OFSP) varieties are an effective tool for improving nutrition and food security in northern Mozambique. The International Potato Center (CIP) implemented the “Nutritious Orange-fleshed Sweetpotato for Niassa” project from 2012 to 2016, with financial support from Irish Aid. The project reached 28,000 households (HH) and demonstrated that OFSP production and consumption can result in increased food security, healthier diets, and increased incomes for poor and vulnerable populations in the province. In response to this success, stakeholders, including provincial and district governments, committed to making OFSP universally available in the province to help reduce malnutrition and poverty.

OFSP is now well established in Niassa and is therefore considered one of its main crops (as explicitly mentioned in Objective 4 of *Multi Sectorial for Chronic Malnutrition Action Plan [Plano de Acção Multi-setorial para a Redução da Desnutrição Crónica]*, led by the technical secretary for food security and nutrition (*Secretariado Técnico de Segurança Alimentar e Nutricional* [SETSAN]). Planting material for OFSP varieties is multiplied in all the districts of Niassa Province under the government initiative.

However, the project temporarily closed its Niassa office and all staff were moved to Inhambane Province in mid-April, after launching the training process in Niassa. In this context, CIP is continuing a 1-year implementation project to support demand for OFSP in Inhambane Province. During this first phase, CIP strengthened the capacity of provincial and district institutions to plan, implement, and evaluate agriculture and nutrition interventions to overcome malnutrition and food insecurity.

2. PROJECT BACKGROUND

2.1 OVERALL OBJECTIVE OF THE PROJECT

The purpose of this second interim phase is to contribute to improved food security, nutrition, and rural income opportunities in Inhambane Province. There are three specific objectives (SOs) and main activities of this phase:

- **SO 1: Strengthening the capacity of local government authorities (LGAs) and NGO service providers in Niassa and Inhambane for planning, implementation, and monitoring, using a participatory “planning-implementation-learning cycle” approach on OFSP value chains**

1.1 Capacity of stakeholder programming and coordination activities in the OFSP value chain developed

- 1.1.1 Train technicians in planning, implementation, data collection, and monitoring and evaluation (M&E).
- 1.1.2 Train technicians, DVMs, and schoolteachers in OFSP production techniques and management.

1.2 Stakeholder M&E in the OFSP value chain at all levels facilitated

- 1.2.1 Conduct baseline surveys in new districts.
- 1.2.2 Identify project indicators.

- **SO 2: Strengthen contribution of OFSP to food security and dietary diversity of pregnant women and children under 5 in the target communities**

2.1 New intervention districts and communities in Inhambane identified and sensitised in consultation with provincial leaders

- 2.1.1 Develop training material for nutrition-based agriculture.
- 2.1.2 Conduct awareness campaign about OFSP advantages.

2.1.3 Select communities for intervention.

2.2 OFSP planting material multiplied and conserved during dry season

2.2.1 Conduct participatory training with DVMs.

2.2.2 Support farmers in OFSP planting material conservation during the dry period.

2.2.3 Introduce and establish net tunnels, irrigation pumps, and Triple S (storage in sand and sprouting) in selected communities.

2.3 Planting material of preselected varieties distributed to 2,500 smallholder HH with children under 5 and/or pregnant women

2.3.1 List the interested beneficiaries during the awareness campaign.

2.3.2 Distribute OFSP vines to the interested beneficiaries.

2.3.3 Participate in diverse events for OFSP vine distribution.

2.4 Consumption of OFSP as an affordable source of vitamin A promoted to community with emphasis on pregnant women, children under 5, and at primary schools in the target districts

2.4.1 Conduct participatory training on nutrition.

2.4.2 Promote community practical training on nutrition.

- **SO 3: Increase opportunities for improving HH income from sale of OFSP roots and leaves and OFSP-based products**

3.1 Traders and vendors in at least two local markets per district improved availability of and access to OFSP

3.1.1 Identify potential OFSP traders and vendors interested at different levels.

3.1.2 Conduct a participatory market analysis at the local market—that is, a strengths, weaknesses, opportunities, threats (SWOT) analysis.

3.1.3 Train traders and vendors and implement pilot market activities.

3.1.4 Support HH and associations in year-round production of OFSP.

3.2 At least 50% of trader and vendor participants generate at least \$200 income from sales of OFSP (roots and leaves)

3.2.1 Conduct production and market surveys to evaluate the availability of and access to OFSP.

3.2.2 Monitor the quantity and price of roots and leaves sold over the year.

2.2 TARGET AREA/GROUP

The principal target groups have been poor, rural women and their young children (aged 6–59 months) in four districts in Inhambane Province (Massinga, Mabote, Govuro, and Vilankulo) (Fig. 1). However, the project started the technicians' capacity-building process in nine districts in Niassa (Lago, Sanga, Lichinga, Mandimba, Cuamba, Mecanheles, Ngauma, Maua, and Metarica) before shifting to Inhambane.

PROJECT INTERVENTION ZONE

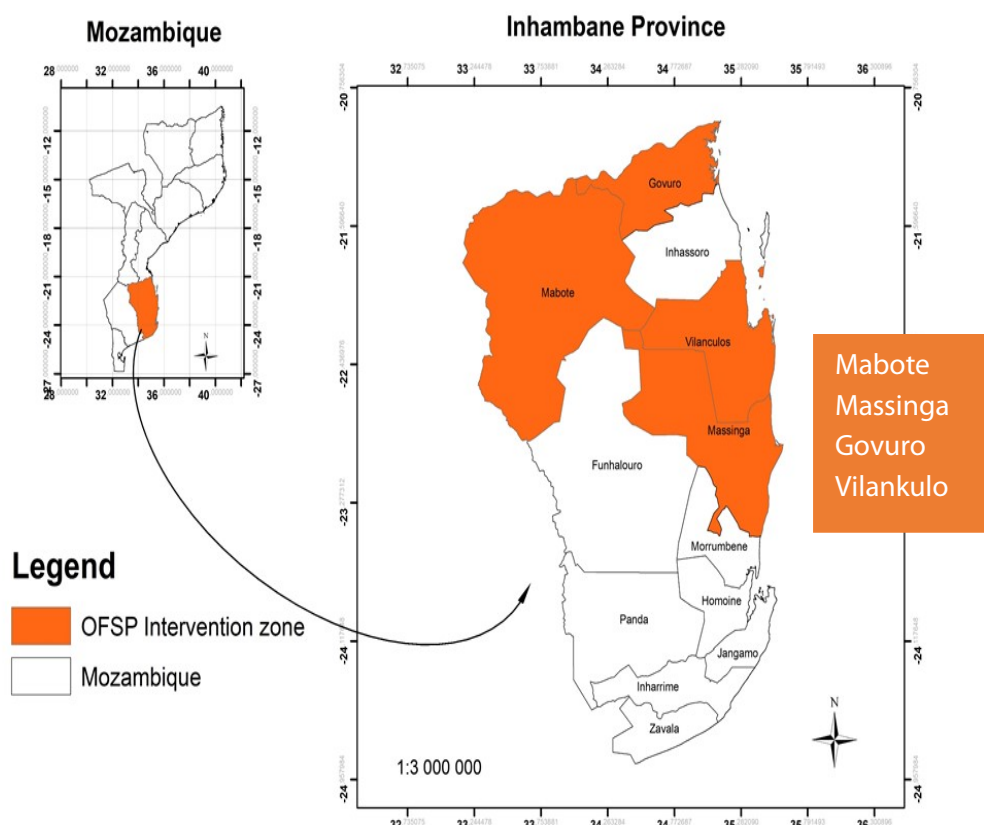


Figure 1. Intervention zones in Inhambane Province.

Attention was also given to other HH members who were considered influencers of adoption and behaviour change. These included men (influential community leaders and, husbands) and mothers-in-law, who often have a considerable say in child-caring practices. This approach helped to ensure that all HH members understood the importance of investing in nutrient-rich crops and providing good child-caring practices. The project targets selected villages with at least 200 HH to ensure a strong impact at scale and for community-level intervention, and to contribute to reducing malnutrition at intervention level.

The target groups were involved in (1) planting of OFSP varieties, (2) capacity building, (3) nutrition education, and (4) HH participation during awareness campaigns.

Rainfall in Mabota and Massinga

The precipitation patterns in Mabota and Massinga were similar, with an average of 580 mm/year. However, 2018 showed the effect of climate change, with heavy rainfall in February and April 2018 in Mabote as shown in Figure 2.

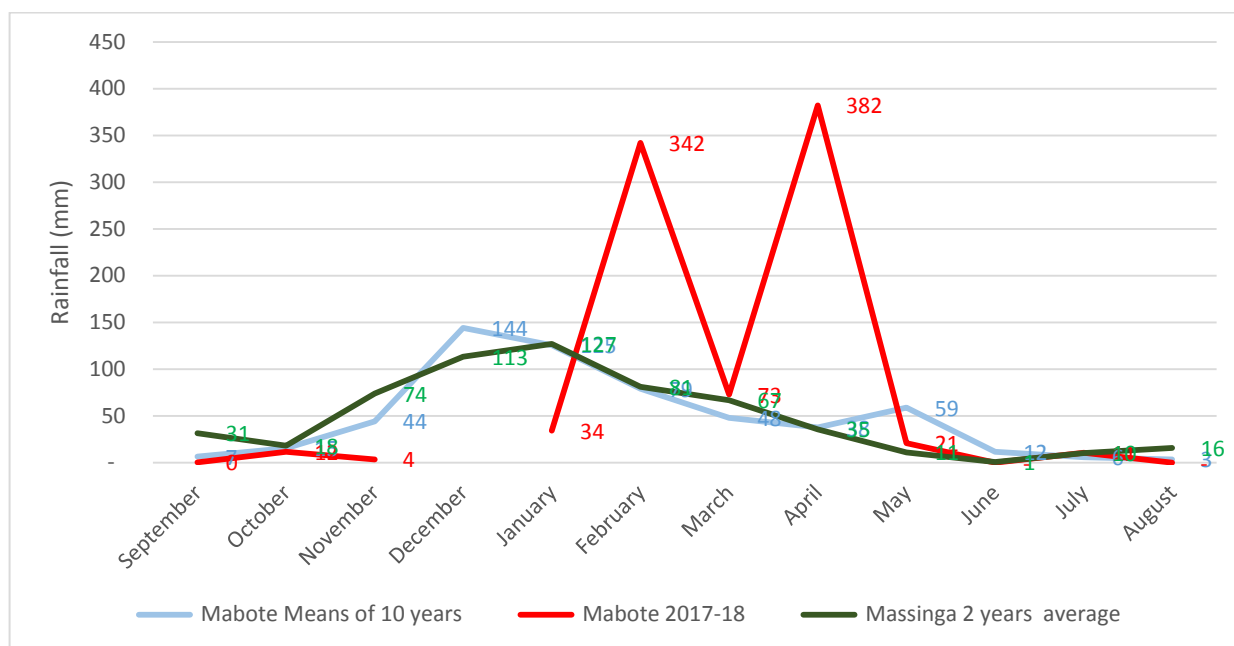


Figure 2. Rainfall patterns in Massinga and Mabote districts.

2.3 MAIN ACTIVITIES AND ACHIEVEMENTS ACCOMPLISHED

Table 1 summarises the main activities and project achievements.

Table 1. Main activities planned and achievements made in 2018 for the Niassa and Inhambane Utilising Sweetpotato for Nutrition and Development Project

Narrative	Indicators and Targets	Progress in 2018
Goal: To contribute to improved food security, nutrition, and rural income opportunities in Inhambane Province of Mozambique		
<i>Purpose: To enable local government authorities and private sector stakeholders to make better investments in nutrition-sensitive agriculture, using OFSP as the entry point</i>		
<i>Objective 1: Capacity strengthened for planning, implementation, and monitoring of LGAs, using a participatory “planning–implementation–learning cycle” approach on OFSP value chain</i>		
Outcome 1.1 Capacity of stakeholder programming and coordination activities in the OFSP value chain developed		<p>293 technicians, DVMs, association group members, and community health workers (CHWs) (81 women) trained on participatory planning, data collection, OFSP production, triple S, market and nutrition in Niassa and Inhambane provinces in 13 districts:</p> <ul style="list-style-type: none"> • 154 technicians (30 women) trained in 9 districts of Niassa • 139 technicians, DVMs, and nutrition agents (51 women) trained in 4 districts of Inhambane. <p>2 coordination meetings were held in Niassa with the <i>Director Provincial da Agricultura e Segurança Alimentar</i> (DPASA) about the intervention districts and the implementation strategy and with DPS about continuation of the Roadshow success in 2017; 7 coordination meetings in 4 districts of Inhambane Province were organised during the first semester of 2018.</p>
Activity 1.1.1. Train technicians in planning, implementation, data collection, and M&E	No. of technicians trained	<p>144 technicians (33 women) in 13 districts of Niassa and Inhambane trained in OFSP participatory planning, implementation, and M&E:</p> <ul style="list-style-type: none"> • 67 technicians (11 women) in 9 districts of Niassa • 7 members (all men) of the <i>Associação de Iniciativa Para o Desenvolvimento Comunitário</i> (AIPADEC) in Lichinga • 70 technicians (21 women) in 4 districts of Inhambane • 22 technicians (6 women) in Massinga and Vilankulo districts of Inhambane trained in data collection with tablets.
Activity 1.1.2. Train technicians, DVMs, and school teachers in OFSP production techniques and management	No. of technicians, DVM and school teachers trained	<ul style="list-style-type: none"> • 252 technicians, DVMs, and association members (58 women) in Niassa and Inhambane trained in OFSP production: • 143 SDAE technicians (28 women) in 9 districts of Niassa • 11 members (2 women) of AIPADEC in Lichinga • 70 technicians (28 women) in 4 districts of Inhambane • 28 DVMs (8 women) trained in OFSP vine multiplication and production in Inhambane. • 198 technicians and DVMs (47 women) trained in OFSP production costs in 9 districts of Niassa and 4 districts of Inhambane.
Outcome 1.2 Stakeholder M&E in the OFSP value chain at all levels facilitated		Baseline surveys conducted and documented
Activity 1.2.1. Conduct baseline surveys in new districts	Baseline surveys conducted	Data collection done at 107 HH: 53 HH by 12 SDAE technicians (2 women) in Vilankulo and (2) 54 HH by 10 SDAE technicians (4 women) in Massinga.

Narrative	Indicators and Targets	Progress in 2018
Activity 1.2.2. Identify the indicators of the project	Indicators of the project fixed	<ul style="list-style-type: none"> • 20% HHs produce OFSP (23% in Massinga & 17% in Vilankulo) • Average OFSP yield: 3.5 t/ha • 40% HH hear about vitamin A: • Individual Dietary Diversity Score (IDDS) 6–23 months reference: 1.3 • Women's Dietary Diversity Score (WDDS) 15–49 years: 2.6 • Household Dietary Diversity Score (HDDS): 7.2 • Poor Food Consumption Score (FCS): Child 76% • Borderline FCS Child: 3% • Acceptable FCS Child: 21% • Poor FCS Adult: 24% • Borderline FCS Adult: 16% • Acceptable FCS Adult: 60% • 10% sold OFSP (8% in Massinga & 2% in Vilankulo)
Objective 2: Contribution of OFSP to food security and dietary diversity of pregnant women and children under 5 in the target communities strengthened.		
Outcome 2.1 New intervention districts and communities in Inhambane identified and sensitised, in consultation with provincial leaders.	New district identified	<ul style="list-style-type: none"> • Vilankulo is the identified new district • 88 communities were identified under 66 technician interventions: 26 in Govuro, 17 in Mabote, 18 in Massinga and 27 in Vilankulo.
Activity 2.1.1 Develop training material for nutrition-based agriculture	Training material developed	<ul style="list-style-type: none"> • Training material developed and printed on rapid multiplication and vine multiplication • A leaflet produced on a nutrition sensitisation campaign
Activity 2.1.2 Conduct awareness campaign about OFSP advantages	One awareness campaign/technician	39 out of 66 technicians conducted awareness campaign in 4 districts: 10 in Govuro, 6 in Mabote, 10 in Massinga, and 13 in Vilankulo.
Activity 2.1.3 Select communities for intervention	No. of intervention communities	58 direct intervention communities within 88 communities in planning were reached by awareness: 14 in Govuro, 5 in Mabote, 16 in Massinga, and 23 in Vilankulo. However, many neighbouring communities received OFSP vines during the distribution.
Outcome 2.2. OFSP planting material multiplied and conserved during dry season	OFSP vines available at DVM level	<ul style="list-style-type: none"> • 30 DVMs operational: 13 in Govuro, 6 in Mabote, 2 in Vilankulo, and 9 in Massinga until the end of November 2018. • 39,283 kg of 14 varieties of OFSP vines were supplied by 17 DVMs.
Activity 2.2.1. Conduct participatory training to DVMs	No. of DVM trained	<ul style="list-style-type: none"> • 28 DVMs (8 women) trained in OFSP vine multiplication and production: 13 DVMs in Govuro (3 women), 6 DVMs (3 women) in Mabote, and 9 in Massinga (2 women).
Activity 2.2.2. Support farmers in OFSP planting material conservation during dry period	No. of participants	8,470 HH (59% women) received OFSP vines for multiplication and conservation during dry season (May–November 2018)
Activity 2.2.3. Introduce and establish net tunnels, irrigation pumps, and Triple S in selected communities	No. of installations; no. of participants	<ul style="list-style-type: none"> • 1 net tunnel installed in Govuro. 8 participants were 4 teachers (2 females, 2 males), 1 community leader, 1 woman beneficiary, 1 technician, and 1 supervisor. • 11 out of 15 Triple S installations in 3 districts were successful.
Outcome 2.3 Planting material of pre-selected	At least 5,000 HH with	<ul style="list-style-type: none"> • 12,100 HH (59% women) received OFSP vines from January to 10 December 2018: 17% in Govuro, 1%

Narrative	Indicators and Targets	Progress in 2018
varieties distributed to 2500 smallholder HH with children under 5 and/or pregnant women	children under 5 years received OFSP vines	<ul style="list-style-type: none"> in Mabote, 78% in Massinga, and 4% in Vilankulo. 10,013 HH (59% women) have 16,861 children aged under 5.
Activity 2.3.1 List the interested beneficiaries and received OFSP vines during the awareness campaign	No. of beneficiaries	<ul style="list-style-type: none"> 12,100 HH (59% women) received OFSP vines from January to 10 December 2018. 7,779 HH (58% women) have 11,689 children aged under 2. 8,679 HH (59% women) have 15,114 children aged 2–5. 10,013 HH (59% women) have 26,331 children aged under 5. 10,129 HH (84% women) have 19,587 women in reproductive age (15–49 years). 5,362 of HH are woman head (45%) with 12,367 children aged under 5.
Activity 2.3.2. Distribute OFSP vines to the interested beneficiaries	Name and no. of varieties; quantity of OFSP vines	<ul style="list-style-type: none"> 5 varieties: 'Sumaia', 'Irene', 'Delvia', 'Namanga', and 'Alisha' were the most distributed, with more than 1 t per variety; 426 kg of 'Gloria' variety were also distributed. More than 39 t of OFSP vines were distributed.
Activity 2.3.3. Participate in diverse events for OFSP vine distribution	No. of events (e.g. field days, fairs, etc.)	<ul style="list-style-type: none"> Investors conference held in Lichinga on 5 April 2018. Governor visited Meheleme Chicomo Massinga on 17 April 2018. President visited Machacame Govuro on 13 June and Mucuacua Massinga on 14 June 2018. Governor visited Massinga on 15 August and Inharrime on 21 August 2018. Administrator visited Massinga on 8 September 2018. Minister of Education and governor launched the Agricultural campaign in Mapinhane Vilankulo on 25 October 2018.
Outcome 2.4. Consumption of OFSP as an affordable source of vitamin A promoted to community with emphasis on pregnant women, children under 5, and at primary schools in the target districts	% of HH improving their diet	Evaluation not done to date
Activity 2.4.1. Conduct participatory training on nutrition	No. of trainees conducted trainings	<ul style="list-style-type: none"> 90 SDAE technicians and SETSAN focal point, nutritionist and community health workers (CHWs) (41 women) participated on nutrition training in 4 districts in Inhambane. 38 nutritionists and CHWs (22 women) in Massinga and Mabote trained on nutrition in April 2018. Participants missed the distribution of OFSP vines. 52 nutritionists, SETSAN focal point, and SDAE technicians (19 women) were trained on nutrition in 4 districts in September– October
Activity 2.4.2. Promote community practical training on nutrition	Nutrition education delivered in communities	4,722 HH within 82 communities participated in sensitisation and information about nutrition conducted by 51 nutritionists, technicians, and SETSAN focal points.
Objective 3: Opportunities for improving HH income from sale of OFSP roots and leaves and OFSP-based products increased		
Outcome 3.1 Traders and vendors in at least 2 local markets per district improved availability of and access to OFSP	No. of actives traders and vendors	15 potential DVMs became traders.

Narrative	Indicators and Targets	Progress in 2018
Activity 3.1.1. Identify potential OFSP traders and vendors interested at different levels	No. of potential traders and vendors identified	15 actual DVMs in Massinga, Vilankulo and Govuro were identified as vendors.
Activity 3.1.2. Conduct a participatory market analysis at the local market (SWOT analysis)	No. of participants	198 technicians and DVMs (47 women) were trained in OFSP production costs in 9 districts of Niassa and 4 districts of Inhambane: <ul style="list-style-type: none"> • 101 technicians (18 women) in 9 districts of Niassa • 69 technicians (21 women) in 4 districts of Inhambane • 28 DVMs (8 women) in 3 districts of Inhambane.
Activity 3.1.3. Train traders and vendors and implement pilot market activities	No. of participants	83 (25 women) technicians and DVMs were trained in marketing in 4 districts of Inhambane where: <ul style="list-style-type: none"> • 55 technicians (17 women) and 28 DVMs (8 women) 15 DVMs (2 women) acted as traders and sold their OFSP roots directly.
Activity 3.1.4. Support HH/associations for year-round production of OFSP	No. of participants producing year-round OFSP	15 DVMs produce OFSP vines and roots all year round.
Outcome 3.2. At least 50% of participating traders and vendors generate at least \$200 income from sales of OFSP (roots and leaves)	% of participants; average of income	<ul style="list-style-type: none"> • 15 DVMs received \$10,596 from OFSP roots, with an average of \$706/DVM, ranging \$100–\$3,200/DVM. • 17 DVMs received \$3,915 from OFSP roots, ranging \$17–\$920 with an average of \$230.
Activity 3.2.1. Conduct production and market surveys to evaluate the availability of and access to OFSP	Surveys conducted	<ul style="list-style-type: none"> • Surveys were conducted only among DVMs. • 15 DVMs produced and sold 39 t of OFSP vines and 31 t of OFSP roots: <ul style="list-style-type: none"> ○ 9/9 DVMs in Massinga sold 34,212 kg of OFSP vines and 8/9 sold 29 t of OFSP roots. ○ 1/2 DVMs in Vilankulo sold 440 kg of OFSP vines, 1/2 sold 5 t of OFSP roots. ○ 7/13 DVMs in Govuro sold 4,327 kg of OFSP vines, 6/13 sold 7 t of OFSP roots. ○ 1/6 DVMs in Mabote sold 304 kg of OFSP vines.
Activity 3.2.2. Monitor quantity and price of roots and leaves sold over the year	Quantity evaluated, and the price of roots and leaves sold monitored	<ul style="list-style-type: none"> • Data sheet already edited. • Implementation done in collaboration with SDAE. • Price of roots: on average of 25 MZN⁵ all year round (from 15 MZN to 50 MZN). • Leaves market: not common in the 4 districts market.

5. \$1 = 60 MZN

3. PROJECT MANAGEMENT AND PARTNERSHIPS

3.1 STAFF STRUCTURE

CIP managed the project from Lichinga until March 2018 with the support of an agronomist coordinator for Inhambane. From mid-April all CIP staff in Lichinga shifted to the office in Massinga District in Inhambane Province to focus exclusively on its four districts. One shared office was arranged with SDAE in Govuro for the technician, to reduce travel costs, until July 2018 when all staff were based in Massinga.

The project is supported by two drivers. The monitoring, learning, and evaluation specialist resigned in May 2018, and the agronomist/provincial coordinator was transferred to Nampula on 17 April 2018 to work on another CIP project.

3.2 PARTNERSHIPS

The main partners for this phase are the provincial and district government departments, SETSAN, and local NGOs supported in their initiatives by the project. The health department, nutrition section, and the education department at district level are among the implementing partners.

- **DPASA:** Provincial Directorate of Agriculture and Food Security through SETSAN and SDAE:
 - **SDAEs in 11 districts in Niassa** were involved in the project until the end of March 2018; 67 technicians (11 women) took part in the participatory planning and have their individual work plans. However, CIP decided to temporarily close the office in Lichinga and transferred all staff to reinforce the activities in Inhambane.
 - **SDAE in four districts in Inhambane** are involved in the project. Seventy technicians (21 women) participated directly in the implementation of project activities. SDAE technicians ensured the direct community sensitisation, vine multiplication, and dissemination of OFSP varieties at district level under CIP staff supervision. Some 22 extension agents and supervisors (6 women) participated in baseline surveys data collection in Massinga and Vilankulo.
 - **SETSAN** in Inhambane has started to put the focal points in the districts which need capacity building to monitor the food security and nutrition situation at district level. SETSAN focal points are involved in all SDAE technician work.
- **DPS:** Provincial Directorate of Health. Nutrition specialists were involved in the project in the dissemination of nutrition messages to communities in Inhambane and Niassa provinces, but the same task was also done by SETSAN focal points.
- **Hospital in Govuro:** The hospital in Govuro got 70 kg of OFSP vines to produce OFSP vines and roots which are still in the field.
- **The Instituto de Professoras in Vilankulo** works with the project through OFSP vine multiplication and root production from 15 kg of vines provided. The plants are still in the field, ready to supply the neighbours this planting season.
- **The Associação de Iniciativa Para o Desenvolvimento Comunitário**, a youth association with 11 members (2 women) and 10 ha of land located 6 km from Lichinga city, is interested in producing OFSP. It asked CIP for capacity-building support, in which all members took part in participatory planning and OFSP production training.
- **Red Crista** collaborated with the project in Govuro District in Inhambane by inviting CIP to make a presentation on OFSP at the Catholic church.

The communities supported by the partners working with the project in Niassa continue to produce OFSP. These partners are Associação Progresso, Diocese de Niassa (Anglican diocese), WeEffect through União dos Componeses e Associações de Lichinga and Forum, the Ajuda de Desenvolvimento do Povo para Povo, Manda Wilderness Agricultural Project, and Smart Development Works (SNV).

3.3 MONITORING AND EVALUATION

The M&E specialist participated in both the STATA trainings and the community of practice in Nairobi in February 2018. The questionnaire for the baseline and nutrition surveys was reviewed, the programme for data collection was created, and the questionnaires were installed in the tablets. Data were collected and are being cleaned. In the field, continuous monitoring is undertaken to assess the progress of the project.

3.4 EVENTS

The project participated in eight main events in Lichinga, Massinga, Govuro, Inharrime, and Vilankulo. These included the investors conference; visits by the provincial governor of Inhambane and the administrator of Massinga in Massinga; a visit by the president of Mozambique in Govuro and Massinga, and a visit by the Minister of Education accompanied by the governor of Inhambane in Vilankulo. Some DVMs also participated and sold OFSP roots and vines.

3.5 COORDINATION

The project is coordinated at different levels. At provincial level, the project participated in three coordination meetings in Niassa: with DPASA about the intervention districts and the condition of intervention, with DPASA on the collaboration at district levels, and a road show, where OFSP was most appreciated in 2017. SNV worked in four districts of Niassa and asked CIP to provide technical support to their staff and partner SDAE technicians for OFSP capacity building.

In Inhambane Province, nine coordination meetings were organised jointly with the partners. One coordination meeting was organised with DPASA Inhambane on project implementation, mainly on the on-farm trials. Two meetings were held with the SDAE team and two NGOs (AJOAGO and Red Crista) in Govuro. In addition, two meetings were held in Vilankulo with the SDAE team and the university and two meetings were held in Massinga with the SDAE team. Two meetings were held with education services in Mabote with the administration which involved education and nutrition services and with the SDAE team.

4. PROJECT PROGRESS: IMPLEMENTED ACTIVITIES AND OUTPUTS ACHIEVED AGAINST WORK PLAN

In 2018, 21 activities were programmed under the project's three SOs. The project worked closely with provincial leaders in both provinces on capacity building during the first quarter. Specifically, 12,100 HHs in 88 communities were covered by OFSP vine distributions in four intervention districts for Inhambane Province (Mabote, Massinga, Govuro, and Vilankulo). During the baseline surveys in two districts of Inhambane, HH were interviewed. The activities under the three SOs are detailed below.

4.1 SO 1: CAPACITY STRENGTHENED FOR PLANNING, IMPLEMENTATION, AND MONITORING OF LGAS, USING A PARTICIPATORY PLANNING-IMPLEMENTATION-LEARNING CYCLE APPROACH TO THE OFSP VALUE CHAIN

Capacity building concerns mainly the extension system, where all extension agents of the public and NGOs in the districts working on food security and nutrition were involved to strengthen the system. In 13 districts in Niassa and Inhambane provinces, 293 technicians, DVMs, association group

members, and CHWs (81 women) were trained in participatory planning, data collection, OFSP production, Triple S, marketing, and nutrition. Four activities were undertaken to achieve this SO.

4.1.1 Train technicians in planning, implementation, data collection, and M&E

Training started at the end of January 2018 in Niassa and in February in Inhambane, and ended in November 2018. Trainings were done during the monthly meetings of the SDAE technicians in the districts, with all extension systems at each intervention district. The reason was to give all SDAE technicians the opportunity to learn to develop the extension system capacity at each district.

- In 13 districts of Niassa and Inhambane, 144 technicians (33 women) were trained in OFSP participatory planning, implementation, and M&E facilitated by a CIP staff team. This included:
 - Sixty-seven technicians (11 women) in nine districts of Niassa (Lago, Sanga, Lichinga, Ngauma, Mandimba, Cuamba, Mecanheles, Maua, and Metarica) in February and early March 2018. Each technician developed his/her own work plan.
 - Seven members (all men) of AIPADEC in March 2018 in Lichinga.
 - Seventy technicians (21 women) in four districts of Inhambane (Massinga, Vilankulo, Mabote, and Govuro) in May–June and August–September 2018. Each technician has his/her own work plan and is to provide monthly reports, starting in September 2018.
- Twenty-two technicians (6 women) in the Massinga and Vilankulo districts of Inhambane were trained in data collection with tablets on 16–17 May and 21–22 May 2018, respectively. Each technician collected data on at least five HH during and after the training.

4.1.2 Train technicians, DVMs, and school teachers in OFSP production techniques and management

OFSP production techniques and management training covers different topics, from field preparation to post-harvest management. Topics included land preparation; planting material selection; plantation; soil fertility management for sweetpotato production, including the use of organic fertilisation for sustainable crop production; irrigation in case of planting during the dry season; pest management; and harvest (see Annex 1⁶). The importance of OFSP was also presented. Results are shown in Table 2.

- In Niassa and Inhambane, 252 technicians, DVMs, and Association members (58 women) were trained in OFSP production.
 - Of the 143 SDAE technicians (28 women) in Niassa,
 - Sixty-seven (11 women) from nine districts were trained at district level, spending 2 days at each district until the participants developed individual plans. The trainings involved one SETSAN focal point at each district (i.e. 13 SETSAN focal points).
 - Seventy-six newly recruited SDAE technicians (17 women) were trained in OFSP production and hands-on planting. But there was not enough time to complete these training areas before moving on to participatory planning training.
 - Eleven AIPADEC members (2 women) in Lichinga were trained at the CIP office and in their field for 2 days.
 - Seventy technicians (28 women) were trained for 2 days at each of the four districts of Inhambane.
 - Twenty-eight DVMs (8 women) were trained on how to multiply OFSP clean planting material and production in three districts of Inhambane: 9 DVMs (2 women) in Massinga, 6 DVMs (3 women) in Mabote, and 13 DVMs (3 women) in Govuro. The DVMs also were

⁶ All annexes appear in separate pdf files.

trained on OFSP root production. The training was mainly on rapid and conventional seed multiplication of preferred varieties.

OFSP production costs was addressed for the technicians in 13 districts of Niassa and Inhambane and for the DVMs at 3 districts in Inhambane. The technicians support the producers in the development of their management capacity at the production and the OFSP market.

- In nine districts of Niassa and four districts of Inhambane, 198 technicians and DVMs (47 women) were trained in OFSP production costs. This included:
 - A total of 101 technicians (18 women) in nine districts of Niassa Province
 - Sixty-nine technicians (21 women) in four districts of Inhambane Province
 - Twenty-eight DVMs (8 women) in three districts: 9 DVMs (2 women) in Massinga; 6 DVMs (3 women) in Mabote; and 13 DVMs (3 women) in Govuro) of Inhambane Province

Table 2 summarises the trainings and participants during 2018.

Table 2. Training topics and participants during 2018

Participant	Niassa			Inhambane			Total General		
Topic	Men	Women	Total	Men	Women	Total	Men	Women	Total
<i>SDAE technicians</i>									
OFSP production	115	28	143	50	20	70	165	48	213
Production cost	83	18	101	48	21	69	131	39	170
Individual plan	56	11	67	49	21	70	105	32	137
Nutrition				49	41	90	49	41	90
Marketing				38	17	55	38	17	55
<i>DVMs</i>									
OFSP production	9	2	11	20	8	28	29	10	39
Production cost				20	8	28	20	8	28
Marketing				20	8	28	20	8	28
Individual plan	7	0	7				7	0	7
Total	124	30	154	88	51	139	212	81	293

4.1.3 Conduct baseline surveys at new districts

Baseline surveys were conducted at the end of May 2018 at 107 HH in 32 villages, 10 in Vilankulo and 22 in Massinga. The villages were in four administrative posts in two districts of Inhambane Province. Twenty-two technicians trained in data collection with tablets collected data on at least 5 HH each.

- Data were collected from 107 HH: 54 surveys by 12 SDAE technicians (2 women) in Vilankulo and 53 surveys by 10 SDAE technicians (4 women) in Massinga. The data are being cleaned.
- The survey is reported in a separate document.

4.1.4 Identify the indicators of the project

The indicators of the project include:

- Some 5,000 HH with children and pregnant women received OFSP vines in Niassa and Inhambane provinces.
- Twenty percent of HH produce OFSP, 23% in Massinga and 17% in Vilankulo.
- Average OFSP commercial yield: 3.5 t/ha from crop cut.
- HH hearing about vitamin A: 40%.

- IDDS 6–23 months reference: 1.3
- WDDS 15–49 years: 2.6
- HDDS: 7.2
- Poor FCS child: 76%
- Borderline FCS child: 3%
- Acceptable FCS child: 21%
- Poor FCS adult: 24%
- Borderline FCS adult: 16%
- Acceptable FCS adult: 60%
- Ten percent sold OFSP (8% in Massinga and 2% in Vilankulo).
- Seventeen out of 30 DVMs sold OFSP vines and 15 DVMs sold OFSP roots.
- Five OFSP varieties were mostly distributed and adopted by HH.

The evaluation has not been done because the project was suspended on 14 May; however, it was restarted in the field on 15 August. The project prioritised the capacity building related to the production and planning before the nutrition and marketing. The percentage of HH improving their diets will be reported in 2019.

However, the project will use the baseline data as reference for the final evaluation.

4.2 SO 2: CONTRIBUTION OF OFSP TO FOOD SECURITY AND DIETARY DIVERSITY OF PREGNANT WOMEN AND CHILDREN UNDER 5 IN THE TARGET COMMUNITIES STRENGTHENED

Eleven related activities are carried out to achieve this SO.

4.2.1 Develop training materials for nutrition-based agriculture

Training materials were developed on topics such as vine multiplication and nutrition-based agriculture; a leaflet was created for an awareness campaign. The vine multiplication materials and the leaflet for awareness were printed (see Annexes 2–4).

4.2.2 Conduct awareness campaign about OFSP nutritional benefits

The intervention at community level started with a focus on sensitisation and awareness. The project uses the material developed for message dissemination. A total of 39 out of 66 technicians took the initiative to conduct the awareness campaign and implemented the trainings in four districts: 10 in Govuro, 6 in Mabote, 10 in Massinga, and 13 in Vilankulo. Although four supervisors participated in the training, they did not implement it.

4.2.3 Select communities for intervention

The project selected 88 communities for intervention: 26 in Govuro, 18 in Massinga, 17 in Mabote, and 27 in Vilankulo. These communities were willing to produce OFSP. Some of the technicians, mainly those from Mabote, did not provide any information.

Fifty-eight direct intervention communities within 88 communities in planning were reached by sensitisation and information about OFSP: 14 in Govuro, 5 in Mabote, 16 in Massinga, and 23 in Vilankulo. However, fewer than 10 HH in each of 39 neighbouring communities took the opportunity to get OFSP vines when they were distributed.

4.2.4 Conduct participatory training to DVMs

Three training topics were organised for the DVMs in Inhambane in May–October 2018: (1) vine multiplication and root production, where DVMs learnt important agronomic practices and the nutritional value of OFSP; (2) production costs, whereby DVMs developed their skills at determining the value and cost of their products; and (3) marketing to improve their capacity for negotiation and sales.

Twenty-eight DVMs (8 women) participated in OFSP vines multiplication and root production, production cost, and marketing trainings: 9 in Massinga (2 women), 6 in Mabote (3 women), and 13 in Govuro (3 women).

4.2.5 Support farmers in OFSP planting material conservation during dry period

Beginning in May, which is considered the start of the dry season, the project distributes OFSP vines in small quantities for two reasons. First, HH conserve vines which will be available immediately during the appropriate planting time. Second, HH will multiply the vines and are used to doing so every year from their planting material after harvest. HH planted OFSP vines for multiplication and conservation in the lowland or in backyard home gardens. These HH have their OFSP vines once the rains start. This system reduced the cost of logistics during the planting period.

A total of 8,470 HH (59% women) received OFSP vines for multiplication and conservation during the dry season (May–November 2018). This represented 70% of total beneficiaries.

4.2.6 Introduce and establish net tunnels, irrigation pumps, and Triple S in selected communities

During the year, the project planned to introduce the net tunnel to conserve and multiply the OFSP vines. However, the available net was limited, and the project decided to install it at Mahave Primary School in Govuro, under the responsibility of Mr Mariamo. Four teachers (two women, two men), one community leader, one woman beneficiary, one technician, and one supervisor participated.

- One net tunnel was installed with the ‘Cecilia’ variety in May 2018. Twenty students transplanted the ‘Cecilia’ variety in August but left without watering for holidays.
- The ‘Namanga’ variety was installed in the net tunnel in September 2018. The plant is ready to be transplanted in the field during this rainy season.
- An irrigation pump was due to be installed during the period when the project was suspended (mid-May–early August). It will be installed at the end of March 2019 in a semi-arid area with a small water tank in each district.

Fifteen Triple S demos were installed and training conducted in three districts: 3 in Massinga, 2 in Mabote, and 10 in Govuro.

- Eleven Triple S projects were successful: 1 in Massinga, 2 in Mabote, and 8 in Govuro.
- Three out of four failed because children ate the roots.

4.2.7 List the interested beneficiaries who received OFSP vines during the awareness campaign

OFSP vines were distributed from January to December 2018; May is considered the beginning of the dry season. The distribution continued during the period shown in Figure 3, with a high distribution rate in May–June.

- A total of 12,100 HH (59% women) received OFSP vines through 10 December 2018, with 17% in Govuro, 1% in Mabote, 78% in Massinga, and 4% in Vilankulo.

- After sensitisation and awareness, more HH requested OFSP vines, which explains the high distribution in May (Fig. 3). The maximum amounts were limited to 1.5 kg/HH for multiplication and conservation until the December 2018–January 2019 planting period.

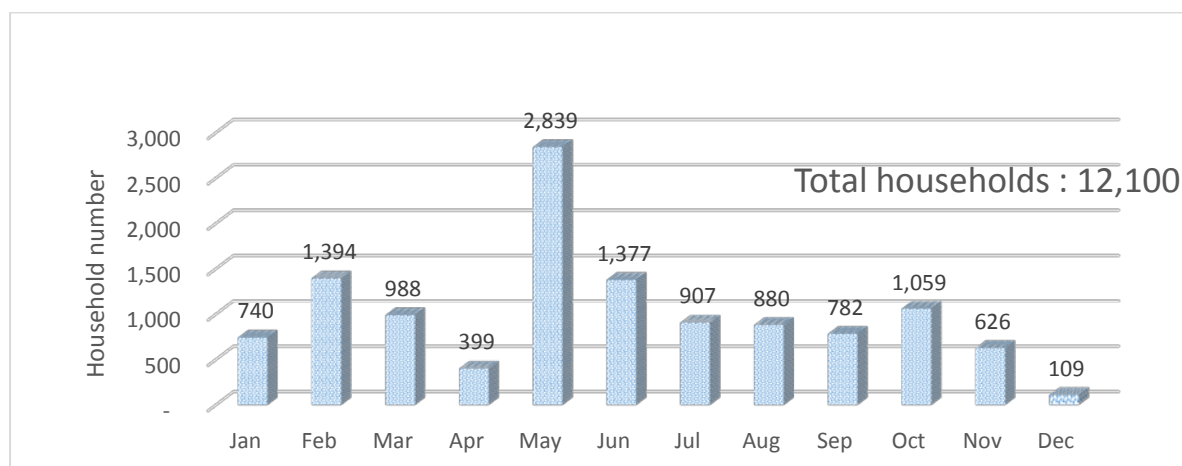


Figure 3. OFSP vines distribution in 2018.

- The team from Niassa started to work in the field in Inhambane Province in early May, which is why the distribution rate is high then.
- The project is based in Massinga, hence the high number of beneficiaries there. Also, the technician was based in Govuro temporarily until the end of August.

Figure 4 shows the importance of women's participation in the project. More women received OFSP vines than men in all districts. The exception was Massinga, where women HH-heads were less than 50%. In Mabote, 68% of HHs were women-led.

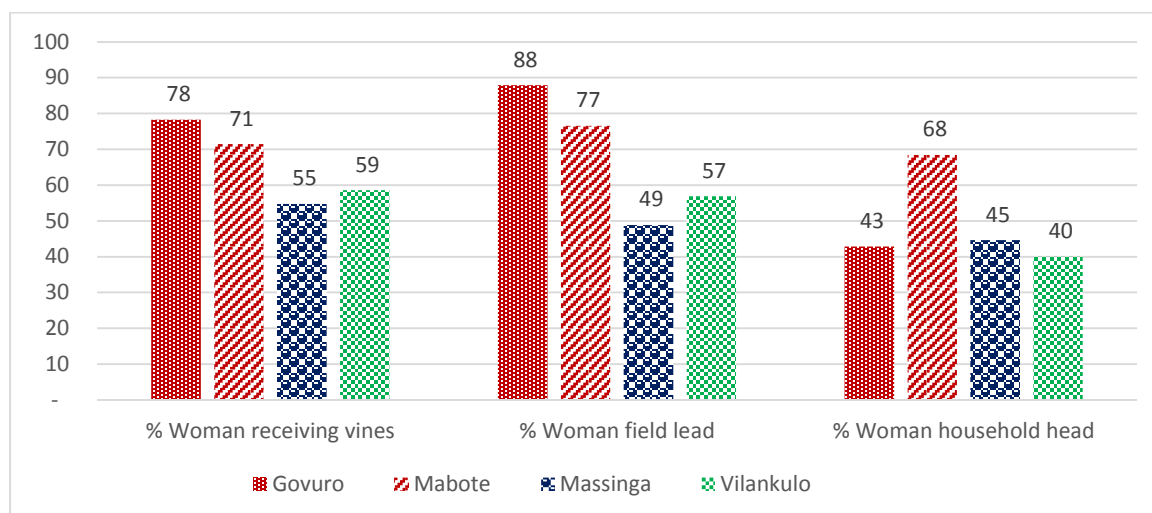


Figure 4. Women's participation.

Figure 5 shows the number of children under 2, children aged 2–5, women of reproductive age, and women as HH-heads, as these are the most vulnerable target groups of the project. Specifically, a total of

- 12,100 HH (59% women) received OFSP vines in January–10 December 2018.
- 7,779 HH (58% women) have 11,689 children aged under 2.
- 8,679 HH (59% women) have 15,114 children aged 2–5.

- 10,013 HH (59% women) have 26,331 children under 5 years.
- 10,129 HH (84% women) have 19,587 women of reproductive age (15–49 years).
- 5,362 of HH are headed by women (45%), with 12,367 children under 5 years.

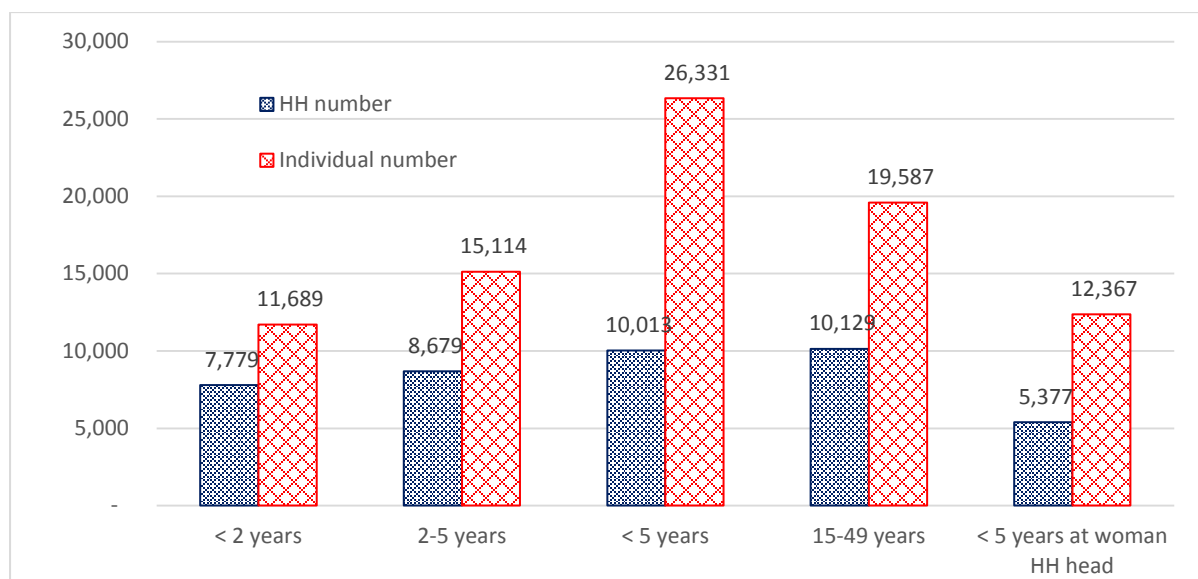


Figure 5. Children under 5, women of reproductive age, and women-headed HH with children.

4.2.8 Distribute OFSP vines to the interested beneficiaries

Five varieties were the most used and adopted in Inhambane Province; 14 varieties were distributed. 'Namanga' variety was distributed in four districts; 'Delvia' and 'Irene' varieties were distributed in three districts (not in Mabote District); and 'Alisha' and 'Gloria' varieties were distributed in two districts (Massinga-Govuro and Massinga-Mabote). Four other varieties were distributed in one district each: 'Sumaia' in Massinga, 'Ininda' in Mabote, and 'Cecilia' and 'Erica' in Govuro. Table 3 ranks the importance of the varieties in each district.

Table 3. Rank of OFSP varieties distributed in four districts in Inhambane

District	No. of Varieties Distributed	1st	2nd	3rd	4th	5th	6th
Govuro	6	Delvia	Irene	Namanga	Alisha	Cecilia	Erica
Mabote	3	Namanga	Ininda	Gloria			
Massinga	14	Sumaia	Irene	Delvia	Namanga	Alisha	Gloria
Vilankulo	3	Namanga	Irene	Delvia			

The 'Namanga' variety distributed in 2012 is planted by some farmers in Govuro, Massinga, and Vilankulo. The total OFSP vines distributed reached 39,283 kg by 10 December 2018. In terms of quantity, 'Sumaia' variety reached 17,700 kg; 'Irene', 9 638 kg; 'Delvia', 7,034 kg; 'Namanga', 2,473 kg; 'Alisha', 1,121 kg; 'Gloria', 426 kg; 'Cecilia', 257 kg; 'Ininda', 250 kg; and 'Erica', 14 kg. Six other varieties with small quantities distributed were 'Amelia', 'Bita', 'Esther', 'Ivone', 'Lourdes', and 'Tio Joe' (Fig. 6).

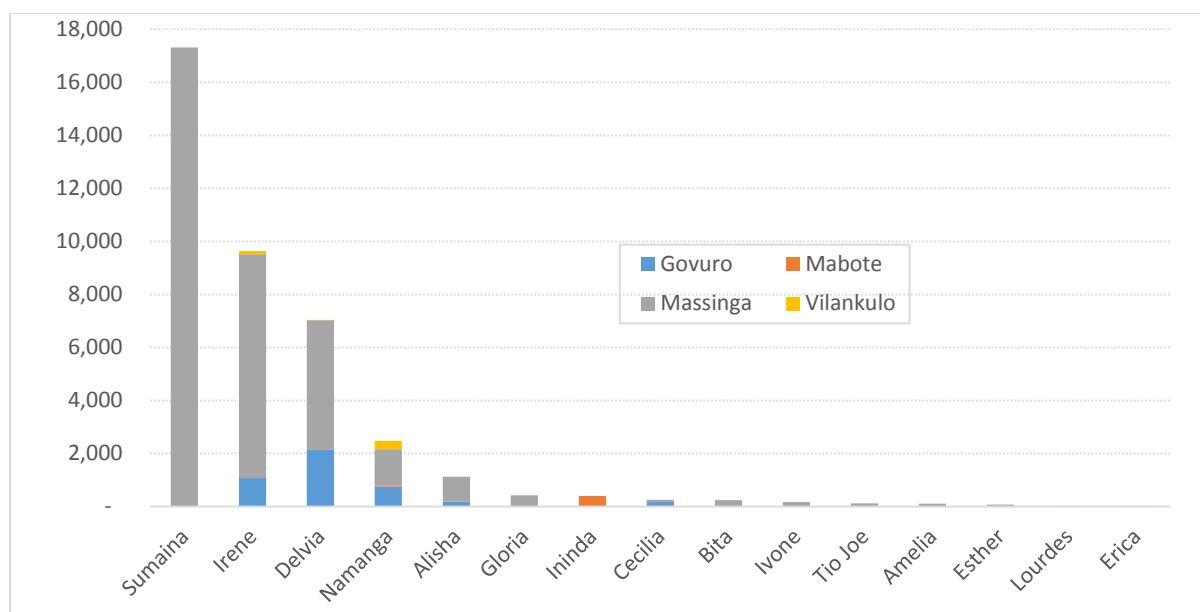


Figure 6. Distribution of varieties in four districts.

4.2.9 Participate in diverse events for OFSP vine distribution

During the 2018, eight important events were organised in Lichinga, Massinga, Govuro, Vilankulo, and Inharrime districts. DVMs under CIP and SDAE leadership and support displayed and sold OFSP vines and roots. The events included:

- An investors conference in Lichinga, Niassa Province on 5 April, where CIP demonstrated the OFSP puree processing and DVMs presented and sold OFSP roots.
- Inauguration and hand-over of an irrigation system led by the governor of Inhambane in Meheleme, Chicomo, in Massinga District on 17 April. Three DVMs (one woman) participated in the demo and sold OFSP vines and roots. Each DVM earned around \$60 during this event.
- During his annual visit, the president of Mozambique toured Machacame village, Rio Save Post in Govuro District on 13 June. Two DVMs (one woman) displayed and sold OFSP vines and roots.
- The next day, he visited Mucuacua in Massinga on 14 June; five DVMs (three women) participated. Two of the DVMs came with their own vehicle loaded with agricultural products for sale, including OFSP vines and roots.
- The governor of Inhambane visited Massinga city for a technology commemoration event on 15 August. Six DVMs (two women) from Massinga displayed and sold their OFSP vines and roots. Eleven other districts displayed and sold their OFSP roots.
- On 21 August, CIP was invited by DPASA–Inhambane with project DVMs to participate in an Inharrime fruits and vegetable promotion event under the governor’s leadership.
- The administrator of Massinga organised an ‘alphabetization day’ event in the new airport of Kapekape in Massinga on 8 September. Five DVMs displayed and sold their OFSP roots.
- The minister of education and governor launched an agricultural campaign in Mapinhane Vilankulo on 25 October. Three OFSP varieties were planted to inaugurate the campaign.

Note that during these events, DVMs developed business linkages for market development.

4.2.10 Conducting participatory training on nutrition

CHWs participated in nutrition training in Massinga and Mabote in March and April 2018. Each worker prepared a plan to implement in her/his respective community. These CHWs conducted an awareness campaign; however, coordination and communication with SDAE needs to be improved, since there were no vines for distribution.

The project adjusted the approach to train and provide all SDAE technicians with a minimum of knowledge about nutrition. Ninety technician staff (41 women) participated in the training:

- Thirty-eight CHWs (22 women) participated in March and April.
- Fifty-two SDAE technicians and SETSAN focal points (19 women) were trained in October and November.

4.2.11 Promote community practical training on nutrition

Monitoring was conducted and HH participated during sensitisation and nutrition training conducted by nutritionists, technicians, and SETSAN focal points. However, there was not enough time for culinary demos.

- Fifty-one nutritionists, technicians, and SETSAN focal points conducted information and awareness sessions on nutrition and the importance of OFSP in 82 communities.
- Within 82 communities (17 in Massinga, 16 in Mabote, 25 in Vilankulo, and 24 in Govuro) 4,722 HH participated in sensitisation and information sessions about nutrition conducted by 51 nutritionists, technicians, and SETSAN focal points.
- Sensitisation and capacity building were followed by registration and OFSP vine distribution.

4.3 SO 3: OPPORTUNITIES FOR IMPROVING HH INCOME FROM SALES OF OFSP ROOTS AND LEAVES AND OFSP-BASED PRODUCTS INCREASED

Six related activities were undertaken to achieve this SO. Three activities began in the first phase, and the other three started in mid-August; however, OFSP production costs in SO 1 is part of SO 3. All DVMs who are potential OFSP vendors have already been identified in some of the districts.

4.3.1 Identifying potential OFSP traders and vendors interested at different levels

In 2018 the project asked all DVMs to become traders and vendors in order to motivate them to continue producing OFSP beyond the life of the project. These actual DVMs are in Massinga, Mabote, Govuro, and Vilankulo. Fifteen actual DVMs (3 women) were willing to manage their own products and those of their neighbours in the market so as to get a better profit than they would as individual sellers. Seven are in Massinga (two women), six in Govuro (one woman), and two in Vilankulo. Yet in Mabote DVMs were weak in this regard, whereas in Massinga some of them have been DVMs since 2017. In Vilankulo and Govuro, they are larger farmers.

4.3.2 Conducting a participatory market analysis at the local market (SWOT analysis)

This activity included production-cost training during the first phase in Niassa, and participants analysed each cost element in a participatory way. Using a working-groups tool, all participants were active in discussions and presentations. For Inhambane, the trainings took place from August to October 2018. The SDAE technicians and DVMs were involved in this training.

A total of 198 technicians and DVMs (47 women) were trained in OFSP production costs in Niassa and Inhambane. They included:

- About 101 technicians (18 women) in nine districts of Niassa and 69 technicians (21 women) in four districts of Inhambane.
- Twenty-eight DVMs (8 women) in three districts of Inhambane.

4.3.3 Train traders and vendors and implement pilot market activities

Participatory trainings in marketing were conducted in four districts in Inhambane in September–October. Traders and vendors were trained in the details of marketing and visited markets to learn how to improve their own marketing.

A total of 83 were trained in marketing in four districts in Inhambane: 55 technicians (17 women) and 28 DVMs (8 women). Fifteen DVMs (3 women) were trained as traders to directly sell their OFSP roots.

4.3.4 Supporting HH/associations for year-round production of OFSP

During the presentation of lessons learnt from the previous project and sensitisation in the communities, all communities were supported in the year-round production of OFSP, at least to conserve OFSP vines as planting material to be ready for planting in the rainy season. This year OFSP could be planted year-round, justified by these HH getting and planting their vines (Fig. 3). However, the project will conduct surveys starting in January 2019 to confirm the possibility of continuous planting. Fifteen DVMs started to produce OFSP vines and roots year-round.

4.3.5 Conducting production and market surveys to evaluate the availability of and access to OFSP

For Inhambane Province, OFSP roots found in the Massinga, Mabote, Vilankulo, and Govuro markets came from Chimoio, Manica Province. In 2018 DVMs in Massinga, Vilankulo, and Govuro supplied local and district markets. Yet it was still far from enough to fulfil the demand because the lowest OFSP roots price was 15 MZN/kg (Fig. 7). The production cost under irrigation ranged from 6 to 8 MZN/kg, and DVMs secured at least a net income of 7 MZN/kg.

Individual processing could be developed for producers, although for bakers, roots are still too expensive and cannot compete with wheat flour.

Eighteen DVMs produced and sold 39 t of OFSP vines; 15 DVMs produced 31 t of OFSP roots:

- 9/9 DVMs in Massinga sold 34,212 kg of OFSP vines and 8/9 sold 19 t of OFSP roots.
- 1/2 DVMs in Vilankulo sold 440 kg of OFSP vines and 1/2 sold 5 t of OFSP roots.
- 7/13 DVMs in Govuro sold 4,327 kg of OFSP vines and 6/13 sold 7 t OFSP roots.
- 1/6 DVMs in Mabote sold 304 kg of OFSP vines.

4.3.6 Monitoring quantity and price of roots and leaves sold over the year

The data collection sheet for the market was developed earlier. The implementation, in collaboration with SDAE, started in September. The results showed that 90% of sweetpotato in the market came from Manica Province. The price over the four districts was high from October–November through April (i.e. for 6–7 months). However, since last year when the on-farm trials were conducted in these districts, farmers planting sweetpotato from May increased. This could improve the availability and access of OFSP in the market from October to December. This year, the price of sweetpotato in the market varies from 15 to 50 MZN depending of the period and the districts (Fig. 7). The price is very high (50 MZN/kg) in Mabote (a semi-arid zone) and Vilankulo (a tourist zone) from November to April. The minimum price from May to October in Vilankulo was 25 MZN/kg and in Mabote 30 MZN/kg. However, Govuro and Massinga had a maximum price of 30 and a minimum of 15 MZN/kg (\$1 = 60 MZN).

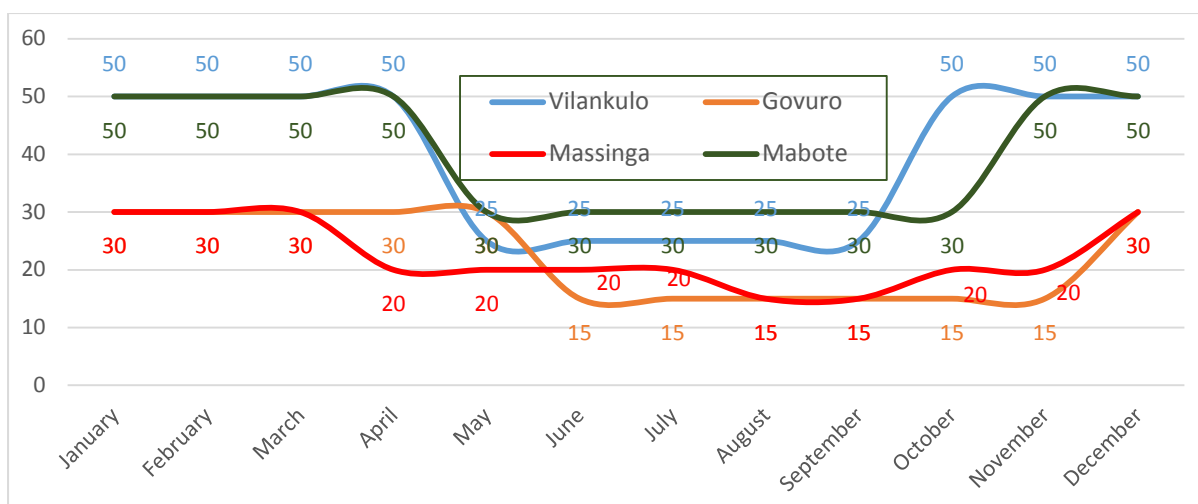


Figure 7. Sweetpotato annual price in the markets.

5. KEY ISSUES

The lack of funds affected the project implementation, causing it to stop from 14 May to 3 August (i.e. about 80 days). The office could not operate until the donor sent a letter confirming the transfer of funds with conditions for project reports and audits at the end of the year.

- The field advance received in early May for the activities was managed for the baseline and trainings as priorities.
- Staff went on leave or were assigned to other project activities until 10 August.
- Intensive trainings were organised from mid-August to November.

The nutrition evaluation was not possible due a reduced implementation time. Also, we did the training in two districts, Massinga and Mabote, earlier in March and April. Only in October and November was the training done for two other districts, Vilankulo and Govuro. The HH who were sensitised and informed about the importance of nutrition in March and April did not receive OFSP vines during the campaign.

- The interested HH should be registered during the awareness activity, and OFSP vine distribution should be organised immediately.
- All HH trainings should be followed by OFSP vine distribution.
- The evaluation will be done in 2019.

The average yield during the crop-cuttings evaluation was 3.5 t/ha, ranking from 2 t/ha to 7 t/ha. However, some of the OFSP varieties have the potential to yield more than 20 t/ha, even 30 t/ha during on-farm trials in good condition.

- Agronomic practice improvements, mainly the use of compost and other cropping systems, such as rotation and intercropping, should be enhanced.
- Monitoring and coordination should be enhanced, especially for the distribution and management of net tunnels. Some beneficiaries received OFSP vines twice from two different technicians. The vines transplanted dried out due to lack of watering at school level during the school holiday.
- As part of the learning process, a demo plot will be installed and implemented together with SDAE technicians at an intervention zone. CIP will develop monitoring tools.

6. SIGNIFICANT DEVELOPMENTS IN THE SECTOR

Despite the challenge of limited funds, the project made progress with a minimum contribution during trainings. For instance, because public services lacked any fuel for their work, the project paid for the fuel needed to implement project activities, without a daily allowance. Yet 59% of SDAE technicians carried out their training immediately without relying on fuel from the project. However, these technicians still need more support to improve the skills of the extension system.

There are opportunities to make OFSP roots available year-round. Fifteen DVMs (3 women) have OFSP vines and roots all year. Eleven out of 15 DVMs became continuous OFSP roots vendors, and they could be developed to be more professional.

An awareness campaign, followed by participatory planning with the community, will significantly encourage HH to grow OFSP from April to September—at least for conservation and multiplication—and to use organic fertiliser.

Rejuvenation of healthy planting material every 2 months could stand for more than 5 years at HH level. In the case of the 'Namanga' variety received by DVMs in Massinga and Vilankulo in 2012, the variety is still of good quality in 2018.

Triple S technology has been developed more in Mabote and in some semi-arid zones of the three other districts. The result here was promising, and HH were motivated due to the situation of the region.

7. CASE STUDIES

This year, the case studies come from the DVMs (some are shown in Fig. 8).

Afonso Siboia, a DVM in Cuamba Niassa, sold 19 t of OFSP vines this year for 10 MZN/kg and received around 190,000 MZN (\$3,167). He built a new house this year and continues to produce OFSP vines (he has around 15 t available at this moment). He continues to produce 1,000 loaves of power bread (65% wheat flour and 35% OFSP puree) per week from his OFSP roots, receiving 20,000 MZN (\$333) per month.

Rafael Paulo, a DVM in Rio das Pedras in Massinga, sold 3,920 kg of OFSP roots registered during different events for 78,400 MZN (\$1,307). He constructed a 'type II' house (i.e. a living room, two bedrooms, a kitchen, and a bathroom) and repaired his vehicle this year. He has a trader from Inhambane and Maputo who periodically asks him to supply OFSP roots.

Nelia Ngale, a DVM in Tevele Massinga, produced OFSP on an area of 3,000 m² and sold about 3 t of OFSP roots in 2017/2018 in the Massinga market. With a price of 15 MZN/kg, she earned 45,000 MZN (\$750). During the agricultural fairs, she developed business linkage with traders from Maputo, Vilankulo, and Mabote. She bought 2 heads of cattle and paid her children's school fees.

Jeremiah Ligogolo, a DVM in Govuro, produced OFSP on an area of 1,000 m² during the dry season, with irrigation through a motor pump. He sold about 2.5 t in the local market and during the agricultural fairs, earning 25,000 MZN (\$417). This helped to cover family expenses.

Hermelinda Joao, a DVM in Govuro, produced on an area of about 1,000 m² during the dry period, in city centre. She harvested about 1 t and sold about 600 kg for 20 MZN/kg. She earned 12,000 MZN (\$200) to help with family income and school expenses.

Emilio Nhaduate, an SDAE technician and DVM in Govuro, produced during the dry period on an area of about 3,000 m² in the low-lands. He harvested 3.5 t and sold about 800 kg for 20 MZN/kg. He earned about 16,000 MZN (\$267), helping his family income and paying his university tuition.

Abel Luis Ngone, a DVM, sold 2,840 kg of OFSP roots, which he invested to increase his production area and labour. He started planting monthly after the market training this October.



(Credit: B. Rakotoarisoa)

Figure 8. Four DVMs during event in Massinga in August 2018. Left to right: Abel Luis Ngone, Nelia Ngale, Rafael Paulo, and Valentino Bob.

8. LESSONS LEARNT

Given the logistics needed for mass distribution during the planting period, and the difficult access to the village caused by heavy rain, we recommend that quality OFSP vines be delivered in small quantities during the dry season—an observation that has been confirmed every year since 2014 (see Fig. 9). In 2018 in Inhambane Province, for instance, interested HH immediately adopted this approach and found it advantageous during the planting time. “The challenge is not the availability of OFSP vines but how they are managed”, according to one beneficiary.



(Credit: B. Rakotoarisoa)

Figure 9. A small quantity of clean ‘Delvia’ variety multiplied near a house during the 2016 dry season in Bia village, Niassa Province (left). At right, the same variety multiplied in the humid lowland in November 2018, ready to be planted in the field in Chilacua village, Massinga District, Inhambane Province in January 2019.

- OFSP was considered during the Gala Nutrition event in Niassa in 2016 and during the agricultural campaign kick-off in Inhambane in 2018 (Fig. 10). The directors of SDAE and the provincial department of agriculture and food security always commented at provincial-level meetings on the importance of OFSP because the project worked in 9 out of 16 districts in Inhambane Province and all districts in Niassa Province without CIP’s intervention.



(Credit: A. Domingos)



(Credit: B. Rakotoarisoa)

Figure 10. (Left): The governor of Niassa Province hands an OFSP vine to the director of the Economic Activity Service District to emphasize that OFSP should be planted by all district directors to combat malnutrition, August 2016. (Right): At Mozambique's annual official planting of a designated important crop, the planting of OFSP varieties Namanga', 'Alisha', and 'Sumaia' was celebrated. The minister of education and human development, the governor of Inhambane, the administrator of Vilankulo, and DPASA attended the event on 25 October 2018.

- In 2018 a session on production costs was included in the training in Inhambane, since the project began supporting farmers' bringing their products to market. (Production cost is a very important part of developing business plan.) Most of the technicians do not deal with farmers' production costs, and roughly 99% of the farmers interviewed did not calculate their costs. This lack of support has prompted the farmers in Inhambane to report that they did not benefit from the project once the cost of OFSP roots dropped to 10 MZN/kg while their production cost was 6 MZN/kg. Participants appeared satisfied with implementing continuous, year-round planting, seeing the opportunity of a high market price during the scarcity period (October–April). Some of the DVMs plant continuously, as mentioned above in the case studies.

9. FINANCIAL REPORT

The financial report will be submitted separately from CIP–Lima.

10. CONCLUSION

By the end of the project in 2018, several observations about the project's three SOs emerged:

- **Objective 1.** Capacity building is the key for strengthening systems. The project involved all SDAE technicians, most of whom were highly motivated during the year. The project looked at all OFSP value chains, except processing, which needs to develop a win-win mindset for all the stakeholders involved.
- **Objective 2.** Enhancing SDAE capacity for monitoring and field coordination is a must. The beneficiaries receiving OFSP vines this year should be monitored in order to see if they can manage the small quantity of OFSP vines they received and if they were able to produce OFSP roots.
 - Following capacity building, the commitment of all SDAE technicians to implement the training changed immediately. Progress was made at community level once a sensitisation meeting occurred at the first step of intervention. Each technician got training materials and a brochure for increasing awareness.
 - The number of beneficiaries reached exceeded expectations: 12,100 HH in the four districts of Inhambane Province alone compared with the original target of 5,000 HH for

both provinces. Nutrition activities will be enhanced next year. The practice of distributing smaller amounts of OFSP vines reached most HH in the community, even the smallest ones. This helped to change how HH conserve vines after harvesting. That is, HH should multiply the vines in a small garden rather than keep the plants in old plots.

- **Objective 3.** Although this objective related to the market was postponed, the project introduced basic marketing capacity building to the DVMs and SDAE technicians. The market organisation deserves more attention and should be surveyed starting in early February 2019.



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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