Gender situational analysis of the sweetpotato value chain in selected districts in Sidama and Gedeo zones in southern Ethiopia

Netsayi Noris Mudege and Birhanu Biazin Temesgen and Anthony Roland Brouwer
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Abstract

Improving food and nutrition security through the introduction of more nutritious orange-fleshed sweetpotato (OFSP) cultivars requires full understanding of the sweetpotato value chain, from seed production to root sales in local and urban markets. This study was conducted to understand how gender norms, roles and institutional contexts along the value chain influence the ability of men and women to participate and benefit from the sweetpotato value chain. Funded by the European Union, the study was implemented by the International Potato Center (CIP) as part of the “Quality Diets for Better Health” (QDBH) project in the Sidama and Gedeo Zones of the Southern Nations, Nationalities and Peoples’ Region (SNNPR) in Ethiopia. Qualitative data was collected from 16 focus group discussions (eight with men and eight with women) and 61 in-depth individual interviews (39 with women) along the chain.

The findings indicate that the shortage and fragmentation of land are key obstacles for men and women farmers to increase sweetpotato supply and adopt orange-fleshed varieties. At farm level, women are often regarded as helpers, not farmers. This view is an expression of the gender relations of power within the community because it is used to define the legitimate entitlements of men and women. The current rural extension system reinforces this image and reproduces the practice of inequality because normally men are invited to agricultural trainings and not women. In the production areas, women are generally engaged in low-volume marketing of food crops, including of sweetpotato, while men dominate higher volume and long-distance marketing and the sales of cash crops, such as coffee. The findings suggest that women dominate sweetpotato wholesaling and retailing in the zones’ main cities (Hawassa and Dilla). This apparent dominance...
masks the systemic discrimination against women in market access. Sweetpotato has a low status compared to other crops. It is regarded as a poor person’s food. This low status negatively affects demand in urban markets.

The expansion of sweetpotato production and consumption requires training for both men and women farmers on sweetpotato farming, marketing, price negotiation and bargaining. Raising the social status of sweetpotato among male and female urban consumers should be part of the behavior change communication strategy to promote its production and consumption. The report provides concrete recommendations for measures to counteract the mechanisms that reproduce gender inequality. Although these recommendations have been formulated specifically for the QDBH project and SNNPR they can be a useful inspiration to gender sensitive project design in general.
Acknowledgements

This report is based on a gender situational analysis of the sweetpotato value chain conducted for the European Union funded ‘Sustained diet quality improvement by fortification with climate-smart, nutrition-smart orange-fleshed sweetpotato in Southern Nations, Nationalities and Peoples’ Region’ project in Ethiopia. We thank the CGIAR Research Program on Roots, Tubers and Bananas (RTB) supported by CGIAR Fund Donors http://www.cgiar.org/about-us/our-funders/ for supporting data analysis and finalization of this report. We are grateful to the male and female farmers, the consumers and the partners in Ethiopia for giving their time to participate in the various interviews and focus group discussions. We would like to thank Kellen Kebaara who did a good job editing the report. We acknowledge Jan Low, Nozomi Kawarazuka and Vivian Polar for reviewing the report and giving us valuable comments. We believe that this report captures the voices, interests and aspirations of the men and women who participated in this study. It is our hope that the findings will help improve the development of interventions in the sweetpotato sector in Ethiopia.

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Acronyms

CIP  International Potato Center
EU   European Union
FGD  Focus Group Discussion
HLC  Healthy Living Club
IDI  Individual Interview
OFSP Orange-fleshed sweetpotato
QDBH Quality Diets for Better Health
SNNPR Southern Nations Nationalities and Peoples’ Region
VAD  Vitamin A deficiency
Executive summary

Introduction
This report presents the findings of a qualitative gender analysis of the sweetpotato value chain in the Sidama and Gedeo zones in the Southern Nations, Nationalities, People’s Region (SNNPR) in Ethiopia. The study covers the whole value chain from the production of planting material by local multipliers, the production of roots by the farmers and the sale of roots at the market. It was conducted as part of a project coordinated by the International Potato Center (CIP) and implemented by CIP together with People in Need (PIN) and Emory University with funds from the European Union for the ‘Sustained Diet Quality Improvement by Fortification with Climate-smart, Nutrition-smart Orange-fleshed Sweetpotato (OFSP) in Southern Nations, Nationalities and Peoples Region (SNNPR) project. Instead of using the full reference throughout this document, this report refers to the project by its operational name: Quality Diets for Better Health (QDBH).

The objective of the study is to contribute to the project’s four result areas: (1) establishment and strengthening of vine multiplication sites, providing vines to local households, (2) increase in awareness of male and female smallholder farmers on the benefits of orange-fleshed sweetpotato (OFSP), (3) improvements in supply of and demand for OFSP products in the urban areas, and (4) evaluation and learning related to recommend value for money models for large-scale OFSP dissemination. The study aims to deepen the understanding of how gender through social and cultural norms, the division of labor, and the wider institutional context promotes and obstructs the achievement of the project’s objectives, and to suggest approaches and strategies to address identified obstacles.

Establishment and strengthening of vine multiplication sites for improved supply of vitamin A enhanced sweetpotato for rural households
Sweetpotato is among the five most important crops in both Sidama and Gedeo. However, the shortage of quality planting material and the lack of appropriate varieties hinders its production. Seasonal droughts make it difficult for farmers to conserve their own vines. Because of the shortage of planting materials some of them have stopped cultivating sweetpotato altogether. Land shortages and fragmentation associated with a burgeoning population are other key obstacles to improving the supply of sweetpotato and the adoption of OFSP. Local farming
systems typically combine different crops on the same field. In Sidama, some farmers combine sweetpotato and khat. They consider the distance between the khat shrubs sufficient for the growth of sweetpotato and the production of sweetpotato roots. Some intercrop sweetpotato with maize but others believe that sweetpotato would compete with maize for nutrients and prefer haricot beans instead. Intercropping sweetpotato with coffee and enset also happens but it reduces sweetpotato root yields. Consequently, in these systems, sweetpotato is farmed mainly for the production of vines and the conservation of planting material. Finally, some farmers with excess land think that sweetpotato depletes soil fertility and are reluctant to rent out their land if used for sweetpotato.

*Increasing awareness of male and female smallholder farmers on OFSP benefits, recipes for their use and child nutrition practices through their participation in healthy life clubs*

To assess gendered perceptions and roles, the study relies on focus group discussions and key informant interviews. Focus groups were separated by gender to allow for a free and open discussion. It appears that both groups consider sweetpotato among the five most important food security crops. This is because of it is early maturing, drought tolerant, high productive per unit of land and has low production costs. However, sweetpotato is not appreciated as part of the local cuisine. People think that sweetpotato is “boring” to eat. They only way they know how to prepare them is to boil them. One possible strategy to increase sweetpotato consumption is to raise local awareness of alternative recipes and to promote sweetpotato integration in local standard dishes a such as teff-based injera and enset-based kocho.

The importance of local cuisine points to the relevance of social and cultural values for the adoption and retention of crops. Local people see enset as “a life saver”. Food made from enset is highly valued; it is served to important guests and during festivals. Therefore, people feel pressured to cultivate it and ensure its proper maintenance. The situation is totally different with sweetpotato. Local people see sweetpotato as a poor person’s crop and there is no social penalty for not cultivating it. Lowly rated by by rural and urban consumers alike, it is not bought for festivities nor served to important guests. Thus, to increase the production and consumption of sweetpotato, it would be necessary to raise the crop’s social status through behavior change communication.
Improved supply of and demand for OFSP products in the urban areas

Urban consumers do not prioritize the consumption of sweetpotato because they are not aware of its nutritional value. For example, they believe that it is less nutritious than enset. Close to half of the 26 urban consumers interviewed had heard about vitamin A rich sweetpotato, but since it was not available on the market they had never tasted it. The lack of knowledge about nutrition in many households points to the need for behavior change communication that highlights the nutritional composition of sweetpotato.

The men in the male focus groups said that if there were local industries to purchase and process sweetpotato, its price and consequently its production would increase. However, it would be important to build in safeguards to avoid that such a development happen at the expense of women. Today, women dominate local processing. For example, they transform enset into kocho, a popular food and an important income generator. There are cultural norms that protect women’s interests in enset and prevent men from harvesting and processing it. If sweetpotato can be locally processed for use in local dishes, this could provide potential income earning opportunities for women. The introduction and demonstration of different types of sweetpotato processing and preparation methods may help to increase its consumption and add value to the commodity chain.

Women also dominate sweetpotato retailing. The men mentioned that they are ashamed of retailing sweetpotato. Men prefer to market crops in bulk earn higher cash incomes they can use to buy big household items. Many women prefer crops that they can sell in small quantities to obtain money for day-to-day consumables and dominate the smaller scale nodes at community and village level. Assemblers and traders at the nodes higher in the chain at district and region markets are typically men.

How gender relations affect the production of sweetpotato

According to the participants in the study agriculture is a man’s job. For example, in Sidama people consider it shameful for women to prepare or dig land to plant sweetpotato because this is hard work. Women are expected to take care of the children and the household’s nutritional needs. Men are supposed to represent the household while interacting with the state and state agencies on agricultural issues.
The perception of agriculture as a male activity has implications for food security, particularly for female-headed households, as well as for the empowerment of women in general. The agricultural service operates so-called ‘farmer training centers’ in each kebele (ward). However, these would normally invite the men and not the women to these training workshops. Male study participants emphasized that as farmers and heads of households they needed to attend any training offered. Both the men and the women noted that women were often not invited. Training in female-dominated sweetpotato farming did not happen as this crop was seen as low priority.

According to the male and female study participants, women are involved in most of the sweetpotato activities, including land preparation. For some activities such as the application of fertilizer, weeding and the harvesting of roots, women were seen as providing assistance to men. This perception of women as men’s helpers reflects the gender relations of power within the community, because it defines the legitimate entitlements of men and women.

The role of gender in agriculture has implications for the perception of women and men on the most appropriate response to food security crises. Both genders referred to institutional engagement as one of the responses to food insecurity, but women emphasized food handouts and men stressed the importance of agricultural interventions, such as quality seed, training, irrigation and new farming technologies.

**How gender relations affect the marketing and consumption of sweetpotato**

Some of the respondents believed that women were not interested in markets. However, this perceived lack of interest was not the result of them seeing markets as unimportant but because of their exclusion from major markets. Women can only operate at small scale and local level. Women want to engage in commercial activities and adjust their farming practices accordingly. For example, they prefer growing sweetpotato, cabbage and haricot bean because they can use these as independent sources of income. The definition of crops as men’s or women’s is related to the gender defined opportunities for trade. Women are assumed to be able to produce and sell the crops that earn small amounts of money, such as sweetpotato, cabbage and haricot bean, so that they can support the household’s food situation. Women are not seen as capable of managing a major cash crop, such as coffee and khat. In these cases, they are merely seen as men’s helpers.
The assumption that men focus on income and women on food fails to question the role of power in gender relations. It masks the systematic discrimination that women face in access to markets. For example, men said that women could neither deal with money, negotiate prices, budget nor plan the family’s financial needs. But assemblers and retailers stated that they preferred to buy sweetpotato from men as women were hard bargainers. Women themselves appeared to accept their own infantilization when they argued that men should budget for the family and make large purchases. But it is a form of a systematic curtailment of their involvement in household and community level decision making.

The social disapproval of women earning money and trading significant amounts of merchandise points to the risk that women are excluded from the benefits of the development of the sweetpotato value chain. To avoid that risk, women farmers should participate together with men in training on marketing, price negotiation and household budgeting.

**General recommendations for gender-responsive interventions**

Intercropping is common in Sidama and Gedeo. Therefore, it is necessary to develop research on the use of sweetpotato in intercropping so that farmers can get useful advice and training on this. Intercropping will ensure access to land, particularly for female farmers, to cultivate sweetpotato, at least for family consumption and nutrition purposes.

The study shows there is a need to train both male and female farmers on improved sweetpotato production techniques and technologies in farmer training centers and on farmer fields. Women need to be trained on sweetpotato production. This training should ensure that they learn new skills and address the social structure so that women can benefit from their efforts. Investment in new agriculture skills that women may not be able to use is not be cost-effective.

The QDBH project needs to reconsider how it will engage with women. Sweetpotato, together with enset are key food security crops for women. In order to benefit men and women, the QDBH project needs to make deliberate efforts to ensure that women participate in project activities and break through the notion that exists among women that food security crises should be resolved by hand-outs instead of the strengthening of local food production resilience.
Gender situational analysis of the sweetpotato value chain in selected districts in Sidama and Gedeo zones in southern Ethiopia

1. Introduction

Ethiopia is among the largest sweetpotato producers in eastern Africa (Shonga et al., 2013). FAOSTAT (2014, cited in Parmar et al., 2017) states that the production of sweetpotato in Ethiopia is high, making the country the fourth largest producer of the crop after China, Nigeria and Tanzania. The country produced 2,701,599 tons of sweetpotato during the 2014/2015 main growing season (CSA, 2015). The Southern Nations Nationalities and Peoples’ Region (SNNPR) is the main producer of sweetpotato in Ethiopia (Shonga et al., 2013) and sweetpotato is a valued traditional food crop. Compared to other root crops, sweetpotato ranks as the third most important after enset (Enset ventricosum) and potato (Engida et al., 2009 cited in Birhanu, 2014).

National level statistics indicate that sweetpotato constitutes only a small portion of the overall food consumption, estimated at 28.7 kg per capita per year (CSA, 2014, 2015) with higher consumption levels in the SNNP and Oromia regions, where production levels also are higher than in other regions of Ethiopia. In these two regions sweetpotato roots and vines are also used as livestock feed. The feed quality of the vines is regarded as high owing to its good palatability, digestibility and high crude protein concentration (Ayele and Peacock, 2003; Negesse et al., 2016).

Malnutrition and micronutrient deficiency are major public health problems in Ethiopia (Gebremedhin et al., 2013; Aguilar et al., 2014). Half of the country’s rural inhabitants chronically live “below the food poverty level of 2,200 K/calorie equivalent per adult per day” (African Development Bank, 2004:12). The 2010 nutrition baseline survey for the National Nutrition Program estimated the prevalence of vitamin A deficiency (VAD) to be 61% among children under five years of age (EHNRI, 2010). This is higher than the level for similar age groups in sub-Saharan Africa, which is estimated at 40% (Low et al., 2017). Government estimates indicate that close to 50 thousand Ethiopian children die each year from vitamin A, iron and folic acid deficiencies (GFDRE, 2011). In this scenario, research on sweetpotato in Ethiopia has focused on
how food-based interventions such as vitamin A rich sweetpotato, consumed either directly or as processed products, could help reduce vitamin A deficiency (VAD) among rural populations, particularly women and children (Gebremedhin et al., 2013; Fofanah, n.d.; Anderson et al. 2007). In a study in rural Sidama, Gebreselassie et al. (2013) found that women who had access to independent income were less likely to have VAD. This calls for approaches to empower women as an additional way to deal with the problems of micronutrient deficiencies.

1.1. Description of the study area

This study was conducted in SNNPR, which is one of the nine administrative regions of Ethiopia. Located in the southern part of the country, SNNPR covers about 10% (112,323 km²) of the total land area of Ethiopia. The region is home to more than 80 ethnic identities, of whom about 45 are indigenous (Adugna, 2017). Administratively, the region is subdivided into zones, woredas (districts) and kebeles (the lowest administrative unit). This study was done in the Gedeo and Sidama zones, which border each other (Figure 1).

![Figure 1: Location of Sidama and Gedeo zones](image)
Sidama zone covers an area of 7,200 km² and accommodates 20% of the total SNNPR population (CSA, 2014). Estimates indicate that Sidama has a population of about 3 million and an average density of 386 persons per km², making it one of the densely populated areas in SNNPR. The population of Gedeo zone is estimated at 1.03 million (CSA, 2013).

In Sidama, the study was conducted in Aleta Chuko district, whose population is estimated at 193,000, of which 49% are female (CSA, 2013). In Gedeo the study was conducted in Dilla Zuria district, which has a total population of 110,000, divided equally between the sexes (CSA, 2013). Aleta Chuko and Dilla Zuria are characterized by small landholdings averaging 0.31 ha and 0.24 ha, respectively.

The climate in both zones is similar. The rainfall is bimodal with minor (belg) and main (kiremt) rainfall periods, allowing two growing seasons. The Belg season extends from February to June with the peak rainfall in May. The kiremt season runs from July to November with the peak rainfall in October. Sweetpotato can be cultivated in both seasons (Abdissa et al., 2011), but the erratic nature of rainfall onset affects sweetpotato production in the belg season. Figure 2 shows the climatic characteristics of the Dilla area.
1.2. Gender roles in agriculture

It is estimated that in some districts in SNPP in Ethiopia, women provide 46% of agriculture labour, but their work is often regarded as marginal and not rewarded (Tegegne, 2002). Although women are often engaged in agricultural activities the ‘farmer’ in Ethiopia is generally constructed as a masculine subject (Gella and Tadele, 2014:3) and women are regarded as helpers or caretakers. The issue of male dominance in agriculture has in some instances been linked to the emergence of the ox-plough technology which developed ‘household labour patterns dominated by male cultivation, [and] female food processing’ (McCann, 1995 cited in Gella and Tadele, 2014:7). Thus the farmer remains regarded as male since women are regarded as ‘incapable of doing the two activities at the center of farming: ploughing and sowing’ (Gella and Tadele, 2014:10).

In Sidama located in SNPP region women are culturally prohibited from ploughing the land, planting and in some cases weeding. Although loosening, these cultural taboos, have not only meant that agriculture is associated with men, but also that women headed households with no adult men find it difficult to engage in agriculture since they have to hire men’s labour. As a result, ‘women tend to use more labour on their plots which increases their expenses for land management and eventually reduces their income’ (African Development Bank, 2004:13). Women may be forced to rent out their land from a position of disadvantage to prevent themselves from losing the land if it remains fallow for a long time. These cultural taboos and restrictions impact on women’s ability to use their land to climb out of poverty.

Although women may not be allowed to or are not expected to plough and cut trees in cash crop farming, women may be involved in removing felled trees, weeding, harvesting and other activities (Harun, 2014). Women are often engaged in cultivation of horticultural crops and vegetables near and around their compounds. Although women are culturally not regarded as farmers, some agricultural tasks including transporting inputs to the field and fetching water for both household use and on farm use are regarded as women’s work (Mogues et al. 2009). Girls and women are engaged in weeding, harvesting, preparing food, feeding and maintaining poultry, milking, processing milk, washing clothes and cleaning houses and animal barns whilst men and boys are engaged in cattle grazing, weeding, harvesting and ploughing (Gella and Tadele, 2014; Harun, 2014; Kristjanson et al., 2010). Women are also responsible for maintaining
seedlings in nurseries, transplanting and weeding. ‘They are also involved with activities closely associated with their household responsibilities, such as storage, processing and value adding’ (Aregu, et al. 2010:ix). According to Aregu et al. (2010) women spend half of their 12 hour working day on household tasks and care responsibilities.

1.3. Gender relations and government policies in SNNPR

The Ethiopian government has instituted reforms to safeguard and promote women’s property rights. The passage of the Federal Rural Land Administration Proclamation in 1997 and of the Revised Family Code, which promotes equal right of spouses to property for the duration of a marriage and upon divorce, has improved the protection of women’s rights to property after a dissolution of a marriage (Lastarria-Cornhiel et al., 2014). The government also promotes women’s representation at various levels of government, for example by creating positions such as women’s affairs representatives at the district level and the kebele cabinet women’s affairs portfolio representative, as well as operating a Rural Women Affairs Department in the Ministry of Agriculture. However, gender inequality restricts women’s full participation in these positions. For example, many of the women leaders at the kebele level are single women because men will most likely not allow their wives to take up these positions (Mogues et al., 2009). Many organizations in Ethiopia that seek to work with women in agriculture do not have a gender focus but concentrate on activities such as “mother and child care, nutrition, water, girls’ education, women savings and credit facilities” (Tegegne, 2002:n.p.), an approach that addresses the short-term practical needs but not women’s empowerment. Additionally, nongovernmental and governmental organizations that attempt to address gender challenges are often constrained by “resource availability, limited technical capacity, poor organization and lack of coordination, which have made it impossible to streamline gender concerns in a concrete way into effective programmed interventions” (Tegegne, 2002:n.p.). This illustrates the need for interventions that ensure the availability of resources to promote women’s participation in decision-making and their ability to benefit from them.

1.4. Objectives and scope of the study and its position in the QDBH project

The constraints to increasing sweetpotato production in Ethiopia are related to the lack of quality planting material, the lack of markets, the prevalence of pests and diseases (Jones et al., 2013), and the lack of improved sweetpotato varieties (Regassa et al., 2015). In line with that, the
research on sweetpotato productivity in Ethiopia has focused on biotic and abiotic stresses in its production. For example, Shonga et al. (2013), Nicole et al. (1997), Adane (2010), Tewodros et al. (2011) and Mitiku et al. (2013) all focus on pests and diseases. Research has been conducted also on how to increase crop yields through improved agronomic practices such as ensuring optimum spacing between plants and rows (Abdissa et al., 2011; Markos and Loha, 2016), planting methods, and vine harvesting techniques (Ahmed, Nigussie-Dechassa, and Abebie., 2012).

There is relatively little research in Ethiopia on gender and the related socioeconomic factors that may constrain sweetpotato production (Aguilar et al., 2014). Most research on gender opportunities and constraints in agriculture focuses on crops like wheat and on livestock rearing (Mogue et al., 2009; Galiè et al., 2015). But some of that work and experiments may have application in gender and sweetpotato production. For example, Workayehu et al. (2011) suggest that in Ethiopia breeders should focus on developing high-yielding cultivars with a spreading canopy structure, since such canopies reduce weed infestation and save labor during weeding. This would help reduce women’s labor, since usually it is they who are responsible for cultivating sweetpotato. The current study seeks to contribute to the understanding of gender-related constraints to sweetpotato production and consumption in Ethiopia.

To address some of the constraints and bottlenecks in the production and utilization of orange-fleshed sweetpotato (OFSP), the EU-funded Sustained Diet Quality Improvement by Fortification with Climate-smart, Nutrition-smart Orange-fleshed Sweetpotato in Southern Nations, Nationalities and Peoples, Region (SNNPR), Ethiopia, known under its short-hand name Quality Diets for Better Health, has undertaken this study in the gender dimension of the sweetpotato value chain. The project under which this study was conducted, has four objectives:

- Establishment of vine multiplication sites, providing quality vines to local households;
- Increased awareness on OFSP benefits, recipes for its use and improved child nutrition practices among local households through their participation in healthy life clubs;
- Improved supply of and demand for OFSP products in the urban areas;
- Evaluation and learning to recommend value-for-money models for large-scale OFSP dissemination.

This study sought to contribute to achieving these objectives by:
Understanding the current gender norms and gender roles related to sweetpotato production;

Investigating the current roles of men and women in smallholder sweetpotato production;

Understanding the current gender-based constraints to sweetpotato production and marketing;

Understanding the decision-making factors related to the participation of men and women in farming, marketing, trade and processing of sweetpotato, and food purchasing;

Assessing the urban consumer’s acceptance of OFSP roots, leaves and other products, along with the consumer’s frequency of their purchase and intake.

This report makes evidence-based recommendations to improve women and men’s engagement in sweetpotato value chains, as well as to improve the project implementation strategy and training programs.

2. Methods

2.1 Theoretical underpinnings

This study adopts a gender relations approach, an approach that focuses on inequality (Little and Panelli, 2003). Whatmore (1991:71) states that “gender relations are power relations within which ideologies of appropriate gender roles are shaped and reshaped in everyday practices of the family farm.” For example, the division of labor may determine who is engaged at what stage in the sweetpotato value chain. Thus, it is important to understand the gender relations in Sidama and Gedeo in order to develop gender-responsive sweetpotato interventions that benefit both men and women in the various communities. Addison and Schnurr (2016:962) note that “the impact of new technologies or shifting markets [is] inevitably mediated by gendered power relations and ideologies”. The study covered in this report sought to understand the gendered nature of the power relations, ideologies and norms that shape agricultural production and livelihoods, particularly of the sweetpotato farmers in Sidama and Gedeo in Ethiopia and that may affect the diffusion and adoption of biofortified crop varieties and the distribution of the associated costs and benefits. OFSP is being introduced to farmers as part of a technology package that includes not only new improved OFSP varieties but also improved planting and seed multiplication techniques, and is accompanied by specific nutrition messages. In that
scenario, the cultural considerations that shape the relationships between men and women may
determine whether they are able to benefit from the interventions that seek to upgrade the
sweetpotato value chain in Ethiopia. For that reason, the report will go beyond focusing on
gender equality on smallholder farms to examine the institutional factors that may promote or
constrain the effective participation and acquisition of benefits by women from the sweetpotato
value chain.

2.2 Approaches

This report covers the sweetpotato value chain from seed or vine production and supply to the
marketing and consumption of sweetpotato roots, vines and processed products in selected
districts of Sidama and Gedeo zones in southern Ethiopia. The study was based on qualitative
data. Data were collected using a combination of in-depth individual interviews, sex-
disaggregated focus group discussions (FGDs), field observations and transect walks (Table 1).
Table 1: Types of tools used in the study

<table>
<thead>
<tr>
<th>Type of tool</th>
<th>Purpose of tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGD type 1 (target group: sweetpotato and non-sweetpotato farmers)</td>
<td>To understand the farming systems and the role of sweetpotato in the farming and food systems; To understand the role of gender in decision-making on the adoption of new technologies, including sweetpotato, access to markets, training, and access to and control by men and women of the productive assets.</td>
</tr>
<tr>
<td>FGD type 2 (target group: sweetpotato producers only)</td>
<td>To understand the gender division of labor in the sweetpotato value chain, specifically: Gender division of labor along the sweetpotato value chain, from production to marketing; What resources men and women need for the various activities; What constraints men and women face in sweetpotato production; Suggested solutions to the constraints; Role of sweetpotato in food systems.</td>
</tr>
<tr>
<td>Individual interviews (male and female farmers and seed producers)</td>
<td>To understand the current gender norms and the roles related to sweetpotato production, access to training, access to resources and agronomic practices; To investigate the current roles of men and women in smallholder sweetpotato production; To understand the current gender-based constraints to sweetpotato production and marketing.</td>
</tr>
<tr>
<td>Individual interviews with value chain actors (retailers, processors and assemblers)</td>
<td>To understand the main constraints and opportunities with respect to gender roles along the sweetpotato value chains.</td>
</tr>
<tr>
<td>Individual interviews with urban consumers</td>
<td>To understand the role of sweetpotato in urban food systems; To understand the perceptions on the consumption of sweetpotato and sweetpotato products.</td>
</tr>
<tr>
<td>Transect walks</td>
<td>To systematically observe the farming systems and sweetpotato vine multiplication techniques.</td>
</tr>
</tbody>
</table>

The study adopted a qualitative approach. That approach allows the researchers to dig deep into “the complexities of people’s social and cultural experiences and the dynamics of their households and communities” (Slater, 2010:641). Table 2 shows details on the FGDs that were conducted and the participants.
Table 2: Characteristics of the study sites and focus groups

<table>
<thead>
<tr>
<th>Zone</th>
<th>District</th>
<th>Kebele</th>
<th>Potential for sweetpotato production*</th>
<th>Mean altitude (meter)</th>
<th>Mean distance from the district market (km)</th>
<th>Focus groups</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
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<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Sidama</td>
<td>Aleta Chuko</td>
<td>Rufo Wayno</td>
<td>High</td>
<td>1,805</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loko Haytala</td>
<td>High</td>
<td>1,680</td>
<td>12</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Gedeo</td>
<td>Dilla Zuria</td>
<td>Chichu</td>
<td>High</td>
<td>1,540</td>
<td>5</td>
<td>2</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>Amba</td>
<td>High</td>
<td>1,955</td>
<td>15</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

*The potential of the study kebeles to produce sweetpotato was assessed by the People in Need (PIN), a nongovernmental organization (NGO) partnering with CIP in the present project.

The mean altitude of the kebeles was obtained from the respective district offices of agriculture and natural resources.

Four FGDs were conducted in each kebele using the FGD type 1 and type 2 guides (Table 1), one each for the men and the women. A total of 16 in-depth individual interviews (8 men and 8 women) with sweetpotato producers and/or seed multipliers were also conducted in the zones to verify and triangulate the information collected in the FGDs. Individual interview questions were aimed at understanding how individuals and their households behaved and participated in the sweetpotato value chain and seed system. The FGDs were more about obtaining that information at the community level. Additional interviews were carried out with other value chain actors and supporters (Table 3). These interviews used a combination of open-ended and closed-ended questions.

Table 3: Interviews conducted with value chain actors and extension service providers

<table>
<thead>
<tr>
<th>Type of value chain actor or service provider</th>
<th>Participants</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Producers</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Assemblers</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Wholesaler</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Retailers</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Consumers</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Extension staff</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>39</td>
</tr>
</tbody>
</table>

*F = female, M = male

The researchers undertook transect walks in Chichu kebele in Gedeo and Loko Haytala kebele in Sidama to systematically observe the farming systems and sweetpotato vine multiplication techniques. The transect walk teams consisted of two agricultural extension staff and one farmer in each of the two villages who knew the areas. Moving from one end of the kebele to the other,
34 fields were transected in Chichu and 43 in Loko Haytala with total lengths of about 1.8 km and 2.9 km, respectively. A total of 18 vine fields were crossed. During the transect walk the team had discussions with 11 seed multiplier farmers, 5 in Gedeo and 6 in Sidama, whose fields also were transected, for deeper understanding of sweetpotato production and vine multiplication techniques. Photographs were taken where appropriate.

Secondary data on land use, land cover, farming systems and sweetpotato coverage were collected from the offices of agriculture in Aleta Chuko in Sidama and Dilla Zuria in Gedeo. The daily rainfall and temperature data for Dilla Zuria district were obtained from the Ethiopian National Meteorological Agency, Hawassa branch.

### 2.3 Recruitment of study participants

Extension workers helped in the recruitment of the farmers for the FGDs. The female FGD participants were heads of households and spouses in male-headed households. This group composition was intended to allow the differences in decision-making between women who were household heads and women who were not to be captured and addressed. The participants were recruited from among producers and non-producers of sweetpotato vines and roots to examine the challenges, constraints and opportunities for sweetpotato production, marketing and consumption. Members of executive committees in the kebele administration were purposively excluded to prevent their domination of the focus group discussions and influence on the interactions. The farmers selected for individual interviews were a mixture of men and women who produced vines for sale and those who did not produce vines but could have been conserving their own planting material or buying it from others.

The intention had been to interview several sweetpotato wholesalers, but this was not possible as they were so few in Dilla and Hawassa that finding them was not easy. Hence, only one wholesaler was interviewed.

It was easy to speak to consumers. At Hawassa central market people were randomly stopped while they were buying sweetpotato and other products from retailers and asked to participate in a short interview. Consumers were not interviewed in Dilla, as sweetpotato was not available in the market at the time of the study as it was not in season. Hawassa is a central, big city market that receives sweetpotato from other districts and regions where it was in season.
2.4 Data collection and analysis

For each of the two zones, two data collectors, who were a man and a woman and could speak the local language, were recruited and trained. The data collectors also acted as FGD facilitators and recorders. To reduce the impact of the gender of the research team members on the FGDs, the facilitator was always of the sex of the FGD participants while the note taker was mostly of the other sex. All FGDs were audio-recorded, transcribed and translated into English for analysis.

The study team created a coding tree for all the FGDs and in-depth individual interviews, classifying the different themes that were used to manually code the data before analysis. All data were coded and analyzed in a gender-disaggregated way. The codes followed the thematic structure of the tools as highlighted above. The data were analyzed using the gender relations approach as the analytical lens. The data from the transect walks and individual interviews were analyzed using descriptive statistics such as frequency counts and averages, and interpreted accordingly.

3. Results

3.1 Main farming systems

The farming system in Gedeo is dominated by the coffee and enset-based agroforestry system. We regard this as one system since many farmers mix enset and coffee in a multistory system. In Sidama, besides this system there are the khat-based and the maize-based cereal farming systems.

Coffee, enset, maize, sweetpotato and haricot bean, in that order, were the five most important crops in Gedeo zone. Vegetables such as kale and fruits such as avocado, banana and mango were common as well. In the Chichu kebele, 74% of the fields transected were covered by the coffee and enset-based agroforestry system in which fruits like avocado, mango and papaya, and vegetables like kale and taro were integrated as part of the multistory vegetation.

In Sidama maize, khat, coffee, haricot bean and sweetpotato, in that order, were the five most important crops. It was also common to see sweetpotato vines intercropped with enset, khat or maize. Livestock, that is cattle, sheep and goats, were important components of the farming systems, and residues from cereal crops and pruned leaves of enset and banana were important sources of fodder in both areas, particularly in the dry season. Less than 2% of the total cropped
land in the Sidama and Gedeo zones was covered by sweetpotato (BOANR, 2016). Figure 3 presents the cropping calendar for the main crops and sweetpotato.

<table>
<thead>
<tr>
<th>Months</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td><strong>Season</strong></td>
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<td>Dry season</td>
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<td><strong>Belg season</strong></td>
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<tr>
<td>Kiremt/meher (main growing season)</td>
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<td>Dry season</td>
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<td><strong>Belg planting</strong></td>
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<tr>
<td><strong>Sweetpotato planting</strong></td>
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<tr>
<td><strong>Main harvesting period</strong></td>
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<tr>
<td><strong>Harvesting roots and vines and planting for main season</strong></td>
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<td><strong>Perennial crop</strong></td>
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<td><strong>Low fruit harvest period</strong></td>
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<td><strong>Hunger period</strong></td>
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<tr>
<td><strong>Maize and other annual crops like haricot bean</strong></td>
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<tr>
<td><strong>Sweetpotato</strong></td>
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<tr>
<td><strong>Fruits (avocado, mango, banana and pawpaw)</strong></td>
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<td><strong>Food security status</strong></td>
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**Figure 3**: SNNPR agricultural calendar showing how sweetpotato fits in

There are generally two distinct seasons for sweetpotato production in the study area: the main growing season, locally known as kiremt or meher, and the minor growing season, locally known as belg (Figure 3). Sweetpotato root harvesting during the hunger season is known locally as hindu fune in both Gedeo and Sidama languages, meaning “we got it in the hunger period”.

### 3.2 Threats to food security

The perceived threats to food security were not different between the male and female FGDs, and they were:

- drought
- land shortage and land degradation
- high population and lack of alternative income-generating activities
- personal reasons such as laziness
- high food prices
Drought was mentioned in six FGDs as a present and imminent danger to food security and was considered more important than any other food security threat. Drought leads to the underperformance of the key crops like coffee, provoking food insecurity when households are forced to sell food crops to meet their cash needs for such expenses as government taxes and school fees. Furthermore, income from cash crops like coffee can also be used to purchase food. Any reduction in cash income makes it difficult for households to diversify their diets or to buy the food they need. Drought also increases the incidence of diseases and pests in coffee and enset, lowering their productivity and threatening households’ food supply.

The lack of adequate rain for me is the biggest threat. Some crops will be affected by disease when we do not get good rains (Male FGD participant, Gedeo).

Rain is also seasonal and if you don’t get enough during the season coffee will not do well. … if there is no rain the flowers will be damaged and we will have no coffee. Then we will live by the grace of God (Female FGD participant, Gedeo).

Prolonged drought, affecting both food and cash crops was a food security threat. FGD participants stated that droughts and long dry spells were increasing in frequency and duration.

Some of the reasons for food insecurity were interconnected. For example, population growth, which was linked to the intensive competition for the limited number of jobs and to the fragmentation of land occasioned by its partitioning into increasingly smaller parcels as it was passed down to male offspring in inheritance, made it more difficult for households to produce enough food. Some FGDs considered population growth accompanied by drought or prolonged dry spells and high temperatures, the lack of income-generating opportunities, and the high food prices as the main threats to food security. Population pressure contributes to food insecurity by forcing farmers to adopt less sustainable farming systems for short-term gain. For instance, an FGD mentioned that farmers, particularly in the cereal-based systems, were increasingly abandoning fallows that traditionally had been used to maintain soil fertility. The ensuing degradation of land and depletion of soil nutrients had led to decreased crop production and poorer availability of food.
Drought, population growth, land scarcity and land degradation are macro-level factors causing food insecurity. Factors at the farm household level also may cause food insecurity. For example, poor agronomic practices by farmers were mentioned as causes of low productivity and food insecurity at the household level even when rainfall was adequate.

3.3 Farmers’ strategies for coping with food security threats

3.3.1 Engaging in different income generating activities and migrating out of agriculture

Generally a key response to food security threats by farmers is to engage in both on-farm and off-farm income-generating activities. The importance of engaging in income-generating activities for addressing food insecurity cannot be overemphasized. In the study only women’s groups mentioned engagement in casual labor and petty trade as means to raise money to buy food in times of shortage. Petty trade and daily casual work were regarded as stop-gap measures that did not necessarily improve access to food but only helped when there was hunger. While not sufficient in and by themselves, these small income-generating activities were important coping strategies. Women also mentioned that sometimes children worked, scavenged or begged for food in nearby small towns during times of food scarcity. One women FGD in Gedeo revealed that in times of food shortage, households also cut down trees on communal land to sell as timber, firewood or charcoal.

Education and migration were some of the strategies used by the villagers to address problems caused by the shortage of land including food insecurity. The FGDs noted that people were increasingly investing in the education of their children and encouraging them to move out of agriculture and try to find employment in the cities, because they believed that agriculture-based livelihoods were becoming unsustainable. Occupations outside of agriculture were seen as a good option to improve living standards. The farmers noted that the future of their children was not in agriculture, owing to the increasing land fragmentation. However, they also expressed the fear that the shortage of jobs would leave rural youth unabsorbed in employment.

3.3.2 Support from the government

Both male and female farmers said that in times of food scarcity they got assistance from the government. However, the kind of help for men differed from that for women. For example, some
women’s groups stated that they received from the government prepacked food supplements and commodities used as therapeutic food for malnourished children. Men’s groups typically referred to government assistance intended for adapting their production systems to climate variability. For example, they said that the government had provided them with improved seed and with training at the farmer training centers and at the kebele level on using rainwater harvesting technologies, improved planting techniques and cultivation of early-maturing crops.

Women’s FGDs typically suggested food handouts for children as the additional support they would require, while men’s groups’ suggestions were related to farming and aimed at helping them to adjust to climate variability and land fragmentation, such as

- improved agricultural technologies to increase productivity on small plots of land
- provision of irrigation to villages
- training on the prevention and control of pests and diseases for crops other than coffee, which they saw as the current focus of the farmers training centers.

Both men’s and women’s focus groups considered planting early-maturing crops as a means to deal with the issue of food insecurity and hunger. For example, haricot bean, sweetpotato and cabbage were mentioned as crops that could tide over farmers during the hunger periods.

The difference between the help that men and women received may have been related to the definition of masculinity and femininity, especially in relation to the roles they were expected to play.

3.4 Role of sweetpotato in food security

Figure 4 illustrates the perceived importance of different crops for household food security. Sweetpotato was ranked second after enset among the most important food security crops.
Male and female farmers and extension officers mentioned the following as the characteristics of sweetpotato that they considered to contribute to its function as a food security crop:

- early maturity: sweetpotato matures within three to four months
- the use of its vines for cattle feed and to improve milk yield, which ultimately improve household nutrition
- drought tolerance
- piecemeal harvesting
- high yield compared to other crops
- capability of maturing and being harvested during the hunger season

During the sweetpotato harvesting seasons, farmers ate more sweetpotato, and that helped them to save maize for later periods. In addition, the opportunities to sell sweetpotato in small quantities would allow households to purchase other consumables and diversify their diets. Some male FGD participants stated that sweetpotato was energy dense, which was very important for children during the hunger season. The women discussants said that sweetpotato was a cheaper food option than kocho.

Enset is regarded as the key food security crop, but its role and position are different from those of sweetpotato. Enset is seen as highly culturally significant:

In our culture when you inherit land, it usually has enset planted on it. If not, you are obliged as part of your inheritance to plant enset. This is because enset is considered a
life saver. That is why everybody cultivates it in Sidama. It survives whatever the intensity of the drought might be (Male individual respondent, Sidama).

Enset is a perennial crop. The focus group participants described it as a life saver because it can survive both the summer and winter dry spells, it can be harvested and eaten throughout the year, and kocho, which is made from it, can be packed and stored for a long time without going bad. Additionally, bul’aa, a liquid derived from squeezing enset corms and decorticated (scraped) leaf sheaths, can be fermented and dried into a flour that has a long shelf life. The flour is mixed with a small amount of water and consumed as porridge (Yirmaga, 2012).

Sweetpotato is used in a different way than enset. For example, most sweetpotato is consumed fresh and, unlike enset, it is not processed into long-life products. Farmers stated that although they had heard that sweetpotato could be made into flour, their common method of preparing it was by boiling.

Sweetpotato is harvested and eaten in two seasons in the year. When sweetpotato is in season farmers replace a portion of the maize they consume with it, allowing them to save maize for later in the year when other foods are scarce or when maize prices go up and they can sell it for a good profit.

During winter time sweetpotato is the most important meal at home, because we save the harvest of other grain crops in the store. Doing so allows us to sell these crops in the market during summer for a high price (Female FGD participant, Sidama).

A family that produces sweetpotato never goes hungry. A single root may be enough to satiate an adult (Male individual respondent, Sidama).

While there were no cultural obligations to plant sweetpotato for family food security, it was obvious that it had an important role in ensuring family food security, since it could be consumed as a substitute for other crops, allowing them to be saved for hard times, to ensure that families were food self-sufficient throughout the year.

Haricot bean was the third most important food security crop. It was appreciated because it matures fast, which is a preferred trait during times of food shortage. Additionally, it was not regarded as a poor person’s crop and could be sold for a higher price than crops such as
sweetpotato. Income from haricot bean could be used to purchase other food items that the household may need.

Another important food security crop was taro. Taro could be harvested twice or retained in the ground to be harvested when needed. Men considered taro as an emergency food because it was harvested when other food crops were not available. It also has a long shelf life comparable to that of maize. It could be sold for a good price and the money could be used for other food items.

### 3.5 Position of sweetpotato in the farming systems

Figure 5 shows that coffee and enset, followed by maize, sweetpotato and haricot bean were ranked as the most important crops in the farming systems. However, men consistently rated coffee as the most important crop, while for women this was enset. Crops like taro and yam were ranked among the top five by men, and fruits like banana and avocado were rated among the top five by women, although their relative importance was low compared to the other crops that were consistently selected in the top five.

![Figure 5: Perceived importance of different crops by men and women FGDs](image)

The FGDs rated enset highly for the following reasons:
- it was a staple food
- kocho, which is made from it, has a long shelf life
- it was an important animal feed during the dry season
- it had multiple uses such as providing fiber to make ropes and sacks
Coffee was in the top two important crops because it was a main cash crop. When individuals in in-depth interviews were asked to name the crops that were important to them their answers were consistent with those from the FGDs, in that enset, coffee, maize, sweetpotato and haricot bean were in their top five (Figure 6). However, other crops like yam and khat were of greater importance to them than to the FGD participants.

The FGD participants rated the three most important crops for members of their sex in the community, and Figure 7 shows the results.
Figure 7 shows some differences between what men and women regarded as important for members of their own sex. For example, none of the women’s focus groups included coffee among the three most important crops for the women in their community, and none of the men’s focus groups mentioned vegetables or haricot bean in the top three crops for men. Many more women’s than men’s focus groups mentioned sweetpotato as an important crop.

For women, the most important crops included those that were used for household food and had a short growing period. Women said that they preferred vegetables, haricot bean and sweetpotato, for example, because they had a short growing season, which made it possible for them to provide food for their families during the hunger season. Additionally, these crops could be cooked with little use of oil. Crops like cabbage could be eaten also as accompaniments for different local staples like bread and kocho.

Women mentioned that they did not have access to land, so crops that did not require them to acquire land were important to them. For example, haricot bean could be intercropped with maize, meaning that women could easily produce it in the maize fields controlled by men.
Women also preferred crops like cabbage and sweetpotato that give them an opportunity to earn an independent income through their marketing.

If there is kale in our garden, we don’t need to ask our husbands for money because we can sell the kale little by little every day and get money for our routine expenditures (Female FGD participant, Sidama).

A similar sentiment was expressed by women for sweetpotato. They stated that when they grew only small quantities of sweetpotato, men let them sell it for cash to buy food and other items for the household. The income that women earned was supposed to allow them to provide food for their family but was not intended for other aims. Crops like cabbage, pumpkin and sweetpotato were perfect for this. The men’s focus groups agreed that these crops did not bring much income to women but could help them survive during the times when there was no money. Women preferred crops like sweetpotato, kale, and haricot bean also because they could produce them by themselves without depending too much on men’s labor. Coffee, maize and khat were the most important crops for men and were labor intensive. Women preferred the less labor-intensive crops. For example, they often planted haricot bean in land that men had prepared and planted with maize, which made it softer and less tiresome to farm.

Women also favored crops with multiple purposes. For example, they ranked enset top because, in addition to providing food, it was used as feed for animals and it was amenable to intercropping with other crops such as sweetpotato and kale, which was an important characteristic because of the lack of land. The fiber from enset could be used to make sacks for everyday use.

Both the male and the female FGDs stated that men preferred crops that they could sell. The conceptualization of men as owners of the home and providers of income is the basis of this distinction between men and women. For instance, a female FGD explained that coffee was important for men, as it generated high income. Because it was the main source of income for households, men as household heads were responsible for it. Men stated that high cash incomes were important to them because they enabled them to meet their obligations like purchasing capital items such as livestock and land, constructing houses, buying clothing for the household members, and paying school fees and transport expenses. This explains why men controlled and
earned the bigger proportion of the household income. There was a clear division in income earning within households, with men culturally expected to earn more than their wives. Crops that were regarded as men’s crops were also those that generated higher revenues. However, both men and women farmers insisted that those crops also required more effort, strength and skills to cultivate, manage and market.

The male and the female focus groups and the men and women who were interviewed individually were asked why they had ranked certain crops in the top five or top three. Figure 8 shows their reasons.

![Figure 8: Reasons crops were among the top three or top five](image)

The five top reasons as to why the crops were rated as important were:

- they were both a food and a cash crop
- they were important as animal feed
- they were important as a cash crop
- they were a food security crop
- they fitted in the local food systems/culinary culture

Men were likely to mention maize, haricot bean and enset as the three most important crops as a source of both food and cash income, while for women these were enset, maize and sweetpotato (see Figure 9). However, men and women agreed that all these crops were cultivated for family food and only sold when there was a surplus.
Women regarded enset as their top food and income earner because they could consume it at home and sell it, mainly as kocho or bulla, which were its most marketed products.

*It helps us with providing food for our children. Sometimes when we have no money to give our children for lunch at school, we can prepare kocho from enset and give it them to eat at school (Female FGD participants, Sidama).*

*It helps us to educate our children. Sometimes if the production of coffee is low we sell enset to cater for the many needs of the household. We sell our enset and use the cash to pay our taxes and buy things for the household. If we harvest enough coffee, these expenses are covered from the coffee money (Female FGD participants, Gedeo).*

One possible reason for the differences between men and women with regard to the importance of enset was that there were cultural restrictions against men harvesting enset and processing it into kocho. While men were responsible for digging and planting enset, in both Sidama and Gedeo it was regarded as an embarrassment for them to harvest or process it. These were seen as women’s tasks, and they provided women an opportunity to sell enset or kocho if they had a surplus. With regard to maize, both men and women stated that with proper storage maize could
be kept to be sold during times of food scarcity for income for the household. Women placed maize second to enset in terms of its income-making potential.

Sweetpotato was more important for women than for men as a source of both food and cash. Women FGD participants stated that they could sell sweetpotato vines to get income. Because it was produced twice a year, sweetpotato could be sold in small quantities and at different times as either roots or vines, allowing women to have access to income to meet their household needs.

We put sweetpotato as number 4 because we produce a little for household consumption. Sometimes if we have more, we sell. Sweetpotato does not bring much money to the family (Female FGD participant, Gedeo).

Sweetpotato is often planted in small plots around the homestead, making it easy for women to manage and sell it. Sweetpotato does not fetch much money. Men lacked interest in it unless large quantities were involved. For example, men preferred haricot bean over sweetpotato because haricot bean fetched higher prices.

**3.5.1 Crops regarded as important for their use as animal feed**

Women and men saw enset as an important crop for animal feed, as it was perennial. Enset leaves and stems could be used to feed livestock (see Figure 10), and since enset can tolerate moisture stress it was a key animal feed during the dry season, according to the women. Organic waste and bran from haricot bean were also cited as important animal feed.
The interviewees also mentioned maize by-products such as stems and leaves as other important sources of animal feed.

### 3.5.2 Sweetpotato vines and leaves as animal feed

Most of the sweetpotato vines were used as animal feed or conserved for use as planting material in the following season (Table 4).

**Table 4: Use of sweetpotato vines and leaves**

<table>
<thead>
<tr>
<th>Uses of sweetpotato vines and leaves</th>
<th>Women’s FGDs</th>
<th>Men’s FGDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal feed</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Planting material</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Sold</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>As a vegetable/food (leaves)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Some farmers also sold sweetpotato vines as planting materials. Sweetpotato vines were mentioned as the fourth source of livestock feed in the study areas after enset, banana leaves and grasses (Figure 11). There were no major differences between what came out in groups and what came out in individual interviews except that wheatbran and teff biomass was mentions in individual interviews but not in FGDs while sugarcane heards where mentions in FGDs. Hence the figure below is presented in a combined manner.
Enset leaves, banana leaves and stems, grass, sweetpotato vines and maize leaves and stalk were the top five livestock feeds mentioned by the farmers. However, for dairy cows, sweetpotato vines were the number one crop feed (Figure 12). Farmers said that they used sweetpotato vines because they believed that they could increase milk production and the weight and blood volume of the cows. Although enset leaves were seen as an important animal feed, particularly because of enset’s availability throughout the year, they could not be fed regularly to dairy animals because it is believed that they affected the milk the animals produced. Maize by-products such as stems and leaves were also regarded as important sources of dairy animal feed. Farmers fed the animals wheat bran only if they could purchase it. Sweetpotato was a cheaper and locally available alternative to wheat bran. The top 4 mentioned feeds were similar in both FGDs and individual interviews hence figure 12 shows a combined representation of FGDs and individual interview responses. However, in individual interviews other feeds were mentioned that were not mentioned in FGDs. These included enset leaves, sugarcane heads, grass, teff biomass, enset root, harrict leaves and industrial feeds.
There was a difference between women and men’s preferred feed for dairy cows. Women mentioned sweetpotato vines more than the other feeds. Men mentioned a broader range of feeds than women did. This may be because feeds like industrial feeds and wheat bran were purchased while sweetpotato vines were locally available and often managed by women.

Although sweetpotato vines were the most popular feed for dairy cows, two men in Sidama stated that they did not feed them to pregnant cows for fear that they would gain weight or their fetuses would grow too big, compromising the health of the cows. They also mentioned that if dairy cows were fed with sweetpotato vines they grew fat but did not produce much milk. The tasks of feeding and milking dairy cows in Sidama were dominantly done by women, so the women discussants would have been the more reliable than men discussants as sources of information about the effect of sweetpotato vines on milk yield. One farmer mentioned that the shortage of vines was the reason he did not feed any to his cattle like he had done in the past. He wanted to conserve the vines for planting in the following season.

3.5.3 Main sources of cash

Sweetpotato was not mentioned among the main cash crops (see Figure 17). The men and the women agreed on coffee and khat as the main cash crops. The importance of these two as sources of income reversed between the study sites, with the main income earner being coffee in
Gedeo and khat in Sidama. More men and women in individual interviews in Sidama than in Gedeo mentioned khat as an important income source for large expenditures.

![Figure 13: Crops regarded as important because they were a main source of cash](image)

### 3.5.4 Crops’ fit in the local culinary system

Enset was regarded as the most important crop in terms of fit in the local culinary systems (Table 5), and more than any other crop enset was also seen as a cultural crop that households had to cultivate. For example, kocho, which is made from enset, was considered to be in high demand and as a cultural food with diverse uses for the Sidama people.

"Enset is the most respected food in our culture. We learned from our fathers to give it respect and to manage it well. Because its use is diverse, all families in Sidama choose to have it. Everybody considers it compulsory to plant enset on his land. All other crops come second to enset (Male individual respondent, Sidama)."

<table>
<thead>
<tr>
<th>Type of crop</th>
<th>Women IDI</th>
<th>Men IDI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enset</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Haricot bean</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Maize</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Kale/vegetables</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Yam</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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![Table 5: Crops regarded as important for their culinary properties](image)
In addition to the cultural knowledge on enset that is passed from generation to generation, there is a belief that is highly nutritious and that its products such as bulla are important for maternal health, especially after giving birth. It is believed that bulla repairs a woman’s body after childbirth.

Women noted that they were happy to serve enset to guests but this was not so with other foods like sweetpotato, which was regarded as a poor person’s food. This was because enset was considered a high value food and kocho, one of its products, was also a preferred food among the Sidama people. Households with enough enset for their needs were regarded highly. A person with a lot of enset on the farm was considered wealthy. The cultural value of enset was higher than for other crops. According to the FGD participants, enset was not only regarded as the most important food in the community but was also used in making some of the most delicious foods such as bursame, chukame and omolcho. Enset leaves were used when making the local bread, defo dabo, and could also be used to wrap khat during transportation.

FGD participants noted that some important cultural dishes like hofsa were made from maize, making the crop important culturally. The importance of other crops like haricot bean and kale and other vegetables emanated from the fact that they could be accompaniments for kocho. Kale could also be consumed together with maize bread. Haricot bean was regarded as good to cook with bulla.

3.5.5 Why sweetpotato was not among the top three crops

Both men and women farmers who did not include sweetpotato among their top crops gave several reasons for that, the key one being that land limitations forced them to produce other crops so that they had only enough sweetpotato to meet family needs. Sweetpotato is no longer a top crop because of the increasing shortage of land. To produce good root yields it cannot be intercropped with coffee or enset, unlike vegetables (Female Individual interview respondent, Gedeo).

The lack of land and the conviction that it was difficult to intercrop sweetpotato with other crops contributed to a reduction in sweetpotato production and in its perceived importance. For example, for root production, when they cultivated sweetpotato as a sole crop, farmers in Chichu in Gedeo applied urea and DAP fertilizer to it, which they did not regard as appropriate for enset or coffee. For those crops they used organic manure or compost. No constraints were associated
with vine conservation by intercropping sweetpotato with coffee or enset. Farmers often conserved sweetpotato vines in enset plantations to take advantage of the shade, which prevented the vines from drying out from the hot sun during the dry season. Additionally, they applied cow manure in vine production, which they regarded as appropriate for enset as well.

There was a belief that intercropping sweetpotato with other crops to produce its roots would cause these crops to dry out or not perform well. People perceived sweetpotato as a heavy feeder. Generally, while farmers intercropped crops like kale and haricot bean with maize and enset without much of a problem, they were not happy to intercrop sweetpotato with other crops. Owing to the limited land sizes and the lack of opportunities to intercrop sweetpotato with the main crops, its coverage was still low.

Although the general preference was not to intercrop sweetpotato, land shortage meant that some households may have planted sweetpotato as an intercrop in maize, coffee or khat fields. In Sidama, for example, some FGDs mentioned that it was easier to intercrop sweetpotato with khat because large spacing was left between the khat plants. Two men’s and two women’s FGDs stated that sweetpotato could be intercropped with maize if the spacing between the maize plants was wide enough to allow the sweetpotato access to light. Traditionally, sweetpotato intercropped with maize is an overlay crop and it is planted once the maize has started tasselling, to avoid competition for nutrients when the maize is still developing. The maize will be harvested before the sweetpotato has started root bulking, allowing it good access to light during that period. However, the general consensus was that sweetpotato planted for root production should not be intercropped with crops like coffee or enset.

The lack of vines in the area was another key reason why sweetpotato was not the top crop in the community. For example, farmers mentioned that frequent droughts had made it hard for them to conserve their own vines, and some of them had dropped out of producing sweetpotato. Additionally, some farmers noted that compared to other crops, sweetpotato productivity had declined because of the lack of quality planting material and good varieties. Farmers’ selections for the most important crops were influenced by a crop’s productivity, and sweetpotato could not compete in that with the other crops, including tree crops.
3.6 Role of sweetpotato in rural and urban diets and food security

3.6.1 Sweetpotato and urban consumers

The majority of the FGD participants and individual respondents said that sweetpotato roots were used for family consumption. The surplus was sold and the small size roots that could not be used as food or sold were fed to animals. Sweetpotato roots were eaten boiled. One farmer mentioned having heard that sweetpotato could be used to make injera but he did not know how.

Forty-six percent of the 26 urban consumers interviewed in Hawassa central market purchased and consumed sweetpotato at least once every two months. Table 6 shows the weekly purchases of the different vegetables by urban consumers at Hawassa and Dilla markets.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Respondents buying the vegetables at least once a week for consumption (number out of 26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato</td>
<td>17</td>
</tr>
<tr>
<td>Leafy vegetables (cabbage and kale)</td>
<td>14</td>
</tr>
<tr>
<td>Onion</td>
<td>11</td>
</tr>
<tr>
<td>Tomato</td>
<td>8</td>
</tr>
<tr>
<td>Sweetpotato</td>
<td>7</td>
</tr>
<tr>
<td>Carrot</td>
<td>4</td>
</tr>
<tr>
<td>Taro</td>
<td>4</td>
</tr>
</tbody>
</table>

The majority of the respondents bought Irish potato and leafy vegetables every week, and only 25% of them bought sweetpotato weekly. The consumers gave the following as the reasons they did not list sweetpotato in their top three weekly vegetable buys:

- it was eaten as a snack not as a food for regular meals (6)
- it was not available in the market (5)
- it had lower nutritional value than the crops they had listed as their top three (3)
- it was boring to eat because it could only be eaten boiled (3)
- its nutritional value was not known/it was not nutritious (3)
- it was poor people’s food or food for times of great difficulty (3)
- they and family members did not like it (2)
- unlike kocho and injera it was not a staple food (1)
- it could not be stored for long (1)
- it was not liked by people (1)
Some of the respondents said that they had consumed more sweetpotato when they lived in the rural area, but after migrating to the city, where food varieties were more diversified, they developed a taste and preference for foods other than sweetpotato. Taste preferences, the culinary culture and availability issues were key among the reasons for not ranking sweetpotato as a top food by urban consumers.

The low ranking of sweetpotato among foods was evident also when consumers were asked whether they could use sweetpotato as a replacement food, for example when they could not find bread or other foodstuff they normally consumed in the household. Only two consumers answered this in the affirmative. The rest said that they would not use sweetpotato as a replacement food because it was not always available, its shelf life was short, or its nutritional value was low. For some consumers, when they did not have the money to buy their preferred foods like injera, they purchased sweetpotato, which was cheaper and energy dense. Two participants noted that because they had large families, it was cheaper for them to integrate sweetpotato into their regular diet.

3.6.2 Perception of sweetpotato compared to bread and other foods

The majority of the consumers were not aware of any benefits of eating sweetpotato, and they ate sweetpotato because they liked its taste or that it could be eaten as a breakfast food or as a snack with coffee. Also sweetpotato could be eaten to relieve hunger when adequate food was not accessible. Only one out of the 26 consumers knew that sweetpotato had vitamins. Two consumers stated that sweetpotato had no nutritional value.

There was an even split between consumers who preferred bread and those who preferred sweetpotato. Those who favored sweetpotato cited its cheapness compared with bread as its attractive qualitative. Two women with large families said that they preferred sweet potato because its low cost and bulky nature meant the their family could eat to satiety, unlike if they purchased bread.

Those who preferred bread over sweetpotato liked that bread was always available unlike sweetpotato, which was seasonal, could be accessed close to home, and had better nutritional value than sweetpotato. For others, it was a matter of family preference.

[At home] nobody is happy when I bring sweetpotato from the shop. People prefer bread and tea for breakfast (Urban consumer respondent, Hawassa central market).
When the respondents were asked to name the top three foods that they would buy if they had extra money they did not include sweetpotato (see Figure 14).

The reasons the respondents gave for not including sweetpotato in the top three foods they bought when they had extra money were that it was not quite fitted to the culinary culture and it did not have as high a nutritional content as the foods they bought. Additionally, the foods they had included in the top three were bought during festivities and were regarded as treats, which was not the case with sweetpotato, a food generally regarded as a poor person’s crop with low nutritional value.

3.6.3 Changes in the level of consumption of sweetpotato

Of the 26 urban sweetpotato consumers only 6 mentioned increasing its consumption over the previous few years, 16 had decreased its consumption and 4 had consumed more or less the same volumes of the crop over the years. Figure 15 provides a summary of the constraints hindering families from consuming sweetpotato.
Quality issues were a key constraint in sweetpotato consumption. The consumers mentioned losing interest in buying sweetpotato because the roots available in the market were often of poor quality. Another reason was the increase in its price. All the consumers agreed that sweetpotato had become more expensive over the previous three years, which they suspected was due to the decline in its production caused by drought.

All the urban consumers interviewed and 88% of the 16 rural consumers did not consume sweetpotato leaves. Although two women in Chichu and Amba villages in Gedeo said that they ate sweetpotato leaves, this was not common in the villages. Among the women who consumed the leaves, one stated that she had started cooking them when she had a severe food shortage in her home, and when she realized that they were delicious she had continued to cook and consume them. One woman indicated that she consumed OFSP leaves but not the leaves of the local varieties, which she used only as animal feed.

### 3.6.4 Consumers’ perceptions on OFSP

Only 14 of the 26 urban sweetpotato consumers were aware of OFSP, and out of these, only 2 had ever consumed it. The rest had only heard about its importance. Two of the eight retailers interviewed knew about the existence of OFSP, but they said that it was not available and therefore was not among the sweetpotato varieties they sold. The widely sold sweetpotato was
the white-fleshed variety known as Hawassa 83. Sometimes people just referred to the white-flesh varieties they had, e.g. Hawassa 83, as red peel or white peel.

3.7 Gender-responsive sweetpotato value chain mapping

The key actors in the sweetpotato value chains in Gedeo and Sidama were input suppliers and sweetpotato producers, assemblers, wholesalers, retailers and consumers. This agrees with a previous study by Parmar et al. (2017) that identified these groups as the main sweetpotato value chain operators in southern Ethiopia. Among the important service providers were transporters, who included drivers of mini trucks, donkey cart operators and young boys who carried sweetpotato roots to the market. Extension staff and credit institutions that provided extension and credit services for the value chain actors were also key chain service providers.

There were generally four paths by which sweetpotato products reached consumers:

- consumers bought sweetpotato directly from producers at the farm gate or rural markets
- retailers bought the crop directly from producers at the farm gate
- assemblers bought sweetpotato from producers and sold it to retailers
- assemblers bought the crop from producers, sold it to wholesalers, who then sold it to retailers

Table 7 shows the sweetpotato value chain stages in Gedeo and Sidama, the activities at each stage, the actors involved and gender roles.
### Table 7: Gender-responsive sweetpotato value chain map for Sidama and Gedeo

<table>
<thead>
<tr>
<th>Activities</th>
<th>Input supply</th>
<th>Production</th>
<th>Assembling</th>
<th>Wholesaling</th>
<th>Retailing</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supply sweetpotato vines</td>
<td>Buy inputs</td>
<td>Collect sweetpotato roots and vines</td>
<td>Buy roots from assemblers and wholesalers</td>
<td>Buy roots from producers or retailers</td>
<td>Buy roots from producers or retailers</td>
</tr>
<tr>
<td></td>
<td>Supply chemical fertilizers and agrochemicals</td>
<td>Manage sweetpotato farms</td>
<td>Sell roots to retailers</td>
<td>Sell roots to retailers</td>
<td>Transport roots</td>
<td>Transport roots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Produce roots</td>
<td>Provide temporary storage for roots</td>
<td>Grade the roots</td>
<td>Store roots</td>
<td>Store roots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transport vines</td>
<td>Retail roots</td>
<td>Retail roots</td>
<td>Process roots</td>
<td>Process roots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transport roots from farm gate to market</td>
<td>Provide temporary storage for roots</td>
<td>Provide temporary storage for roots</td>
<td>Buy roots from producers or retailers</td>
<td>Buy roots from producers or retailers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actors</td>
<td>Vine producers</td>
<td>Smallholder farmers</td>
<td>Assemblers who may be farmer traders or urban traders</td>
<td>Wholesalers</td>
<td>Retailers</td>
<td>Rural and urban consumers</td>
</tr>
<tr>
<td></td>
<td>Office of agriculture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Private suppliers of agrochemicals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender roles</td>
<td>Women sell small volumes of vines in village markets</td>
<td>Both men and women are active in production</td>
<td>Female assemblers collect and transport roots to village markets</td>
<td>Only two wholesalers of the roots, who were both women, were identified at Hawassa market</td>
<td>Retailers are 100% women</td>
<td>Mostly women are responsible for purchasing sweetpotato for consumption</td>
</tr>
<tr>
<td></td>
<td>Men sell large amounts of vines at the farm gate</td>
<td>Men are seen as smallholder owners/ farmers and women as helpers</td>
<td>Male assemblers collect roots from villages and transport them to district markets and beyond</td>
<td></td>
<td>In rural markets, young men and women assist in transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources or materials used and required</td>
<td>Land suitable for vine multiplication</td>
<td>Land suitable for root production</td>
<td>Sacks for root transportation</td>
<td>Storage place</td>
<td>Market stalls</td>
<td>Storage materials</td>
</tr>
<tr>
<td></td>
<td>Shops in local markets such as district, zonal and regional towns</td>
<td>Farm equipment (e.g. ridge makers) Labor</td>
<td>Donkey carts or Isuzu cars</td>
<td></td>
<td>Sacks for root storage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public extension staff</td>
<td>Male transporters (donkey carts or Isuzu cars)</td>
<td>Transportation by boys using donkey carts</td>
<td>Transportation service provided by young men</td>
<td></td>
<td>Transportation services</td>
</tr>
<tr>
<td>Services</td>
<td>Public extension staff provide new varieties (mostly men)</td>
<td>Extension support (provision of new varieties)</td>
<td>Transportation services from Isuzu drivers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Gender roles:**
- Women sell small volumes of vines in village markets.
- Men sell large amounts of vines at the farm gate.
- Both men and women are active in production.
- Men are seen as smallholder owners/farmers and women as helpers.
- Female assemblers collect and transport roots to village markets.
- Male assemblers collect roots from villages and transport them to district markets and beyond.
- Only two wholesalers of the roots, who were both women, were identified at Hawassa market.
- Retailers are 100% women.
- Mostly women are responsible for purchasing sweetpotato for consumption.

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**Resources or materials used and required:**
- Land suitable for vine multiplication.
- Shops in local markets such as district, zonal and regional towns.
- Male transporters (donkey carts or Isuzu cars).
- Extension support (provision of new varieties).
- Transportation by boys using donkey carts.
- Transportation services from Isuzu drivers.
3.8 Sweetpotato value chain functioning

3.8.1 Sweetpotato assembling

Female and male assemblers collect, pack and transport sweetpotato for sale to wholesalers and retailers. There were two kinds of assemblers: village level and district level assemblers. Village level assemblers usually rented donkey carts that were mostly managed by young males to transport roots from the farm gate to the markets. In both Gedeo and Sidama, village level sweetpotato assemblers operated mainly between September and January, which is when sweetpotato was available locally. The volume of the roots assembled at one time by these assemblers was not more than 600 kg.

Women assemblers normally targeted the village markets existing in most kebeles. Where there were village markets, women dominated village sweetpotato assembling. However, where no village markets existed, village level assembling was dominated by men, who mostly sold their products to the nearest markets in neighboring villages or in district markets. For instance, in Rufo Wayno kebele in Aleta Chuko district, the village level assemblers sold their products to traders at the district market.

The district level and the large assemblers were mostly men. They usually used motorized vehicles for transportation, collecting sweetpotato volumes of up to 5,000 kg per market day. They usually packed the roots in polypropylene sacks and they sold their sweetpotato to traders at district markets such as Chuko and Dilla or in Hawassa central market. According to a female sweetpotato wholesaler, men dominated large-scale assembling and transportation of sweetpotato from the districts to Hawassa central market because this work was tedious and difficult for women.

The assemblers collected sweetpotato roots from the producers at the farm gate. The price and volume were negotiated a couple of weeks before root harvesting. Women assemblers preferred and found it easier to trade with male than female producers, who were described as hard bargainers. Sweetpotato was harvested and transported to markets on the same day. The assemblers collected sweetpotato twice per week on market days.
All the four assemblers interviewed agreed that sweetpotato assembling could be profitable, and three of them noted that the volume of sweetpotato had decreased over the previous five years owing to land shortage and drought. They claimed that some farmers had totally quit sweetpotato production. They also stated that the price of sweetpotato had increased over the years, going, for instance, from 150 birr per sack (about 115 kg) in January 2015 to 200 birr in January 2016 and 250 birr in January 2017. They believed that the price hike was due to a slump in the crop’s supply and an increase in its demand.

The assemblers suggested ensuring the year-round availability of sweetpotato roots, improving their quality and expanding their shelf life as interventions with the potential to improve the sweetpotato value chain.

### 3.8.2 Sweetpotato retailing and wholesaling

Women dominated the sweetpotato retail trade at both the village and district levels. Women traders and both male and female farmers stated that men were less skillful at retailing sweetpotato roots and were embarrassed to do it. None of the eight retailers was selling sweetpotato as a sole commodity (see picture 1 of woman retailer at Hawassa market). The retailers in the village and district markets including Dilla sold sweetpotato roots together with kocho and green maize and fruits such as avocado, mango and banana. The retailers in Hawassa sold sweetpotato alongside taro, cassava or Irish potato. The unavailability of sweetpotato in some seasons, the need for risk diversification and the high consumer demand for other complementary crops were mentioned as the reasons why retailers did not sell only on one crop.

Six out of the eight retailers interviewed stated that the volume of the sweetpotato retail trade had decreased over the previous five years. The reasons they mentioned were drought and the shift of farmers from sweetpotato to other crops. However, all retailers agreed that the price of...
Sweetpotato was increasing due to the growing demand for it and its decreasing availability. While sweetpotato retailing was seasonal in village markets, in Hawassa central market it was a year-round business, as retailers were able to obtain the roots from different parts of the country through assemblers and wholesalers.

Hawassa market retailers sold up to 1,400 kg per week during the peak harvest period compared with the 200–400 kg per week sold in the village markets. Retailers in Hawassa estimated that they sold about 400 kg per week when sweetpotato was out of season.

Sweetpotato was graded into two groups in the retail markets, based on root quality and size. The roots were put in heaps based on their grade. A heap weighed on average 1.22 kg.

Only two of the eight retailers interviewed mentioned selling sweetpotato vines, which were bought by livestock owners. All the retailers interviewed in Hawassa market said that the low quality and spoiled roots were sold to cattle owners for a price that was as low as 25% of the price of good quality roots. The retailers in Dilla mentioned that they did not have buyers for the low quality products.

Postharvest losses, the lack of storage technologies and storage facilities, and the seasonal availability of sweetpotatoes were cited as major constraints for retailers. The retailers mentioned that the price of sweetpotato was at its highest during January–April. This is in agreement with a study by Jones et al. (2013) that reported the highest price of sweetpotato in Ethiopia to be in March.

Sweetpotato wholesaling was a new development at Hawassa market. There were no wholesalers in Dilla and Aleta Chuko markets. The two wholesalers at Hawassa market were women (see picture 2 for example of woman wholesaler at Hawassa market). They bulked sweetpotato roots received mostly from male assemblers. The wholesaler interviewed for this study supplied
sweetpotato products to about 40 retailers who were based at Hawassa central market and the village markets in and around Hawassa city. The wholesaler–retailer business was based on a credit arrangement, with the retailer expected to pay for the roots after selling them. Losses in retailing due to price fluctuation or the low quality of the sweetpotato were shared between the wholesaler and the retailer. According to the wholesaler, the number of sweetpotato retailers had increased over time. Error! Reference source not found. highlights the constraints to sweetpotato root marketing.

Table 8: Challenges faced by the actors involved in marketing of sweetpotato
Value chain stage | Value chain actor | General challenges | Solutions recommended by the actors |
--- | --- | --- | --- |
Product collection | Assembler | Seasonality of the crop Lack of trust between producers and assemblers whose business is usually based on oral agreements | Increasing product availability throughout the year using irrigation or staggering |
Retailing | Retailer | Lack of storage Perishability of the roots with postharvest losses of 25–40%, causing profit loss Low quality products, resulting in low profit Price fluctuation, which may affect profits | Introducing improved storage techniques and providing storage facilities at the market Improving transportation, packaging and storage technologies and techniques Properly producing and harvesting the roots for quality products Harvesting of the crops at the recommended physiological maturity period Reducing infestation by pests and diseases |
Wholesaling | Wholesaler | Retailers take the product from wholesalers on credit and may pay less at the end than the agreed price, owing to either lower consumer prices or low quality of the products, which can lead to significant postharvest losses Lack of temporary storage facilities | Introducing improved storage technologies and appropriate product storage facilities |

### 3.9 Gender roles, constraints and opportunities in sweetpotato production

#### 3.9.1 Role of men and women in sweetpotato production

The men and women in the FGDs were asked to provide details on sweetpotato production, how different people were involved and the resource needs. The groups were asked to rate by consensus the participation of men, women and youth in sweetpotato activities. The rating scale used ranged from 0 to 3, where 0 was not involved at all, 1 was low involvement, 2 was medium involvement and 3 was very much involved. They were asked to rate the involvement in the activities of members of their own sex, members of the opposite sex, and male and female youth. Figure 16 shows the division of labor as perceived by the FGD participants. Men and women’s perceptions are showed side by side with the rating score given by each group shown inside the bars.
Compared with how men viewed women’s involvement in activities such as land preparation and ridging, women seemed to rate their involvement slightly lower. With regards to marketing, men rated their involvement lower than women rated it. During discussions (before rating) women and men often mentioned that men performed most agricultural tasks, but when women listed their activities in agriculture it was easy to see that they were much more actively involved in agriculture than it was presumed.

The general assumption was that men did the hard work because women were physically not strong enough to do it. For example, the focus groups said that during land preparation in general and in making ridges for planting sweetpotato in particular, women’s role was to prepare meals and coffee for men and hired laborers who did the work. Only widows were said to be
working on the land themselves. The hard work such as plowing was said to be done by men. Both men and women focus group discussants confirmed this.

*The heaviest work is for men in this community and the easy work for women (Male FGD participant, Gedeo).*

*Preparation of land requires more strength than other tasks, so most of the time men actively participate in it (Female FGD participant, Sidama).*

Men were regarded as more physically powerful and strong by nature. For that reason they were expected to do the hard work like preparing land, while women were responsible for the tasks considered easy like domestic work and caring for children. During land preparation women helped their husbands by picking weeds and weeding after providing them food and coffee. During sweetpotato harvesting women were regarded as helping their husbands when they collected the harvested roots. Thus, men and women saw the agricultural work that women performed as help for men.

The women stated that for all the important crops like enset and maize and also for sweetpotato men prepared the land. They said that for other crops like kale and haricot bean women could prepare the land as the work was not hard because men would already have plowed the land in preparation for planting crops such as maize, enset or coffee. However, in the FGDs it became clear that women were more involved in kale and haricot bean because those crops benefited them directly, as they could sell some of the harvest to earn an income, particularly if the crop was not large. It is possible, then, that terming women’s contribution in important and high income crops as helping men may have more to do with the control and access to benefits from the crops than with women’s actual contribution or lack thereof.

The FGD participants mentioned that social pressure forced men and women to conform to the gender-ascribed division of labor. For example, women were responsible for domestic chores.

*If a man takes his wife to the field he will lose respect in the community. So women go to the field only to feed their husbands and provide coffee (Male FGD, Gedeo).*
In our culture, heavy work and activities in farms far away from the homestead are men’s responsibility; for women it is the reverse (Male FGD, Sidama).

A women’s group in Sidama stated that participation in haricot bean or sweetpotato production depended on the scale of the crop’s production. For example, if it was produced on small pieces of land and the yield was low, women would control all its activities. Crops produced on large pieces of land or with yields that could be marketed saw more involvement of men than women.

Women stated that the application of chemical products such as fertilizers, pesticides and insecticides was regarded as men’s work. Women were said to be afraid of chemicals and to lack the knowledge to use them. Men emphasized that the application of manure and ash to crops such as sweetpotato was typically a women’s duty. Women explained that they often did this task after completing their domestic chores. The division of labor between the genders was related also to the perceived differences in knowledge and skills between them. The study participants noted that only men could weed crops such as sweetpotato because women and children lacked the knowledge and skills needed to weed them without damaging the roots. Women and children could weed haricot bean, which was considered not to require much skill or knowledge. But these practices are changing as more and more women participate in training on the cultivation of different crops. Some women in the FGDs said that they would be interested in learning how to weed sweetpotato, but others said that they would not be able to participate actively in such activities because of the high demand on their time from the tasks they had to perform around the home.

Men were regarded as more knowledgeable than women in farming and therefore were needed to provide direction to women.

During planting time, we participate in some activities like planting vines in rows made by men, following instructions given by men (Female FGD participants, Sidama).

We follow men’s instructions because we cannot perform these activities correctly by ourselves (Female FGD participants, Sidama).
Men often stated that women could not claim a huge portion of the farm income since they were not farmers, lacked skills, merely helped in men’s work and needed to be monitored and given instructions in cropping activities. These kinds of perceptions perpetuated gender inequality, since women were regarded as not having the knowledge to farm successfully and lay claim to the crops.

The feeding of livestock was generally regarded as domestic work, and as such was part of the daily tasks of women. According to female FGD participants in Sidama, men sometimes would provide support in livestock feeding by bringing crop residues and vines from the farm to the homestead.

I have more responsibility in feeding animals. Children and animals are closer to me; I can understand their feeling. In addition, I know more about the animals and the benefits they bring (Female individual respondent, Sidama).

It is shameful for men to carry the vines. Some men may carry them but most men are embarrassed to do that. They participate very little in this (Female FGD participant, Gedeo).

I have a bigger share of the responsibility to collect the crop residues and vines to feed the animals. My husband is involved only in purchasing wheat bran if that is necessary. I understand the benefits of keeping livestock. I feed milk to my children and I can make and sell butter. I even use the cow dung as manure (Female individual respondent, Sidama).

The separation of the home and the farm promotes the division of labor, with women being responsible for activities that are close to the homestead and men for those that are away from the homestead. In some households the feeding of animals required male engagement when it involved buying feed, but collecting feed locally was seen as women’s work. Since women benefited from selling milk or using it to feed their children and from making butter, they liked feeding the dairy cows.

3.9.2 Role of youth in sweetpotato production

Note:
*Mentioned by 1 out of 9 groups
**Mentioned by 2 out of 9 groups
Figure 7 shows women and men’s perceptions of the involvement of young people in sweetpotato production. Men’s estimation of the youth’s involvement in fertilizer application was lower than women’s, while women’s estimation of the level of involvement of young women in harvesting was lower than men’s. The reasons for these differences cannot be explained with the data we have.

The data show that the gender division of labor among the youth mirrored that of the adults. Also many FGDs mentioned that young men assisted their fathers during weeding and land preparation while young women assisted their mothers with domestic chores. However, in female-headed households, boys and girls participated in most agricultural activities.

![Figure 17: Women and men’s perceptions of youth involvement in sweetpotato production](image-url)
In general, young people were less engaged in agriculture than adults because often they attended school and helped out only when they were at home.

### 3.9.3 Gender-based constraints to sweetpotato production

Table 9 lists the constraints to sweetpotato production that were mentioned in men and women’s FGDs, the most important of which were drought, shortage of land and planting material issues. Planting material constraints were the most often mentioned and they related to the lack of locally and easily accessible planting materials, the high cost of planting materials, the lack of quality planting materials and the late availability of planting materials, which all led to low yields and low sweetpotato productivity. Many communities had no vine multipliers, which made it difficult to access good quality vines. Additionally, farmers mentioned that they had only one sweetpotato variety, which had degenerated over the years and was no longer yielding high root volumes.

Table 9: Sweetpotato production constraints faced by male and female producers in Gedeo and Sidama

<table>
<thead>
<tr>
<th>Production constraints</th>
<th>FGDs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
</tr>
<tr>
<td>Drought</td>
<td>4</td>
</tr>
<tr>
<td>Lack of locally available planting material</td>
<td>3</td>
</tr>
<tr>
<td>High cost of planting material</td>
<td>3</td>
</tr>
<tr>
<td>Land shortage</td>
<td>3</td>
</tr>
<tr>
<td>Lack of money</td>
<td>1</td>
</tr>
<tr>
<td>Lack of means of transport</td>
<td>1</td>
</tr>
<tr>
<td>Low market prices for sweetpotatoes</td>
<td></td>
</tr>
<tr>
<td>Lack of improved varieties</td>
<td>1</td>
</tr>
<tr>
<td>Late availability of planting materials</td>
<td>1</td>
</tr>
<tr>
<td>Lack of quality planting materials</td>
<td></td>
</tr>
<tr>
<td>Lack of equipment</td>
<td>2</td>
</tr>
<tr>
<td>Labor problems</td>
<td>1</td>
</tr>
<tr>
<td>Lack of training and extension support on sweetpotato production</td>
<td>1</td>
</tr>
</tbody>
</table>

The lack of quality vines not only lowers sweetpotato productivity but also affects the quality of its products and their prices. In most communities only one or two varieties were being cultivated. Farmers mentioned that the varieties they had were not drought tolerant, which made it even harder to get planting material. The long drought periods and the shortage of land were
regarded as the causes of vine shortage, which in turn led to low sweetpotato productivity. To address the shortage of vines farmers suggested the introduction of drought-tolerant and high-yielding varieties and the improvement of sweetpotato market prices, which would provide the money to allow them to buy clean planting material from other districts. Investment in local level irrigation, coupled with farmer training on the proper ways to multiply and preserve clean planting materials, was suggested as a way to improve vine multiplication.

According to the farmers there was no official support for sweetpotato farming, unlike for crops like coffee and maize. The lack of extension support was mentioned as one of the reasons as to why some farmers did not cultivate sweetpotato.

The low market prices for sweetpotato were part of a vicious circle bringing down sweetpotato production. One women’s FGD considered the lack of equipment such as the two-pronged fork to be related to the low price of sweetpotato compared to other crops, which made it difficult for farmers to afford such investments. Transportation of the crop, which in the village was commonly by rented donkey carts, was another expense that farmers found to be very high.

*If we cannot afford them [donkeys], we have to carry the sweetpotato on our backs, which is a lot of hard work. We don’t have our own horses or donkeys. The renting price is a major obstacle* (Female individual respondent, Gedeo).

The low selling price of sweetpotato made it less economic to hire the expensive donkey cart transport to take the roots to the market. This meant that assemblers had to travel to the villages for the sweetpotato, and offered prices lower than those the farmers would have fetched at the market. The lack of transportation also provoked the loss of quality even before the sweetpotato could be taken to the market, resulting in low prices. Farmers noted that the transport problems could be resolved if sweetpotato prices were higher, as farmers would afford to hire the donkey carts, or if the producers could be organized into marketing cooperatives or groups. To avoid losses, farmers suggested the construction of a factory to process and pack sweetpotato juice, which could also help to improve the prices through value addition. The introduction of sweetpotato storage to prevent postharvest losses also was suggested.

### 3.9.5 Land allocation for sweetpotato production

There was general agreement that sweetpotato was produced on small pieces of land. Some FGD participants said that they grew sweetpotato on less than 10% of their land holding. It was stated
that even when cultivated on a small plot, sweetpotato yielded enough roots to meet the household’s needs. That allowed other land to be set aside for crops to meet the households’ cash requirements.

The female participants in the FGDs and individual interviews noted that there was a serious lack of suitable land for sweetpotato cultivation that was not occupied by coffee or enset-based agroforestry. Some female farmers stated that they cultivated sweetpotato only when they got open land through sharecropping. For example, they would come together to rent land for sweetpotato root production and mostly share the harvest equally with the land owner as payment for using the land.

*For vine multiplication I use a 500 m² plot. I don’t have my own land to produce sweetpotato roots. Hence, I engage in sharecropping. The farmer I sharecrop with has land but does not have vines, so we participate equally in cultivating the sweetpotato and share the sweetpotato produce equally* (Female individual respondent, Gedeo).

Farmers in Gedeo tried to find suitable land in neighboring Oromia region.

The farmers said that sharecropping was a common practice among female-headed households. But the opportunities to rent land were limited. The shortage of land meant that often none was available and many families did not have even enough for themselves let alone to rent out. As an alternative, households rented out their highly valued cash crops and trees.

*When the household has an economic crisis, they rent out coffee trees, not land. The renter will only pick the coffee. They don’t do anything else on that land, but just pick the coffee. After two or three years the renter gives back the rented coffee trees to the owner* (Female FGD participant, Gedeo).

Since men controlled most cash crops such as coffee and khat, it was they, not women, who were involved in crop renting.

There was consensus among the study participants that generally the land set aside for sweetpotato production was decreasing. The main reasons cited were fragmentation of land and
the growing preference for crops that used little land area but fetched high prices. Only three male farmers in Gedeo mentioned that they had increased the area dedicated to sweetpotato because its prices were high and they had benefited from high cash incomes from cultivating it. Generally there was a shift towards the cultivation of cash crops such as khat, particularly in Chuko district of Gedeo zone. Farmers were losing interest in sharecropping. People appeared to believe that sweetpotato required virgin land, but as such land was no longer available they moved to cultivate other crops such as enset. Farmers had reduced the acreage dedicated to sweetpotato because of its low yields, among other reasons. The lack of good markets for the crop was also mentioned as a reason why farmers rejected it, preferring to use their land for vegetables, fruits and other crops that could be sold to meet the cash needs of the household. The extension officers interviewed had a similar opinion as the farmers, that sweetpotato production had decreased.

The lack of adequate rains in the belg season had led to the reduction in vine production and the shortage of planting material during the main season. Figure 18 shows slight decline of rainfall during January, March and April between 1998 and 2016. March and April are crucial for the production of vines and some production of sweetpotato roots for the hunger period harvest.

Figure 18: Trends in monthly rainfall for the belg season in Dilla, 1998–2016
The shortage of rainfall for vine production during the belg season points to the need for appropriate irrigation technologies for vine multiplication to ensure availability of quality planting material and sustainable sweetpotato production in Sidama and Gedeo.

### 3.9.6 Increasing sweetpotato production

The men and women in the study generally agreed on what should be done to increase sweetpotato production in their communities (see Figure 19). The use of high yielding varieties of sweetpotato and high quality planting material was frequently mentioned as key by both men and women. Also of importance to them were drought-tolerant varieties of sweetpotato. Only women mentioned the need to allocate more and appropriate land to sweetpotato. This could reflect the fact that men preferred cash crops while women regarded sweetpotato as an important food security crop.

![Figure 19: Strategies suggested by men and women for improving sweetpotato production](image)

### 3.10 Gender roles, opportunities and constraints in sweetpotato marketing

#### 3.10.1 Gender and division of labor in the markets

The crops grown and the quantities that men and women sold depended on the norms regulating their household roles. For example, kocho was sold mainly by women, and men were embarrassed to sell it. Avocado also was mostly sold by women. Men were mainly responsible for selling coffee, khat and maize. Women were not involved in selling coffee and khat. When any
crop was sold in bulk, it was usually the men who did that. Bulk farm-gate sales also were dominated by men.

*Kale is for women to sell. Sweetpotato in small amounts is sold by women but in large amounts is sold by men. Harvested and processed enset is sold by women, but if it is sold before harvesting, that will be done by men. In our culture processed kocho cannot be sold by men. Women are allowed to sell any crop if it is in a small volume, and men sell crops in large amounts (Female FGD participants, Sidama)*

Both men and women study participants were of the view that men had better experience negotiating with traders and could manage large earnings from crops. Moreover, the local culture was that all large crop sales were to be conducted by men as heads of households. In one FGD in Gedeo women mentioned that to sell even small amounts of crops such as sweetpotato they needed permission from their husbands. In Sidama men stated that although large volume sales were dominated by men, women could participate in village markets to sell small amounts of harvested crops once or twice a week to earn money to pay for household items. Men regarded small volume sales as a woman’s job. It was considered shameful for men to retail small quantities of a crop such as sweetpotato.

*When the amount to sell is large, men handle it. Otherwise women take part. This is because as men, we use the money from the sale properly. Women may be extravagant, since they think about only today rather than the future. In addition, men have more bargaining power than women in the market (Male FGD participants, Sidama).*

Women in Sidama also noted that men targeted a large market that might have included wholesalers and other distributors, but women targeted small markets usually in the villages, as they preferred to sell the crops in small volumes as retailers to the final users. Women were seen as frivolous in their expenditure, but men saw themselves as good money savers and wise investors.

### 3.10.2 Sweetpotato root marketing

The influence of gender on the volumes of sweetpotato sold is depicted clearly in Figure 20. Both men and women sold sweetpotato roots, with men generally selling higher volumes.
A reason men gave for women’s domination of the small volume trade was that women were regarded as very patient and able to stay long at the local markets until they sold the sweetpotato.

The fact that the high value markets for sweetpotato were male dominated indicates there was a bias against women earning high incomes. Men justified this bias by saying that women were not as responsible with money as they were and made frivolous purchases. However, women expressed the fear that men could misuse money, for example by purchasing alcohol, which did not benefit the entire household.

The female FGDs mentioned that women sold small amounts of sweetpotato in the markets close to home because they needed to spend as little time as possible away from home and from their domestic duties. There was also a connection between the gender roles and expenditure. While men targeted large district markets, wholesalers and assemblers and sold the sweetpotato in quintals to finance investments and large expenditures, women sold sweetpotato in small volumes to obtain money for food items such as salt and spices and kerosene for home consumption. Women expressed the view that they had better experience and skill when it came to selling sweetpotato in the local markets.

The difference in the target markets between the male and the female farmers reflects the differences in power. Although men targeted the high volume markets and women the smaller village markets, some men insisted that men and women had equal rights in selling sweetpotato. Most participants said, however, that as heads of households, men decided on the volume of
sweetpotato roots that could be sold if the crop had been produced for both household consumption and marketing.

**Preferred root markets**

The principal clients for sweetpotato root producers included assemblers, wholesalers, retailers and consumers. Female producers were engaged more in selling the roots to consumers and to retailers while male producers engaged mostly with assemblers, wholesalers and retailers. Assemblers were the most important source of information regarding sweetpotato markets for the producers. Since men had more contact with assemblers and also participated in district markets, they were better informed regarding sweetpotato markets and prices.

The preferred markets mentioned by the participants included district and village markets. Men participated in the large and distant markets while women targeted local village markets. Some men cited the difficult conditions involved in long-distance trade as an obstacle for women to participate in such trade. However, even when sweetpotato was sold at the farm gate, where it would have been easy for women to participate, all large quantity sales were transacted by men. Men expressed the fear that women could be cheated and emphasized the fact that women needed only small amounts of money for domestic purposes, so it made sense for them for women to participate in local markets with low volumes of trade.

**Improving sweetpotato marketing**

Men had more suggestions than women on how to improve sweetpotato marketing (Figure 21). This may be because they were more engaged with a wide variety of buyers and markets.
Figure 21: Suggested strategies to improve sweetpotato marketing by men and women farmers

In both Gedeo and Sidama the need for improved sweetpotato prices and markets and introduction of processing factories as strategies to improve sweetpotato marketing were discussed only in the male focus groups. This could be because it was men who were engaged in high volume sales. Since female farmers did not participate in such markets, they would not be in a position to come up with such suggestions.

3.11 Gender roles in sweetpotato vine multiplication and marketing

3.11.1 Sweetpotato vine multiplication and conservation

Out of the seven respondents who stated that they multiplied vines, two men and two women bought their first vines from other vine multipliers, district markets or other kebeles. One multiplier had bought seed six years previously and had been multiplying the same seed ever since.

No linkages were observed between the formal and informal seed systems. Formal seed systems are sources of clean or certified seed such as certified seed multipliers or government research...
institutions. Informal seed systems refer to farmer-to-farmer seed sales or exchanges. The lack of a linkage between the seed systems was demonstrated by the fact that most villagers were aware of only one variety, Hawassa 83, locally referred to as Canada or red peel. In both Gedeo and Sidama sweetpotato producers obtained vines mainly by buying them from other farmers. Although there were recently emerging sweetpotato seed multipliers and suppliers such as Jara Agro-industry PLC in Duguna Fango district of Wolaita zone, Muluneh Boru Tufer Agricultural Development in Shebedino district in Sidama and Ezra General Trading PLC in Shebedino district in Sidama, they were not known to either the producers or the district level agricultural extension staff in the study area.

Sweetpotato vines conserved during the dry season were the main planting materials in both Gedeo and Sidama zones. All the 11 seed multipliers used the seed they had saved to multiply vines. Male and female FGD participants in Gedeo said that vines were normally conserved or multiplied close to the homestead, where families could monitor them easily, water them with household waste water and protect them from marauding livestock. Farmers produced vines intercropped with enset and coffee, khat or maize or as a monocrop.

In Sidama, vines were multiplied both close to and far from the homestead, because unlike in Gedeo, farmers did not traditionally allow their livestock to roam and graze freely. According to the FGDs in both Gedeo and Sidama, sweetpotato multipliers typically allocated pieces of land ranging from 50 m² to 300 m² for vine production. Smallholder vine producers used several techniques for vine multiplication and conservation, depending on the dominant farming system and the availability of suitable land. Details on the vine multiplication and conservation methods are elaborated below.
Intercropping sweetpotato vines with coffee and enset-based agroforestry

Of the 18 vine fields crossed during the transect walks, 3 in Gedeo and 2 in Sidama were grown under coffee and enset (see picture 3). This system is commonly located near homesteads, so domestic waste such as manure and ashes are applied to the soil to maintain its fertility. Seed vines are planted during October–November. The shade from coffee and enset trees prevents the vines from drying in the hot, dry weather during December to February. However, all the vine multipliers interviewed indicated that root productivity was low when vines were grown under coffee or enset shade.

Intercropping sweetpotato vines with khat

In Aleta Chuko district the production of the more profitable khat was increasing at the expense of coffee and staple crops such as maize. Sixty-three percent of the 43 farms transected in Aleta Chuko were growing khat, compared with none in Dilla Zuria. Rainfed khat dominated the production system in Aleta Chuko. Several sweetpotato producers conserved vines in khat fields during the dry season (see picture 4). Some 6 of the 27 khat fields that were crossed during the transect observations had sweetpotato vines. The farmers mentioned that competition between khat and sweetpotato could be high when sweetpotato crop started bulking. According to some of FGD participants the application of manure reduced the competition between the crops. All the farmers interviewed said that they covered the vines with leaves to protect them from heat during the dry season. The preferred plants used for the leave cover included banana and grass species.

Intercropping sweetpotato vines with maize

Maize was grown in 9 of the 43 fields crossed during the transect observations Aleta Chuko and 5 of the 34 fields observed in and Dilla Zuria. In Aleta Chuko 33% of the fields with maize had sweetpotato vines (see picture 5); this was 20% of the maize fields in Dilla Zuria. The sweetpotato
vines were planted in October when the maize had started to tassel. They were covered with banana leaves, grasses or other crop residues during the extended dry season. When it rained, the vines sprouted and the farmers removed the mulch. At the time of the first rains farmers broadcast maize seeds in the field with the vines. Sweetpotato vines were often harvested before the maize started flowering, meaning that farmers believed that there was little competition between the crops for nutrients.

Sweetpotato vines produced as a monocrop

Only 2 of the 43 fields in Aleta Chuko and 6% of the 34 fields in Dilla Zuria crossed during the transect observations produced sweetpotato vines as a sole crop (see picture 6). Although vines can be cultivated as a monocrop using rainfed agriculture in both Gedeo and Sidama, it is difficult to maintain them because they are sensitive to drought and long dry spells. This finding agrees with Gurumu et al. (2015), who attributed the low availability of vines in southern Ethiopia to drought and heat. In monocropped vine multiplication, farmers planted the vines during October and November while harvesting roots from the main season. They conserved the vines by mulching them with banana leaves and grasses, protecting them from the hot sun and conserving the soil moisture. Immediately after the onset of the rains, farmers took away the mulch so that the vines could sprout. Farmers could weed and apply manure to the sprouted vines. There were also some farmers who had access to swampy lands or lands near perennial rivers who were producing vines.

3.11.2 Role of gender in vine multiplication and conservation

It seems that sweetpotato seed multiplication and dissemination were male dominated. This study identified one woman vine multiplier, who had received seed from her husband, and two men, who received their first vines from their fathers. When we asked the male and the female FGD participants individually to describe the characteristics a vine multiplier should have, they frequently referred to the vine multiplier as a man, and he was expected to:
have access to a plot of land that was suitable for vine multiplication
be smart to be able to adopt new technologies and have entrepreneurial skills
have a household that was food secure
be poor but have land suitable for vine multiplication. The richer people could buy planting material and would use their land for other crops like coffee.

The male and female individual respondents and FGD participants said that the number of vine multipliers was small because of the lack of land and water. They also were of the opinion that most vine multipliers were male because vines needed a lot of management attention during production and marketing and women were not able to provide that.

*I know only one man who multiplies vines. But I don’t know women vine multipliers. I think it is difficult for women to become vine multipliers because vine production needs serious management, and also women cannot distribute and sell a large quantity of vines due to lack of experience. Therefore, men can be involved more in vine multiplication than women can* (Female individual respondent, Sidama).

Men regarded women as less patient with and less devoted to farming and less able to implement the technical aspects of vine multiplication than they themselves were. This view contrasts men’s view of women as patient when marketing small quantities of crops. Men in Sidama, for instance, said that women lacked the knowledge, skills, information and devotion needed to be a vine multiplier. In addition, women were not regarded as strong enough to do any agricultural work, including vine multiplication. In discussions, however, it emerged that women were often engaged in vine multiplication and conservation, especially of vines planted in enset plantations close to the homestead. There is no evidence to support the idea that women are not strong enough to be engaged in vine multiplication.

Women did not regard themselves as lacking the necessary characteristics required for sweetpotato vine multipliers. They said that if they were trained they would be able to multiply vines. All women agreed that it was easier for men than women to become vine multipliers because men had access to training, land and labor, which women did not.
If I get access to the necessary resources and labor I will be able to multiply. I think it is possible for men and women (Female individual respondent, Sidama).

In my opinion if the women get a chance for training and to get other resources like land, both men and women can participate equally (Female individual respondent, Gedeo).

The lack of information and the lack of training were regarded by women as some of the key constraints to their participation in vine multiplication.

### 3.11.3 Division of labor in vine multiplication and conservation

Although male FGD participants said that women could not be vine multipliers, their list of men and women’s activities in vine multiplication showed that women in male-headed households made a significant contribution in vine multiplication (Table 10). In particular, women had important and even dominant engagement in activities such as applying manure and compost to the vine fields, weeding, and selling vines.

**Table 10:** Gender division of labor for sweetpotato vine multiplication in Sidama and Gedeo, southern Ethiopia

<table>
<thead>
<tr>
<th>Activity</th>
<th>Level of involvement</th>
<th>Specific responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land preparation (clearing and plowing)</td>
<td>High     Moderate     Moderate</td>
<td>Women cooked for men and other workers and could also work in the fields afterwards, digging using hoes.</td>
</tr>
<tr>
<td>Application of manure and compost to the fields</td>
<td>Moderate High     High</td>
<td>Women and children were mainly involved in collecting, transporting and applying manure.</td>
</tr>
<tr>
<td>Planting</td>
<td>High     High     Moderate</td>
<td>Men made the ridges and holes and women planted the vines in place. Women also prepared food for workers.</td>
</tr>
<tr>
<td>Weeding</td>
<td>High     High     High</td>
<td>All were involved in weeding.</td>
</tr>
<tr>
<td>Harvesting</td>
<td>High     Moderate    Moderate</td>
<td></td>
</tr>
<tr>
<td>Selling the vines</td>
<td>High     High     Low</td>
<td>Women were mainly involved in selling the vines in local markets</td>
</tr>
</tbody>
</table>

In many instances, however, the work that women did in vine multiplication was regarded as only help for men.

*All the above activities are done by only me. She may help me sometimes, like in removing weeds that I have uprooted while digging. At harvesting time, she may cut up the collected vines to prepare them for planting (Male individual respondent, Sidama).*
Men give more time to seed production and other farm activities. I will also get involved in this activity if I finish my housework on time. So, I spend little time on this activity (Female individual respondent, Sidama).

Most of the seed production activities are performed by men. Men spend more time than women on that, but an activity like manure application or weeding is done by women (Female individual respondent, Sidama).

Such statements indicate that culturally all the work that women did was devalued by both men and women themselves, who frequently said that men had more physical strength and therefore did all the hard work such as land preparation, ridging, planting and cutting down the large plants, while their roles were supportive and were often associated with domestic chores like cooking and cleaning, and cultivation of easy crops like kale and pumpkin. There was agreement between men and women that men did most agricultural work.

3.11.4 Perceived trends in vine production and productivity

The majority of the respondents were of the view that vine productivity had declined over a number of years and for a variety of reasons:

- Drought (4 female, 4 male FGDs);
- Lack of new improved planting material for sweetpotato (1 female and 1 male FGD);
- Lack of training and education on sweetpotato similar to that for other crops like coffee, on how to improve productivity (1 male FGD);
- Farmers’ preference for high yielding crops, which had led to low demand for vines and therefore low vine production. In some cases, the sweetpotato vine price was regarded as high and not commensurate with the selling price of the roots (1 woman, 2 men)

Two male and two female individual interviewees stated that they had increased vine multiplication on their plots because of the increase in vine prices. The experience they had gained in vine multiplication, especially in improved planting techniques and use of manure and compost, had improved the quality of the vines they produced. Table 11 summarizes the perceived constraints related to vine multiplication. The most significant constraints were different for men and women. For women, this was access to land, which they said was controlled
by men. This has to do with the lower power women in male-headed households have in deciding what crops to grow in a given land parcel and who should manage the plots of land.

Table 11: Constraints to vine multiplication mentioned by the men and women in individual interviews

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Land shortage</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Labor shortage</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Shortage of quality vines</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Lack of time to work on vines/domestic demands</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cost of inputs</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lack of training for women (most training was offered to men)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lack of transportation</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lack of farm equipment</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

3.12 Sweetpotato vine marketing

3.12.1 Vine marketing and gender roles

Of the 16 farmers found during the transect walk to have sweetpotato vines, only 4 were selling them. The other 12 stated that they sold their vines only when they had a surplus. For the most part vine trade was male dominated. The vine producers’ clients mostly were men from their village or other kebeles. However, women also purchased vines, but this was not common. In Sidama women could sell vines only if men were not at home to deal with the clients. In that zone, also it was generally only men who purchased vines, because they were regarded as more knowledgeable about vine quality than women were and were able to determine the quantity of vines needed for the land prepared.

The majority of the respondents in Gedeo stated that women dominated vine sales, but also women in male-headed households were usually involved in vine selling but only for small quantities, which men were embarrassed to sell. Men were involved only when the volume of the vines was large, which they sold at the farm gate. So, the difference between men and women’s participation in vine sale depended on the volume of vines to be sold.

In terms of the volumes sold per year, women’s sales were worth 300 birr to 500 birr, while men’s sales were worth 800 birr to 7,000 birr. Men often sold vines in truck or donkey loads, while women’s volumes could be very small bundles or headloads, particularly if the client was a poor farmer.
The following reasons were given as to why men dominated vine sale in Sidama:

- Men were regarded as having better experience and being better at making decisions in marketing the vines;
- Women could not be permitted to sell vines because they could use the money from the sale on frivolous purchases;
- Men were the producers of the vines so they were better at deciding on pricing, making sure that they made a profit from their labor. Women were not able to make such decisions;
- Women did not have the technical skills needed to sell vines, especially relating to prices, so they could not be allowed to sell them, or rather men could not give this responsibility to them.

The price of the vines was determined by estimation. For example, they could be sold by headload, bundles or donkey loads. The normal price per headload was 25–30 birr, but in some cases farmers were willing to pay more for quality vines. For example, one farmer in Sidama said that because his vines were of high quality he could fetch 80–100 birr per headload.

### 3.12.2 Affordability of and willingness to pay for sweetpotato vines

For the most part, men as heads of households were responsible for purchasing sweetpotato planting material. However, some male FGDs stated that although vines were not affordable for most farmers, sweetpotato farmers who could not produce their own vines purchased them even at their high prices. FGD participants mentioned that women in male-headed households were not expected to buy planting materials, as men believed that women could not identify good quality vines. It was assumed that the women who bought planting materials were widowed or divorced, and that they might not have had the money to purchase quality planting materials. Such women were more likely to consider the price difference rather than the quality of the materials. Additionally, women might not have been able to purchase enough materials for their needs since they could not afford to pay the high costs of transportation, but men could carry the vines on their own.

Some men stated that they were willing to pay for quality planting materials, as the benefits were higher than the costs. These benefits included those related to food security and drought tolerance. A few male farmers mentioned that because of the reduction in coffee yields and the persistent drought that affected the yields of coffee and maize, they were willing to purchase
quality sweetpotato vines. This was said to be a recent trend, since men generally preferred cash crops like coffee.

- Women stated that they were willing to pay for quality sweetpotato planting material for the following reasons.
- Sweetpotato was good for food security (both Gedeo and Sidama women);
- Women could earn an income from selling sweetpotato, since cash crops like coffee were dominated by men and women had no say in them (Gedeo women);
- It required less effort to produce than the other crops (both Gedeo and Sidama women);
- Quality vines could be resistant to pests and diseases, which leads to high yields (both Gedeo and Sidama women).

Most people were willing to pay for vines, since that was the usual way to obtain them in the communities in the study.

3.13 Seed security in Gedeo and Sidama and strategies for ensuring seed security for sweetpotato

3.13.1 Sweetpotato vine security

Figure 22 shows the farmers’ perceptions on seed security for important crops in Sidama and Gedeo. Both men and women considered farmers’ seed security to be high for fruit trees such as avocado and banana, and crops such as maize and haricot bean. However, only a few FGDs regarded most households to be secure in sweetpotato, enset or coffee seed.
The farmers who said that they multiplied or conserved seed for personal use had access to adequate seed every season. The main threat for them was extended drought. Most participants stated that they did not have sweetpotato vine security, mostly because of the drought conditions that made it difficult for them to conserve their own vines or get what they needed from the market. In the past, farmers had bought vines to supplement or replenish their stock with those of better quality, but recently, as both men and women stated, they had to obtain most of their vines from the market. Additionally, farmers had to buy what was available in the market not the varieties or the quantities that they would have liked. In some cases, they just bought whatever was available in the market to get something to plant. This could have compromised root quality and reduced the yields. The lack of vines in the local markets and the high prices charged for the little planting material available for sale also were mentioned as causes of seed insecurity.

Although in general both male and female farmers mentioned seed insecurity as a concern, some FGDs suggested that the ability of male farmers to multiply their own seed and to travel to distant markets made them more seed secure in sweetpotato seed than female farmers were. Women heads of households did not have the opportunity to access distant markets, as they faced cultural restrictions on their mobility.

Figure 22: Perceptions of male and female farmers on seed security in Gedeo and Sidama
Strategies communities use to ensure access to vines

All the respondents stated that their community as a whole did not have any special strategy to ensure seed security, but individual households adopted one or more of the following measures:

- Conserving vines under coffee and enset shade in the coffee or enset agroforestry system. This was a relatively easy process, and the shade helped to conserve moisture. Vines planted under shade could survive the long dry season. Women could manage the vines easily since coffee and enset agroforestry were planted around the homestead.
- Leaving sweetpotato roots underground after harvest. These roots would sprout at the beginning of the rainy season and the sprouts could be used as planting material. The disadvantage is that the roots might not sprout if the dry season is too long.
- Purchasing vines from vine suppliers;
- Growing vines near water sources. This could be achieved by only a few people who had such resources.
- Using household wastewater to irrigate vines planted close to the homestead.

3.14 Seed quality: perceptions and strategies

There was not much difference in the types of quality indicators for sweetpotato vines between Gedeo and Sidama farmers. Figure 23 shows some of the indicators that male and female farmers considered as important in identifying healthy and quality sweetpotato planting materials.
Leaf and stem health were the most important considerations for men and women. Vines regarded to be of good quality were those with wide leaves, had no defects, were green, and appeared healthy. Leaves with poor color, holes or spots were not considered as good planting materials. Stems with holes were regarded as affected by pests and diseases, so they were not suitable for planting, as were thin stems. Smooth stems that were not discolored were usually considered to be of good quality. For both men and women, the source of knowledge on sweetpotato vine quality was their years of experience cultivating the crop. While in interviews one woman cited small leaf size as a sign of good quality vines, in the FGDs there was no agreement on that, with some participants regarding it as a sign of good vine quality and others as a sign of poor vine quality. The disagreement on leaf size as indicator of vine quality was probably associated with farmers’s lack of knowledge about the phenotypical characteristics of the vines. Some men and women’s FGDs in Sidama noted that since farmers usually conserved their planting material, they were careful not to use material with defects in either the stem or the leaves.

3.14.1 Farmers’ participation in selection of quality planting material

While all female FGDs and individual respondents in Gedeo stated that no difference existed in the knowledge on the quality of sweetpotato vines between men and women, two male FGDs in Gedeo considered men to be more knowledgeable on the topic. In Sidama it was consistently stated that women did not have any knowledge regarding the quality of planting materials, despite evidence to the contrary (see Figure 22).

Women know nothing about sweetpotato planting material. We know more because we spent more time in the urban areas and meet different people to get such information. Moreover, as we are the head of our households and have more responsibilities on our shoulders, we know which vine is good or bad but women do not (Male FGD participant, Sidama).

Men know more about the defects than women. We lack some confidence, to be sure, as we buy it rarely if men are at home. We may get the chance to buy when they go far away from the village for a week or more (Female FGD participant, Sidama).

Women were often portrayed as ignorant about vine quality, since they had no access to training or information from outside the village like men had. There was also fear that women could be cheated into purchasing defective vines. The men selling vines in Sidama were of the opinion that women could not be trusted with ensuring the quality of the planting materials and they had to be monitored even when selling vines in order to protect the reputation of the male vine
multiplier. It is possible that the lack of confidence made women say that they did not know much about vine quality, since their knowledge on what to look for in assessing vine quality was not different from that of men.

According to the FGDs in Sidama, when women took part in the activities to ensure the quality of the planting materials, they were regarded as helping men. But in Gedeo some male and female FGD participants indicated that both men and women were responsible for ensuring that their families had access to good quality vines. Some participants, however, noted that since the market was far from the village, it was mostly men who had access to and could purchase vines and therefore were responsible for ensuring that the vines were of good quality.

The majority of the respondents in Sidama and Gedeo stated that they did not have a serious problem with pests and diseases in their community, but weevils were said to attack sweetpotato roots when harvesting was delayed. Some of the individual respondents mentioned the following as the measures used to deal with pests and diseases:

- weeding of the vine multiplication or conservation plots frequently (2 women)
- maintaining soil moisture (1 woman)
- treating vines infected with pests and diseases with chemicals (1 man and 1 woman)
- roguing (1 woman and 1 man)
- applying ash to the soil to kill worms in vine plots (1 man and 1 woman)
- harvesting roots on time to avoid worm infestation (2 women and 2 men)
- setting traps for rodents (1 man)

These measures, as well as preventing vine damage from pests and diseases and selecting quality vines, were carried out by both gender groups.

3.15 Men and women’s participation in and perceptions of the extension system

3.14.1 Men and women’s access to extension services

Both men and women regarded development agents as the most important source of agriculture information, followed by neighbors and other farmers (Table 12). Men perceived farmer-to-farmer transfer of information much more positively than did women. Farmers usually received information from farmers of the same sex. Traders also were an important source of agricultural
information as were markets, to which farmers went to collect information. FTCs were rarely mentioned as a source of information. There were no differences in the sources of agricultural information between Sidama and Gedeo.

**Table 12: Sources of information for men and women respondents in Gedeo and Sidama**

<table>
<thead>
<tr>
<th>Type of agricultural information</th>
<th>Female respondents ($N = 8$)</th>
<th>Male respondents ($N = 8$)</th>
<th>Total ($N = 16$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development agents</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Other farmers, neighbors, friends, family</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Market and traders</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Model farmers</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other kebeles</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>FTCs</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1 to 5 government networks whereby one model farmer is expected to coach and mentor five other farmers under him</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

When respondents were asked directly whether information sources were the same or different for men and women, the main difference in their responses was related to FTCs. Women maintained that it was mostly men who were invited for training there. Women could get information from the village market, but men obtained information from the district market as well. This shows that men operated wider information networks. Women saw the development agents who operated the FTCs as biased towards men, saying that only widowed women or women with absentee husbands were invited for training. The development agents seemed to assume that women would get information from their husbands, an assumption that promoted gender inequality.

**3.14.2 Role of FTCs in spreading knowledge and information on sweetpotato**

The men and women who had attended the FTC training stated that it covered crops like maize and coffee but not sweetpotato. The low level of extension support given to sweetpotato production has been observed elsewhere in Africa (Okonya and Kroschel, 2014). The extension staff confirmed that the Office of Agriculture and Natural Resources had not yet been considered sweetpotato as one of the priority crops requiring training, coaching and mentoring of farmers to improve its production techniques.
In one male FGD, farmers said that although they had received training on sweetpotato, women had not participated because they had a lot of work at home. The male farmers noted that they shared the information from training with their wives. A majority of the women had never attended FTC events, mainly because they had not been invited. It was stated that men and model farmers, who also were usually men, were asked to attend.

No, I have never attended training at the FTCs. My husband participates more in such trainings (Female individual respondent, Sidama).
No, as a woman I have never been invited to attend a training at FTCs (Female individual respondent, Gedeo).
I managed to attend a training at FTC when my husband was not present because they invited me to replace him. I am a model woman farmer in the village. (Female individual respondent, Sidama).

Although widows and other single women could attend trainings, it was noted that they often found it difficult and were too shy to participate it was male dominated.

**Vine multiplication training**

Since some FGDs raised the issue of women lacking time to attend training, the study sought to know who among the men and women would have time to attend training on vine multiplication. The men and women stated that men as household heads had more time to attend training.

My husband may have more ability and time to attend a training. He has more experience in many farming activities and he spends much more time in agriculture related activities (Female individual respondent, Sidama).
It is me who will participate in such a training. This is so because the cultivation of sweetpotato like any other crop is my responsibility. I must take the training (Male individual respondent, Sidama).
It is me who should attend the training, because I am the household head (Male individual respondent, Gedeo).

There is a need for extra interventions to ensure that women will receive training on vine multiplication.
Nutrition training

Four of the eight female individual respondents from Sidama and Gedeo had attended a nutrition training offered by health extension workers. The issues discussed included food diversification, child feeding, and hygiene, including hand washing, covering of food and food preparation. The women stated that they found this training useful, as it helped them provide proper care to their families. None of the men had attended the nutrition training, but some men reported that their wives had. It is important that men also be involved in nutrition training to promote the adoption of nutrition-sensitive agriculture. The introduction of a nutrient-rich crop such as OFSP can be successful if men, who are the heads of households, are convinced of its importance.

3.14.3 Radio as a source of agriculture information

None of the participants, irrespective of their gender, mentioned radio as an important source of information. To gauge the importance of this channel the participants were asked whether they had access to FM radio. The women stated that it was men who usually had access and listened to FM radio. This was mainly because men had mobile phones, which is what people used to listen to the radio.

Another factor that made radio less relevant to women was the use Amharic language for most radio programs. Men usually spoke and understood this language well, but not women. A large proportion of women understood only the local language. Although there were some FM stations that broadcast in local languages such as Sidama and Gedei, they had very short air time. It appeared also that in general women did not know how to use a cell phone, which meant that in many cases only men and children could listen to the radio.

3.15 Gender and decision-making in farming and adoption of sweetpotato varieties

The different levels of power that women and men have in various domains of decision-making contributes to creation of gendered differences in the distribution of benefits and costs of projects and interventions. We looked at men and women’s roles in the key decision-making domains of production and marketing, access to productive resources, control over income, access to leadership positions in the community, and control over time allocation within
households to see how they could potentially affect men and women’s ability to benefit from the sweetpotato interventions planned under the QDBH project in Ethiopia.

To measure the decision-making power of men and women in the communities, we used the comparison of the five dimensions of men’s and women’s empowerment tool (or the comparison tool), which is adapted from the WEAI tool (Agri Pro Focus, 2013). The original tool was developed by Feed the Future to track the change in women’s empowerment levels that occurs as a direct or indirect result of development interventions. It is an aggregate index that measures five domains of empowerment for both men and women in the community (using communal perceptions) and at the household level (individual perceptions). It compares men and women and, therefore, it provides an indication of the degree of gender parity in the household. In Ethiopia, however, we measured just the empowerment of men and women in the different domains using community perceptions.

We adapted and modified the set of indicators and attributes developed for each domain by Agri Pro Focus. The participants were then asked to score each attribute on a scale of 0 to 5, where zero would mean the community members who were the same sex as the FGD participants had no power to make decisions or to be engaged in a particular attribute, while the reverse was case for a score of 5. The FGD participants were given the opportunity for discussion in their groups so that they could come up with an agreed upon score for each attribute in each domain.

3.15.1 Perceived ownership of productive assets

In general men and women had a similar perception about who owned which production asset. Farm equipment and means of transportation were regarded as controlled by men (see Figure 24).
A factor in the difference in the control of assets was the difference in knowledge. Men claimed that women had little knowledge about the quality of farm equipment. Control over money was another factor in that regard. Women said that they often did not have the money to purchase equipment and therefore could not possess farm equipment or control its acquisition or use. In Sidama, however, poultry was regarded as inferior to other livestock and therefore women had more authority and decision-making power over it.

Another difference was in the control over land. Women in Gedeo said that they neither owned nor controlled land. But some women mentioned that land ownership rights were equal for men and women, because the government had put in place equality laws. They said that land certificates had pictures of both the husband and the wife as proof of their legal entitlement and that men could not make decisions about land without the consent of their wives. Legally land was mostly owned jointly by the spouses, even though in practice, men controlled decision-making over it.

Joint ownership was depicted more on how the land was used, especially since women’s crops could be intercropped with those of men. For example, women could plant haricot bean,
cabbage and taro in maize fields controlled by men, or enset in men’s coffee fields, since enset provided shade for the coffee. Nevertheless, men appeared to have more say regarding land use. Women stated that land was owned jointly in legal structures but men often staked claim to land on which cash crops were produced.

*No such divisions [between husband and wife] but sometimes men say that the coffee land is theirs (…) otherwise women take the yield in small amounts to the market when they need money to buy salt and kerosene. Men want to sell the harvest at once to get high income from the sale to use for big expenditures like housing and large house assets (Female FGD participant, Sidama).*

The gendered control over land worked in other ways as well. For example, women would claim the land closer to home. This land was usually soft and easy to dig. The kinds of crops men and women grew also influenced control over land. Women grew a small number of crops like enset, cabbage and pumpkin, which occupied relatively small areas, while men had more crops, including cash crops, that demanded large areas. Some focus groups considered this as the reason men owned and controlled more land than women did.

The claim over land was in reality a claim over the family’s resources. In Sidama, for example, the study participants noted that for the crops cultivated on woman’s plots men could decide how the harvest would be used. In other cases men would allot some coffee trees to their spouses to harvest as they pleased to earn an income. This means that though formally land may have been commonly owned, in reality men held a larger sway over the resources on it.

**3.15.2 Input in decisions about crop production**

There were clear differences between men and women regarding input in production-related decisions (Figure 25).
Two important decisions in agricultural production relate to the crop and the variety to grow. Women stated that they did not have much power to influence decision-making in the selection of the sweetpotato varieties to farm, because they lacked the knowledge about the crop.

*For the selection of sweetpotato varieties to plant, our role is very small because we don’t know the quality of the vines (Women’s FGD, Gedeo).*

*Women do not refuse what men decide, as they know nothing about the process and what is needed (Men’s FGD, Gedeo).*

Men noted that at that time there was no decision to be made regarding the sweetpotato varieties to cultivate since only one variety was available. However, they said that if more varieties
came into the market they would be better able than women to make decisions about them, since they were usually the first to get information on new varieties.

Men dominated the adoption of new varieties because of the cultural and institutional power they possessed. For example, both men's groups stated that men were superior in the household and therefore whatever they decided women would not resist even if they did not agree with it.

*Men decide about the adoption of new technologies, because here in our culture it is believed that men know more about all agricultural activities, including the adoption of new technologies. If a man wants to bring any new technology, women cannot resist because they believe that men know everything as they have access to information (Female FGD participant, Sidama).*

Men's perceived superiority in the agriculture arena stemmed from their ability to access knowledge and information regarding new crops, technologies and varieties either through agricultural training or from the distant markets where they sold their agricultural produce. This notion was the same for all crops. However, when we look at the division of labor for sweetpotato, we see that women were engaged in all steps of the commodity chain. Therefore, the lack of access to information by women, the cultural regard of men as household heads and the devaluing of women's contribution may explain why men alone were considered qualified to make decisions regarding the varieties to cultivate.

Women's supposed lack of knowledge was mentioned during many FGDs as a reason for their inability to make decisions on crop varieties or on the application of fertilizer and chemicals. For example, while men stated that women did not know much about varieties or the importance of new technologies, women's groups said that the reason for the lack of knowledge by women was the failure to include them in the training by outside institutions, which targeted only men. However, women FGD participants in Chichu kebele of Gedeo said that they too could make decisions on crop varieties, and their husbands listened to them and adopted any if it was good.

With regard to the acreage to allocate to sweetpotato, it was generally noted that men usually made that decision. Male FGD participants in both Sidama and Gedeo attributed that to women's lack of knowledge about farming. But female FGD participants attributed it to men's role as heads
of households and the fact that it was usually they who would have inherited the land from their parents, so they would be more entitled than women to make these decisions.

Men made most decisions regarding labor distribution within the household and the hiring of laborers. It was stated that men had power to allocate and distribute family labor because they were household heads and could decide on which member of the household would help them during the production process, and none could refute that decision. The reasons used to explain why it was men who were responsible for hiring labor were that women could not pay for hired labor, they did not know how much hired labor was needed to complete certain tasks, they did not know how much the labor would cost and they could not negotiate over labor rates.

3.15.3 Marketing decisions

Women in Gedeo consistently perceived their involvement in marketing to be very high, but Gedeo men and Sidama women consistently considered women’s participation in sweetpotato marketing as low (Figure 26).

![Figure 26: Perception of men and women in Gedeo and Sidama of their ability to make marketing decisions](image-url)
Women in Gedeo were of the view that women made the most decisions regarding sweetpotato since its price was low and men were embarrassed to sell it. These women also perceived their participation in local markets in a much more positive light than the other participants. Some women stated that they used the money from sweetpotato sales to pay bills, buy food and pay membership fees for local groups such as religious and burial organizations. In Sidama, however, both men and women said that marketing decisions were usually made by men.

3.15.4 Access to extension services

The undervaluing of women’s work in agriculture and the perception that they were not engaged in it or were engaged as helpers often were used to justify the failure to offer them training. In both Sidama and Gedeo women perceived their access to extension services to be lower than that of men (Figure 27).

It was noted also that because women were illiterate their participation in trainings offered at their farmer training centers was very low.

Figure 27: Perceptions by men and women in Gedeo and Sidama regarding their access to extension services
Change is happening

Although in both Gedeo and Sidama women had less power than men to make decisions in certain cases, it was noted that this was changing. For example, the growth of Dilla town in Gedeo was bringing change to the nearby Chichu village community. Chichu women could easily interact with their counterparts from Dilla and visit Dilla and learn new things, especially related to women’s rights. In addition, government training had led to the improvement of women’s rights in general as well as in their access to land, especially through land registration that recognized women as owners or co-owners.

Ten years ago, it was not the same. Even three years ago women could not decide anything. It is mostly because of the government training that they are beginning to have a voice (Men FGD participant, Gedeo).

This time, we are getting more awareness. In our home, we discuss most of the issues, despite the fact that men dominate us (Female FGD participant, Sidama).

Even though women continue to have less decision-making power on most issues, they perceived their situation to been a big improvement in comparison with the past.

4. Discussion and conclusions

4.1 Farming systems and the position of sweetpotato

The coffee and enset-based agroforestry farming system, and the maize and khat-based farming systems were dominant in Gedeo and Sidama areas. Coffee, enset, maize, sweetpotato and haricot bean, in that order, were the five most important crops for Gedeo, while for Sidama these were coffee, enset, maize, khat and sweetpotato. However, there were differences between men and women in prioritizing crops. The most important crops for women included enset, vegetables, fruits, sweetpotato and haricot bean. Coffee, enset, khat and maize were more important for men. These differences were related to the gender division of labor and the cultural expectations of what was appropriate for men and for women.
4.2 Gender norms and division of labor

This study demonstrates that gender relations and gender division of labor have an effect on the production, marketing and consumption of sweetpotato roots and the production and marketing of sweetpotato vines. Whitehead (n.d.) suggests that to understand “the pattern of labor input to particular crops and its link to gender relations requires setting each particular crop within the context of the economic activities of the farm household as a whole”. This study has done something similar by looking at sweetpotato in the context of other crops produced by households in Sidama and Gedeo zones of southern Ethiopia. There was more rigid division of labor between men and women in Sidama than in Gedeo. In Sidama, for example, it was regarded as shameful for women to be seen digging land in preparation for planting of crops such as sweetpotato and maize. Although we do not have data to prove this, the Gedeo was close to a small urban center and market of Dilla which may have led to some relaxation of gender norms.

What emerged with regard to sweetpotato was that what people said in discussions on the gender division of labor was different from what they presented in a list of the activities they were involved in. For example, in their lists of activities both men and women showed that women are involved in most of the sweetpotato activities including land preparation, although for some activities they were often regarded as helping men. The discussions had depicted women’s role in sweetpotato as limited. Regarding women as helpers of men reflects the gender relations of power within the community, because it was used to define legitimate entitlements for the men and the women. For example, women could not market large quantities of the crops since men were regarded as the farmers and women as their helpers. In some cases, women could not decide on the prices for the crops or how to use the revenue from crop sales, which were left to men to decide as the farmers. According to Francis (2000:77), in some cases, “women may devalue their own entitlements and consider inequitable distribution to be legitimate”. In the case of Sidama and Gedeo, this was related to how men and women’s contributions were valued in general. Undervaluing of women’s contribution reduced women’s ability to fully benefit from their labour contribution to agriculture.

4.3 Role of sweetpotato to food security

Agriculture is constrained by periodic droughts, land degradation and deforestation (Mogues et al., 2009). These disproportionately affect women-headed households because of their limited
access to resources (African Development Bank, 2004). Sweetpotato has a role to play not only as a crop to mitigate climate change-related effects but also to provide food security and incomes for families. Sweetpotato is drought tolerant (Low et al., 2017) and so it could do well under adverse conditions such as those in southern Ethiopia. This study has confirmed the role of sweetpotato as a food security crop in Ethiopia, particularly in Sidama and Gedeo. Sweetpotato is important for food security because it is early maturing, is harvested during the hunger season, is drought tolerant, has high productivity per unit of land and is regarded as not expensive to produce. However, for sweetpotato to increase in importance it needs to fit in the culinary culture of the people of the SNNP region and urban consumers. For instance, it was said that sweetpotato was boring to eat because it could be prepared only by boiling. In some instances, crops that were regarded as important also fitted in the food system dominated by injera and kocho. If sweetpotato could be integrated into these local dishes and the local cultural cuisine, its consumption may increase.

Responses to food insecurity differed for men and women. Both men and women relied on government support for food support, but women also depended on food aid while men received support in the form of interventions that would transform their farming systems to become more resilient, such as quality seed, training and irrigation and other new technologies. This difference mirrors the restrictions in the opportunity for women to engage with government bodies at the same level as men. Women interact more with health workers and men more with agricultural extension workers. This gender bias has implications for the QDBH project. It needs strategic thinking as to how women can engage with it to benefit from it. For example, there is a need for deliberate efforts to ensure that women participate in project activities and training.

4.4 Challenges and constraints to sweetpotato production

The critical shortage of vines and the lack of quality planting material were mentioned as key constraints to sweetpotato production. These were related to long dry spells and the lack of irrigation services during the dry season when vines should be multiplied for main season planting. Farmers had one or two varieties of the white-fleshed sweetpotato they had inherited from their parents, but its low yields acted as a disincentive for investment into sweetpotato farming. High yield was a key consideration for farmers in choosing which food crops to plant to achieve food security. Female and male farmers mentioned that OFSP vines were not available.
The shortage of land was another important constraint to sweetpotato production. This was related to the high population growth and the associated land fragmentation with inheritance. People preferred to cultivate high yielding crops that also fetched a high price in the market. In Sidama zone farmers had started to intercrop sweetpotato with khat, because these crops use the same fertilizer and the spacing between the khat shrubs is large enough to allow sweetpotato roots to grow and bulk. Farmers did not plant sweetpotato as an intercrop with haricot bean. Although opportunities for sharecropping and land renting existed, some farmers believed that sweetpotato depleted soil fertility and were not motivated to rent out their land for its production. Some sweetpotato producers in Gedeo had sharecropping arrangements with farmers in Oromia, where the land was suitable for sweetpotato production. There is a need for research on the possibility of planting sweetpotato as an intercrop, and to provide farmers useful advice and training on this. Opportunities for intercropping would also ensure access to land, particularly for female farmers to cultivate sweetpotato at least for family consumption and nutrition purposes.

Although the 1997 Federal Rural Land Administration Proclamation recognizes that women have equal land use rights and allows spouses to have joint land certificates, Tegegne (2002) notes that in Ethiopia women do not have access to land at the same level as men. This was confirmed by our study, particularly in Gedeo, where women stated that, although land certificates were in both spouses’ names, men had the overall say on how family land was to be used and allocated. This means that there is a need for equal involvement of both men and women in the sweetpotato project to ensure that men avail land for its production and that both men and women are able to benefit from the project.

4.5 Sweetpotato root marketing

Both men and women regarded sweetpotato as an important food security crop. However, it was often mentioned by both men and women that women were more worried about food security and men more about income, in line with their expected gender roles. The perceived lack of interest by women in cash crops was not associated with failure to regard markets as important but with their lack of access to markets except at a small scale. For example, women showed a preference for sweetpotato, kale and haricot bean because they could market them in low volumes at local markets to have an independent income.
The assumption that men focus on income and women on food crops because high income expenditure is men’s right fails to question the gender relations of power and how they affect what men and women are able to do and claim. This assumption masks the systemic discrimination that women face in access to markets. For example, men claimed that women were not able to negotiate for good prices for the crops, to budget for money or to think strategically on the family’s needs, a claim that was contrary to the perception of women assemblers and retailers, who consistently said that they preferred to buy sweetpotato from men than women as women were hard bargainers. Women to some extent accepted men’s undervaluing of their capacities, saying that it was men’s role to budget for the family and make large purchases, even though this was a portrayal of the systemic discrimination against the involvement of women in household and community level decisions.

Women dominated the lower nodes of the sweetpotato value chain such as assembling and retailing of the roots in small quantities in the village, while men collected and sold sweetpotato in higher paying district and central markets. In both Sidama and Gedeo, sweetpotato retailing was dominated by women. Women mentioned that men were ashamed to retail sweetpotato. The result of these divisions was a bias against women earning high incomes. This bias explains why women were not supposed to be involved in marketing high volumes of crops. For example, women farmers could market crops such as sweetpotato, kale and haricot beans in small but not large quantities, which was the purview of men. This has potential gender implications in upgrading the sweetpotato value chain, especially if it is not acceptable for women to participate in high value markets. For example, Addison and Schnurr (2016:963) note that for some situations, focusing on women empowerment and disempowerment is reductive, and instead it is better to focus on the “bargaining and negotiating through which women seek to construct more cooperative gender relations and realize their own goals”. In Sidama and Gedeo, an approach that focuses on cooperative household decision-making and bargaining would be more likely to achieve results than an approach that solely focuses on empowerment. This is so because it seems that women have accepted the condition of their disempowerment, although they feel keenly that they should be involved in making certain decisions and in determining how household income is used.
4.6 Consumption and perception of the nutritional value of sweetpotato

Nutrition is an important consideration in the production and consumption of food crops. For example, the men and the women cited some maternal and child health benefits of consuming enset products such as bulla. Also, for the top three foods that they would purchase if they had extra money, men and women selected foods that they considered to have a high nutritional value. Sweetpotato was perceived to lack nutrients and was considered as a food poor families ate to just fill their stomachs, deal with hunger and obtain energy. Although close to 50% of the urban consumers interviewed had heard about OFSP, they had never tasted it, since it was not on the market. The concern for nutrition of many urban households when selecting foods points to the need for behavior change communication on sweetpotato that highlights its nutritional composition in order to promote its consumption by households.

Men frequently mentioned that if there were local industries to purchase and process sweetpotato its price would increase and consequently its production would grow. The study found that women dominated local processing, for example of enset into kocho. Kocho is a popular food and a high-income earner for women, which is the reason enset was an important crop for them. If sweetpotato could be locally processed for use in local dishes it would be a potential source of income for women. Introducing and demonstrating different types of sweetpotato processing and preparation methods may help to increase its consumption and potentially upgrade its value chain. However, the development of a large-scale industry may promote male dominance in the value chain. This is because industrial operations are likely to be male owned, and also because the industry would buy large volumes of sweetpotato, meaning that they would mainly deal with male farmers, who typically control large volume trade.

4.7 Extension and training

Sweetpotato was not a priority crop and agricultural extension did not yet provide any training specific to it. The project will need to change this and ensure that development agents can teach farmers to recognize the quality of the varieties and planting stock; to apply appropriate techniques in land preparation, i.e. ridging, spacing, hilling and plant protection; and to use improved methods for harvesting and postharvest handling of sweetpotato roots. These topics are covered in the sweetpotato training program that the development agents in the project woredas took. That program has also a specific module on gender.
Currently agricultural extension and training at the farmers’ training centers is biased toward men, who, as farmers and heads of households, were considered to need the training while women were often not invited for it. Not inviting women for training reinforces the stereotypes that women do not know anything about farming and that because they need to be taught and supervised by men, they are not farmers but merely men’s helpers and cannot be trusted to make correct farming decisions. The close link between gender norms and gender relations with access to training, knowledge and decision-making means that to get women to benefit from their contributions in agriculture requires that they attend training. Moreover, it is essential to work with the community and extension organizations to ensure that the community norms and attitudes support women’s training and their practice and implementation of what they learn, and allow them to benefit from their work. Investing in providing new skills to women will be a waste of resources if women cannot use them.

5. Suggested strategies and actions

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<tr>
<td>Introducing new improved OFSP varieties</td>
<td>Both male and female farmers mentioned that they had one or two sweetpotato varieties, which were degenerated and were not high yielding. This had reduced sweetpotato productivity and production, as farmers moved to better yielding crops. It was noted that men often made decisions about adoption of new crop varieties because they were targeted with training and were better informed.</td>
<td>Promotion and dissemination of new improved OFSP varieties for farmer adoption: Should be introduced through mediums that are accessible to female farmers such as local language radio or through active recruitment of women and men to participate in training at the FTCs. Involve women in research for development to ensure that the promoted varieties meet their needs. Adopt household approaches whereby both men and women and young and older members of the family can be coached and mentored on sweetpotato production by trained extension staff, PIN staff or CIP staff to ensure proper adoption of improved sweetpotato production techniques at each stage of the crop’s development.</td>
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<td>Training on good agronomic practices, including dealing with sweetpotato pests and diseases</td>
<td>Women were not confident about their knowledge on sweetpotato because they lacked access to training and information, although they were engaged in all stages of sweetpotato production. Women were also under-represented in farmer groups that were often targeted for recruitment for training at FTCs.</td>
<td>Gender sensitive farmer selection and recruitment protocols should be developed and shared with extension officers and lead farmers and other local partners involved in farmer selection and recruitment for training. The project will identify strong women leaders in local communities to help with mobilizing women in the community. Alternative ways to recruit women to participate in training will be developed. Women outside...</td>
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### Strategy

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<td>Seed production training (promoting both men and women vine multipliers)</td>
<td>Women were often not invited to attend training on vine multiplication and were therefore not engaged in vine multiplication in ways that are empowering. For example, because women were not regarded as actively involved in or knowledgeable about vine multiplication, they could not participate in high value vine markets like men did. It was also mentioned that domestic tasks might prevent women from attending training even when they are invited.</td>
<td>Target female and male farmers with training to become seed multipliers. The project will develop targets for female and male vine multipliers. Apply a couple (both husband and wife) approach to extension service delivery during demonstration and training events at the FTCs. The times and dates of the training and demonstration events should be selected to ensure that they are convenient for both men and women. Target women-headed households to be dedicated vine multipliers. Confer with women to agree on the best time to hold training so that it does not interfere with important domestic tasks.</td>
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<td>Introduction of irrigation technologies to promote vine multiplication</td>
<td>The lack of access to water sources by both men and women was a limitation in multiplying seed.</td>
<td>Both men and women to be trained on the use of irrigation. Men and women to be involved in evaluation of irrigation technologies to ensure their needs are met and addressed.</td>
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<td>Integration of OFSP production into FTCs’ annual work plans</td>
<td>Both men and women farmers mentioned that they had attended FTC training for crops like maize and coffee, but none had been held for sweetpotato. Extension officers also stated that sweetpotato was not among the crops targeted by the government for support and training.</td>
<td>The project needs to conduct advocacy work to ensure that the office of agriculture includes OFSP in its annual plan.</td>
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### Result 2: Increased awareness of male and female smallholder farmers on OFSP’s benefits, recipes for their use and child nutrition practices through participating in healthy life clubs

<p>| Dissemination of knowledge and information on sweetpotato nutritional qualities | Some men and women were of the opinion that sweetpotato was not nutritious, so they did not rank it in the top five foods. In rural areas men did not attend the training on nutrition so they were not well informed on the topic, although it was they who made most decisions on land allocation. | During training on marketing at FTCs integrate nutrition modules so that men also are targeted with nutrition information. Disseminate nutrition knowledge at community meetings that men attend. Use male peer groups to disseminate OFSP nutrition knowledge. |
| Establishment of healthy living clubs in rural communities to promote learning and knowledge | This study revealed that the agricultural extension services mainly targeted men in male-headed households and women in female-headed households. But men did not | Promote the participation of men in health and nutrition training by actively recruiting them to participate. Promote the formulation of men-targeted |</p>
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<td>Sharing on the benefits of OFSP. It is expected that HLC members will eventually be involved in OFSP production, postharvest handling, processing and consumption for quality diets and improved health</td>
<td>Women and men attended nutrition and health training, regarding this as women’s tasks, yet men made decisions regarding allocation of farmland to crops.</td>
<td>Health living clubs. Where possible, the household extension approach (involving husband, wife and adult children) can be engaged in the extension training, coaching and mentoring on OFSP production and postharvest handling.</td>
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<td>Train health extension personnel on nutrition and behavior change techniques</td>
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<td>Train health extension staff to provide gender-mainstreamed health extension services. Gender role awareness and gender mainstreaming should be included as part of the nutrition and behavior change training.</td>
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<td>Design and implement an OFSP promotion campaign in the targeted urban areas using radio (local and national languages), market stalls, promotion events and posters</td>
<td>The study revealed that women did not own mobile phones or radios.</td>
<td>Project implementers to work with local men and women to develop guide books and recipes that integrate OFSP into the culinary culture. Promotional events and strategies (pamphlets and posters) should be accessible to women.</td>
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<td>Promotion of the integration of sweetpotato into the culinary culture</td>
<td>Some men and women were of the opinion that sweetpotato was not nutritious so they did not rank it in the top five foods. Top-ranked foods were those that could be integrated into the local culinary cultures that were dominated by kocho, injera and flatbread.</td>
<td>Project implementers to work with local men and women to develop guide books and recipes that integrate OFSP into the culinary culture. Men and women should be involved in tasting and evaluating OFSP recipes.</td>
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**Result 3: Improved supply of and demand for OFSP products in the urban areas**

<p>| Dissemination of market information through mobile phones or local language radio | Women and men had access to different kinds of information networks. Men could get information on FM radio broadcast or mobile phones. Women either did not have phones or did not understand Amharic, the language used on FM radio. Men were highly mobile and could get information from far-off places while women’s movement was restricted to close to the village. A qualitative study showed that men more than women had access to cell phones. Disseminating information through mobile phones alone may disadvantage women. Sweetpotato producers mentioned that if markets were available they could produce more of the crop. | Information on markets should be disseminated through women-friendly channels such as local language radio. |
| Introduction of improved sweetpotato storage technologies in urban markets and in rural areas | Local retailers (women dominate retail trade) mentioned that the lack of sweetpotato storage led to high sweetpotato losses in urban markets like Hawassa, reducing the volume of sweetpotato available for human consumption. | Co-develop sweetpotato storage technologies with local retailers. Men and women to be involved in evaluating storage technologies to ensure their needs are met and addressed. |
| Engaging women in sweetpotato agribusiness | Sweetpotato retailing was dominated by women, although men dominated high volume assembling. Wholesaling of sweetpotato roots was entirely done by women. Buyers of | Train women actors in improved business skills so that they can engage at higher nodes of the value chain as well as supply quality roots to the market. |</p>
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| Sweetpotato availability was seasonal owing to the lack of improved storage techniques, postharvest losses were high and the short shelf life of sweetpotato created substantial losses.  
Introduction and demonstration of improved sweetpotato storage and handling techniques and technologies (improved transportation and storage) |                                                                                                                                                                                                                                                                             | Include both men and women sweetpotato actors in the demonstration of improved storage and postharvest handling techniques and technologies.                                                                                                                                 |
| Training on gender offered to project staff | Extension staff did not engage women or recruit women for training. Women did not attend training because they were not invited.                                                                                                                                                                                                                                                  | Train partners and CIP staff on gender-sensitive project design and implementation. Gender module should be part of the OFSP training manual.                                                                                                                                 |
| Including women in project planning and activities | Most vine multipliers were men. If the project does not make an effort to include women in training and vine multiplication men heads of households will continue to dominate.                                                                                                                                                                                                  | Directly invite both men and women to participate in project activities (use the couple training approach).  
Project partners to ensure that women are recruited and participate in all project processes, and to report on targets.  
Discuss timing of training events with women and men to ensure that it is appropriate and that they can participate.                                                                                                                                 |
| A gender-responsive behavior change communication strategy |                                                                                                                                                                                                                                                                             | Project implementers to integrate gender into the project’s behavior change and communication strategy.                                                                                                                                                                       |
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