



Gender responsive scaling assessment for disseminating improved potato technologies

Seeds for change: Enhancing innovation systems for scaling climate-smart technologies for smallholders in Ethiopia

AUG
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Compiled by:

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Executive summary

In Ethiopia, the potato is an important crop. It is primarily grown in the central, eastern, northwestern, and southern eco-geographic regions. The crop makes a significant contribution to the country's food, nutrition, and income security. However, several challenges, including production and access to high-quality seed, pests and diseases, and awareness of good seed and crop management practices, limit its productivity potential. This is exacerbated further by gender disparities and inequities in access to and control over potato production resources. The 36-month Seeds of Change Project sought to significantly address some of these challenges by addressing gender disparities in a more responsive and participatory manner. Project implementers, district agricultural extension experts, district community development officers, and gender and nutrition experts attended the workshops. At a lower level, the workshops included all development agents in the project's implementing kebeles (wards).

A gender presentation was made during the project launch conference in December 2019 highlighting the potential gender gaps in the potato seed value chain and strategies to address them. This was followed by increased awareness creation during the project's launch in January and February 2020. More gender-specific workshops were held in April 2022 to assess the extent of gender inclusion in project activities and to provide project implementing partners with practical skills in designing gender-responsive interventions that would encourage technology adoption and equitable accrual of project benefits across the gender divide. The national project implementing partners organized these workshops at four locations: Holetta Agricultural Research Centre (ARC) conference hall, Welkite Town, Adet ARC conference hall, and Debre Tabor Town. These meeting locations were chosen because they were convenient, central, and easy to reach for project implementing partners. Following each workshop, sex-disaggregated focus group discussions (FGDs) were held with project participants from the districts of Wolmera, Gumer, Farta, and Quarit. The goal of the focus groups was to assess the level of gender awareness, integration, and practice in the communities where the project was being implemented.

The workshop activities and focus group discussions were designed around three themes:

- obtaining a general overview of gender dynamics related to scaling potato seed innovations,
- developing an action plan for engendering current and future community development initiatives, and
- obtaining background information for developing gender responsive technology scaling strategies.

The four areas of gender inequality served as the foundation for the workshops' analysis, as well as the research questions that guided the focus group discussions.

The workshops and focus group discussions revealed that women seed potato producers faced more barriers than men in gaining access to on-farm resources, external inputs, and sharing benefits from the seed potato enterprise, limiting their ability to fully engage in good agricultural practices in the potato agro-enterprise. Women in Quarit and Farta experienced higher levels of drudgery and time poverty, which was exacerbated by limited control over farm benefits derived from the sale of seed potatoes when compared to Wolmera and Gumer.

Participants recommended strategies and activities for mainstreaming gender in project activities that would promote equitable benefit based on the information obtained and from the interactive workshop and FGD

sessions. These strategies included (i) sensitization and awareness sessions for men and women farmers on the importance of equitable access to resources, (ii) intentional increased engagement of women in training events and project interventions, (iii) encouraging women farmers to join farmer co-operatives, and (iv) greater engagement of men in gender equality issues than previous initiatives that were primarily focused on women. Men, as decision makers in most aspects of life, including the family, are critical to achieving the desired change if they are fully engaged and involved.

All of the suggested strategies from these workshops were not fully implemented during the Seeds of Change Project's implementation. They will, however, be useful to the district agricultural extension, nutrition, and gender officers, as well as kebele (ward) development agents, in their daily work and future community development interventions.

1. Introduction

Potato is an important crop in Ethiopia grown in four major regions: the central, eastern, northwestern, and southern regions, primarily in Amhara, Oromia, and SNNP (Southern Nations and Nationalities Peoples), which account for roughly 83 percent of potato-growing farmers (CSA, 2011). The crop is critical to food security and household income. In terms of production area, tonnage, and consumption, it ranks first among root and tuber crops (potato, cassava, sweet potato, and yam) (Tiruneh et al., 2017). It is the country's sixth most important food crop, trailing only teff, maize, wheat, barley, and sorghum. Every year, more than one million Ethiopian households grow the crop, and in 2020, 85,988 hectares produced approximately 1,141,872 tonnes (FAOStat, 2020). Potatoes are primarily grown by smallholder farmers in Ethiopia, where average land endowment ranges between 0.3 and 0.6 ha depending on administrative region. Ethiopia's national potato yield in 2020 was expected to be 13.3 t ha⁻¹, which is lower than the African (14.5 t ha⁻¹) and global (21.3 t ha⁻¹) averages. However, it is higher than the productivity in the majority of Sub-Saharan African countries. Ethiopia was Africa's seventh largest potato producer by area, eighth by tonnage, and seventeenth by mean yield in 2020. (FAOStat, 2020). Although Ethiopia has the most suitable agro-ecology for potato production in SSA, it is not among the top four producers by any measure. This, however, can be improved if appropriate production technologies are widely adopted, considering the favorable climate and fertile soils, in order to close the large yield gap between what farmers currently have and what can be obtained with a full package of production technologies.

There are numerous challenges limiting potato production and productivity in Ethiopia, including: limited availability and accessibility to high quality seed; limited availability and use of fertilizers; significant knowledge and skill gaps; and pests and diseases (Abera et al., 2021). Inferior quality seed is estimated to contribute significantly to the yield gap. Another challenge stems from a gender perspective, in which women, who contribute at least 50% of crop production labour in Ethiopia, have little decision-making power in directing actions along the value chain. Women play a vital role in seed selection and conservation in many SSA countries, including Uganda (Mudege et al., 2016). However, their contribution is rarely acknowledged probably because potato is primarily considered a man's crop. Furthermore, women-managed potato crops have been shown to have a yield gap of up to 20% when compared to men. This disparity raises concerns about the need to address gender gaps in agricultural production because it has an impact on food and income security, particularly among female-headed households. Addressing the gender gap in agricultural resource endowment and performance could result in at least a 30% increase in global food production and availability (Huyer, 2016).

The three-year Seeds for Change project in Ethiopia sought to address some of these critical gaps through a more gender-responsive approach. Sensitization workshops and assessments were held in each of the four project implementing regions to strengthen project partners' capacity in planning and implementing gender-responsive interventions. The analyses from the workshops were further validated in sex-segregated focus group discussions with farmers. The findings from the focus groups were triangulated and compared to the gender analysis perspectives obtained from expert workshops with district and community development change agents. The analyses concentrated on four areas of gender disparity in seed potato production and marketing: (i) the use of unpaid family labour and time poverty; (ii) control of on-farm inputs; (iii) access to external inputs critical to seed potato production; and (iv) access to and control of benefits from seed potato sales.

The following are key findings from extension agent workshops and farmer focus group discussions:

- Women farmers provide significant labour in seed potato production, and the majority of these chores are done manually, increasing their burden, drudgery, and time poverty.
- Men make major decisions regarding the allocation and use of on-farm resources required for seed potato production. In two of the study locations however, both the wife and husband make joint decisions. However, many women still believe that men have the power to direct potato seed production (and other cash crops).
- Women have limited access to external inputs needed for seed potato production, such as fertilizers, crop protection products, and equipment. Men, on the other hand have greater control over the benefits obtained from seed potato sales. However, in two of the assessed districts (Wolmera and Gumer), this situation is changing, as evidenced by more equitable sharing of agricultural benefits.

As a result, the findings of the two activities that ran concurrently are presented in this report. However, because farmers are the ultimate beneficiaries of the intervention, greater attention will be paid to the results obtained from them, even though the ideas and actions of development agents cannot be underestimated given their roles in promoting gender equity and equality.

1.1 Gender aspects and access to agricultural technology innovations

When agricultural researchers create innovative technologies, it is generally assumed that the innovations will benefit all "farmers," regardless of gender or personality. Gender disparities in agriculture receive little attention, despite gaps in access to and use of innovative technologies. Surprisingly, farmer adoption of new root, tuber, and banana (RTB) varieties rarely exceeds 40% in SSA (McEwan, 2020). However, women farmers adopt technology at a slower rate, which can be attributed to complex gender differences in seed demand. Women in Malawi, for example, could not afford improved seed potatoes, and those who accessed them; did so through their husbands (Mudege et al., 2015). This may be exacerbated by the fact that new varieties may lack end-user desired characteristics, particularly women. Furthermore, studies have found that men and women have different preferences and priorities for quality characteristics in innovative technologies and varieties. Varietal preference has been linked to gender roles in the food chain, with men preferring market-demanded traits and women preferring culinary related characteristics (Mwanga et al., 2021).

All of the aforementioned factors tend to limit women's access to quality seed with desired attributes, despite the fact that this is a critical input in all profitable agricultural production.

Limited access to quality seed may result in the inability of certain gender groups in society to generate a remunerative income from an investment and, in extreme cases, may affect food security. As a result, the design and delivery of agricultural innovations and investments must include a gender lens and focus.

2. Methodology

Workshops were held in April 2022 with personnel from project implementing partners in selected districts from the Amhara, Oromia, and SNNP (Southern Nations and Nationalities Peoples) regions. Participants in the workshop included district agricultural extension officers, gender and nutrition officers, and kebele (ward) development agents who were directly responsible for farmer training and the delivery of extension and development services.

Immediately after the workshops, two sex-segregated focus group discussions (FGDs) were conducted with seed potato producers in each region. The FGDs were designed to assess farmers perception of gender equity dimensions as drivers to scaling potato seed innovations. This was also in a bid to estimate the degree to which district experts and community (kebele) development agents had integrated gender in the project activities. The FGD tool was thus designed to mirror the focal gender equity issues discussed during the expert workshops.

2.1 Gender assessment and sensitization workshops

In April 2022, gender assessment and sensitization workshops were held in four locations. Participants from the thirteen project implementing districts were conveniently aggregated to reduce travel distance and allow for interaction across districts. Holetta Agricultural Research Centre (ARC) in Wolmera district hosted participants from Wolmera, Jeldu, and Degam districts in Oromia region. The second workshop was held in Welkite town for participants from Wenchi district; Oromia region and the Southern Nation Nationalities Peoples (SNNP) region's Gumer and Merab Azernet districts. The third workshop was held at the Adet Agricultural Research Centre for participants from Yilmana Densa, Quarit, and Daga Damot located in the Amhara region. The fourth workshop was held in Debre Tabor town for participants from Guangush Shikudad, Fagit Lakom, Farta, and Lay Gayint districts located in Amhara region. The details of the participants districts and region of origin are provided in Table 1. A total of 118 participants (30 females and eighty-eight males) attended the four workshops (Appendix A-D). The workshops were held in classroom settings with power point presentations, plenary and group discussions, and a gendered exercise (the power walk). Participants developed strategies and activities for mainstreaming gender in project activities and development interventions in their routine assignments based on the information obtained and the interactive workshop sessions.

Table 1: Participants in the gender sensitization and training workshops in Amhara, Oromia and SNNP region by district and sex in March 2022 in the project intervention area

Region	District	Male	Female	Total
Amhara	Daga Damot	8	2	10
Amhara	Fagita Lekoma	10	0	10
Amhara	Farta	5	3	8
Amhara	Guagusa Shikudad	5	1	6
Amhara	Lay Gayint	3	3	6
Amhara	Quarit	5	3	8
Amhara	Yilmana Densa	7	1	8
Oromia	Degem	5	5	10
Oromia	Jeldu	8	2	10
Oromia	Wolmera	5	5	10
Oromia	Wonchi	10	2	12
SNNPR	Gumer	9	1	10
SNNPR	Mirab Azernet	8	2	10
Total		88	30	118

2.2 Focus group discussions

Sex disaggregated FGDs were held in four of the thirteen project intervention districts namely Wolmera in Oromia, Gumer in SNNP, and Farta and Quarit in Amhara. Participants in the FGD were chosen using the following criteria: (i) involved in seed potato production, (ii) active member of a farmer group or association, and (iii) selling seed potato. About ninety-one farmers (41 women and fifty men) participated in the FGDs. The focus group discussion topics were based on the gender dimension in the seed potato enterprise in order to assess farmers' perceptions of gender equity as a driver of scaling potato innovations. A tool or FGD guide was designed to assess four critical gender equity dimensions: (i) use of unpaid family labour and time poverty, ii) control and use of critical on-farm resources, iii) access to critical external inputs for seed potato production, and iv) control over sharing seed potato benefits. The findings were analyzed using content analysis and simple statistical tools as detailed in section 4.2.

3. Gender assessment workshops

3.1 Workshop opening

The regional project implementing partner coordinators, who are in charge of supervising intervention activities in each region, opened the workshop at each of the four sites. The projector coordinator or its representative for the Oromia and SNNP regions opened the workshops at Holetta ARC and Welkite (Fig. 1). The project coordinating scientist also presided over the opening of workshops in the Amhara region. The coordinators provided the participants with an overview and progress of project activities in their opening remarks. The holistic perspective of the intended outputs at the farm level was further reiterated.

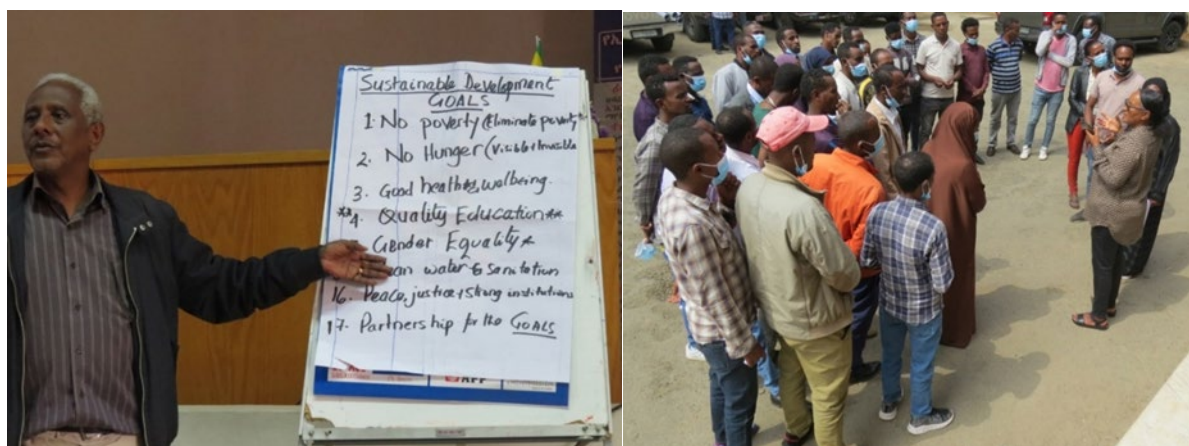


Fig. 1: Gender assessment and sensitization workshops held in April 2022 at Holetta ARC (left) and Welkite (right), in the Oromia and SNNP regions, respectively






3.2 Seed of change project highlights

The country project manager provided an overview of the Ethiopian Seeds of Change Project. He stated that the three-year project had a broad goal that included bio-physical and social factors that influence agricultural innovation adoption. He stated that seed potato was given more attention in this project due to its importance in potato technology transfer and adoption. The overview emphasized that the workshops would primarily contribute to the first and fourth components of the project's purpose (Textbox 1). The significance of seed potato in this project cannot be overstated because (i) seed provides a channel for delivering genetic gains from breeding to end users through improved varieties, (ii) it improves the outcomes of other potato technologies, and (iii) it is the most expensive input in potato production. As a result, in addressing gender equity and equality in the potato value chain, the seed potato segment should play a leading role in ensuring that intervention benefits are distributed as evenly as possible across all gender dimensions.

Project purpose

The Project purpose is broad and includes;



-  strengthening potato innovation system in Ethiopia.
-  supporting national research institutes' capacity for continued development of improved, resilient and demand-driven potato varieties.
-  supporting growth of a responsive and sustainable quality seed production and distribution network.
-  facilitating farmer equitable (gender-sensitive) and sustainable access improved potato technologies.
-  enhancing potato sub-sector coordination and communication.

Textbox 1: Purpose for seed of change project

The project team leader also discussed the project's global positioning among the United Nations' 17 Sustainable Development Goals (SDG). The Seeds for Change project would contribute to nine of the 17 SDGs, with the following being the most important:

- SDG 1: No poverty
- SDG 2: Zero Hunger
- SDG 5: Gender Equality
- SDG 8: Decent work and Economic Growth



The project team leader urged participants to pay close attention to the SDGs as they shape the development agenda to which all UN members, including Ethiopia, are signatories. He emphasized SDG5, which was relevant to the project and workshop concept. He reiterated that, even though the project was ending, the knowledge gained in these workshops would be useful for current and future work in our line of duty (Fig. 2).



Fig 2: The project overview being presented during the opening session of the gender assessment and sensitization workshop at Adet Agricultural Research Centre in April 2022.

3.3 Gender concepts

The gender aspects addressed were highlighted by emphasizing the workshop goals below:

- To raise general awareness and understanding of gender inequality in rural farm communities.
- To discuss the need for societal behavioural change to increase the participation of women, youth, and other marginalised groups.
- To develop strategies for incorporating a gender perspective into seed potato technology scaling:

According to the workshop expectations, the majority of the participants had a fair level of knowledge about gender and gender inequalities. As a result, participants were encouraged to contribute to this knowledge-sharing event.

3.3.1. Gender roles

A video was shown at the start of the training workshop (available at this link: <https://vimeo.com/520177527/dea8873955>). Participants were asked to share the key messages and lessons they took away from the video. In Welkite, the gender officer for Gumer district stated that babies of both sexes are treated equally at birth. However, as they grow older, their roles in the family become more defined and influenced by societal expectations of adult men and women. This creates disparities in access to education, knowledge, and economic productive resources for girls and women as they grow older.

Participants were enlightened of how gender roles affect access to agricultural technologies, innovation, and other resources. Participants in Welkite noted that women and men are born equal, but men have more economic or financial opportunities. They emphasised the importance of giving women equal opportunities because they have the same ability as men. Furthermore, because of the society assigned gender roles, boys

have a better chance of attending school, whereas girls may be expected to stay at home and assist their mothers in raising younger siblings and caring for the family. Girls are predisposed to lack agency later in life due to limited access to education, whereas boys are gradually empowered to become the head of the family.

Participants shared activities and practices in the society that are influenced by social and gender norms. For example, development agents stated that they primarily invite male farmers to trainings and technology demonstration events because men are regarded as "farmers." They are also expected to teach or inform the women about what they saw and learned during those events. This belief and practice, which was confirmed by women during the FGD with farmers, is sadly, deeply embedded in many African communities, including Ethiopia. Women-headed households are disadvantaged by such practices because they may not have a male figurehead in the family to send to such events unless such women are specifically targeted. Second, even in male-headed households, men may not always share information and knowledge with their wives. Third, wives are socialised to receive second-hand information and knowledge that may differ between primary and secondary sources. Where knowledge is shared, it may be through instruction without regard for the significance of the concept. In some ways, the wife is reduced to the status of a casual labourer who must follow the husband's orders. She may not continue with the practice if she is left to supervise hired workers, especially if she does not fully appreciate the husband's recommendations. In short, the woman lacks the necessary authority to make independent management decisions.

Participants were challenged to recognise the significance of gender roles in society, which are often a social construction of identity as male or female. Gender roles are institutionalised in society, and they often times "dictate" what men and women can and should do. Inadvertently, they also determine the gender distribution of labour, access to economic and productive resources, and control over benefit distribution. In terms of the potato seed value chain, men are more likely to control productive resources. As a result, extension experts and development agents were challenged to consider gender-inclusive strategies for increasing the participation of women, youth, and other gender groups in development activities without shifting the burden from one gender to the other or disenfranchising specific individuals.

3.3.2 Demonstrating power and capacity due to gender disparities: The power walk

The workshop participants took part in a power walk, an exercise designed to demonstrate how different gender categories in society are influenced by events in their lives (Fig. 3). Each participant in the workshop was secretly assigned a character role-play or gender category by the power walk facilitator. These characters are based on the various gender categories that are commonly found in societies. The power walk begins with all of the characters starting from the same line, symbolising equality. The facilitator reads out a statement, and each character role-plays or represents how it affects them. On processing a decision based on the statement read by the facilitator, the characters would either move forward (empowered to act) or backward (disempowered). While all the 'characters' began on the same line, those with privileged social standing advanced because they had the power or ability to decide, or act based on the statement read by the facilitator. Vulnerable characters continued to regress because they lacked the power, means, or ability to move forward (Fig. 3). This gender exercise allows for the visualisation of gender inequality in society in terms of power and capacity to make decisions, perform specific tasks, or access services and resources.



Fig. 3: Gender assessment and sensitization workshop participants in Welkite, Ethiopia: starting the power walk (left) and execution of the power walk (right)

The results of the power walk exercise were discussed and reflected on in light of the project and other development activities that extension officers undertake in their areas of work. Participants appreciated that while the project may assume farmers are a homogeneous group, this is never the case. This implies that farmer recruitment criteria for project intervention activities should consider inherent gender differences and their implications for target beneficiary participation, access to benefits, and averting exclusion of disadvantaged gender categories in society. The power walk helped participants recognize that gender differences exist in target project intervention communities, and development facilitators must identify gender differences in communities and develop strategies to reach and engage vulnerable groups as much as possible.

3.3.3 Gender mainstreaming

Gender-mainstreaming in community development activities was defined as the incorporation of gender perspectives at all stages of project intervention i.e., from idea generation to project design, implementation, monitoring, and evaluation. Participants were shown the various steps involved in mainstreaming gender in a project intervention using the Reach-Benefit-Empower paradigm, as outlined below.

- Planning: Entails extensive analysis aimed at understanding the gender dimensions at the various nodes of the potato value chain in order to guide actor participation and activity design.
- Reach: Gender sensitive implementation ensures that activities target different gender categories equitably.
- Benefit: Developing gender sensitive indicators to track how various gender categories participate in project interventions and the benefits they receive.
- Empower: Determine whether the project outcomes contribute to a change in agency of the beneficiaries in an equitable manner across gender categories.

Gender responsible scaling of project outcomes could be achieved and visibly quantified once gender mainstreaming is realized as outlined above. Participants in the workshop were asked to consider how the target project beneficiaries were identified and recruited, and how this could be improved in future interventions.

3.4 Four dimensions of gender inequality

The four dimensions of gender inequality in agricultural production were introduced to workshop participants (Section 2.2). The facilitator emphasized that there were more than four gender dimensions in community development interventions. The ones chosen for this purpose are critical in projects promoting inclusive agricultural development. Studies have shown that analyzing these four critical gender dimensions reveals aspects that may also impact technology adoption, particularly among women, youth, and other vulnerable groups.

To better understand these four factors, workshop participants were divided into four groups, and each was assigned to discuss and generate practical ideas how one of the four dimensions can be successfully integrated in future development interventions. Each group was given a set of questions to help guide the discussion. Before beginning the group work, the questions for each group were reviewed in plenary to ensure that all participants understood the assignment. Through presentations in plenary, the group outputs were shared and reviewed. Women were encouraged to present the outcomes of their group discussions. Section 3.3.1 presents a summary of the group work from the various workshop locations.

3.4.1. Use of unpaid family labour and time poverty

Several innovations, particularly in seed potato production, have been introduced in the project intervention districts. These included, among other things, early generation seed production, the use of quality assured seed potatoes, the construction and use of diffused light stores (DLS), seed potato de-hauling, seed sorting and grading, pest and disease control, and fertilizer use. Participants at Holetta ARC reported that de-hauling, seed sorting, seed grading, and fertilizer application increased drudgery when compared to common farmer practices. They also revealed that women were more affected than men because they were involved in farm activities as well as home-based tasks such as childcare, cooking, and reproductive chores. These factors, combined with a lack of division of labour, resulted in time poverty for women. The workshop participants in Debre Tabor identified seed sorting and grading as a woman's responsibility because men perceived it to be a "light" farm activity compared to other potato production activities such as ploughing. As a result, many women suffer from body strain and backbone injury, which leads to chronic ailments that have a negative impact on their health and life expectancy.

Sharing household chores and non-sex related reproductive-related activities with other members of the family, particularly the husband, was one of the strategies proposed to reduce drudgery. Participants suggested that family members plan and schedule activities to reduce overlap, thereby easing the burden on women. It may appear impossible for men to take on roles that were previously thought to be societally assigned to women, but with increased awareness and empowerment, men are now participating in such activities, as some group members in Debre Tabor and Welkite observed.

In Welkite, participants revealed that men assist their wives in domestic activities such as fetching water for the household, which were previously thought to be the responsibility of women and children. This was possible after proactive sensitization of men to the burden of household tasks undertaken by women. Other strategies proposed to reduce the labour burden on women in the Adet and Welkite workshops included mechanization of some farm activities using appropriate and affordable technologies. Participants suggested that seed sorting

equipment and seed transportation alternatives such as hand carts and small vehicles be introduced for adaptation. This would alleviate the burden of carrying seed on the head or the back as still practiced by women. Some questions were raised, discussed, and the responses were recorded during the plenary discussion, as shown below.

1. Farmers have previously planted local potato varieties. Will the new varieties necessitate more labour?
Response: Because new varieties necessitate close monitoring and care, they may necessitate the use of additional resources and labour to improve production.
2. Is there a trend toward categorizing crops by gender, such as men's or women's crops? If so, why and what should be done to address such issues and restore balance?
Response: To resolve such assumed differences, family members should discuss and agree on a gender-balanced division of labour, resource input, and benefit sharing for various crops. The sex ascription of crops or enterprises will then reduce.

3.4.2. Control over the use of critical on-farm resources

Participants in the second group discussed first created a comprehensive list of on-farm resources in order to conduct a detailed assessment. This included and, draught animals, tools (hoes, axes, spray pumps, ox ploughs), stores, and labour. Participants in all four workshop locations agreed that men dominate and control on-farm resources, which limits what women can do. Participants in Debre Tabor, for example, revealed that men are responsible for boundary demarcation, land rental, and soil erosion control. As a result of these roles, men gained control of land over women. Men also have more control over draught animals than women because they are responsible for ploughing the fields, further strengthening their grip on land. Men also supervise the preparation of manure and compost, which includes collecting waste, digging pits, and turning the compost pit until it matures.

Participants in plenary discussed strategies presented as options to increase women and youth access to and control over critical on-farm resources for seed potato production. Men being referred to as the "farmer" and the owner of most family endowments were observed as a major barrier to women and youth gaining more control over resources in Welkite. Some participants in Adet revealed that because women lack the ability to operate equipment such as ox-ploughs or knap sac sprayers, implied that men operated and had complete control over them. The participants at this location believed that advocating for women's control over such resources would be futile because it is traditionally considered to be men's territory. They however argued that in the absence of a man, such as in female-headed households, women do not have to operate such equipment, but can hire male laborers to do so on their behalf. Nonetheless, they hastened to add that it would be critical for the women to understand how such equipment operated' even if hired male labour was used, so that they would remain in control. The participants made additional suggestions to increase the share of women in control of on-farm resources, which included:

- Raising gender awareness among various community members in order to reduce the gender gap in rural farm settings and access to productive on-farm resources.
- Joint household planning, budgeting, and responsibility and resource sharing.
- Encourage women to participate in economic activities outside of the home.

- Study visits to other villages that have successfully integrated gender into development efforts. This could aid in overcoming the restrictive cultural barriers that other communities have overcome.
- Plan training events specifically for women because they are more likely than men to share knowledge gained from training events with other family members.

Below are some of the issues raised and debated at the Holetta ARC workshop during the question and answer (plenary) session.

1. How can we discuss gender equality in a family without undermining the husband's power as the status and control of the woman (wife) is elevated during gender training?

Response: Achieving a balance of power in resolving gender inequality between men and women will take time. Because changing attitudes takes time, addressing gender inequality requires consistent sensitization of both men and women. The training should highlight and emphasize the advantages that men will gain by giving women more control. It should reassure men that in their absence, they have a suitable and capable substitute, and that the family setting will not be greatly affected. Furthermore, social and cultural change occur gradually and will be better achieved if both parties are involved. The benefits of collaboration over competition should be stressed in the trainings.

2. Can we train women farmers living in male-headed households since in many cases men want to attend as women remain at home?

Response: This is possible; however, before the women are invited, the head of the household must be officially informed about the purpose of the training. A couple approach, in which both the wife and husband are invited to participate as family representatives, can also be used.

3.4.3 Access to critical external farm inputs

Participants who discussed this dimension of inequality first identified and listed critical external inputs required for seed potato production. Fertilizers, agrochemicals, improved seed, and hired labour were among the inputs listed. Participants agreed about the fact that women have limited access to external agricultural production inputs. This was attributed to women's lack of capital, limited access to information, mobility, and restrictive cultural norms that limit their ability to purchase or access these inputs. In cases where women were able to access external inputs such as fungicides, they had limited knowledge and skill about their use, application rates and safety. Participants also reported a myth that agrochemicals harm women's health more than men. These and other factors have been observed to further limit women's access to and use of new varieties and auxiliary technologies.

Group members in Debre Tabor reported that people with disabilities (PWD) and the youth are excluded from access to agricultural external inputs. It was noted that the PWD lacked information, had restricted movement, and thus had limited market access. PWDs require more assistance to engage in most livelihood activities in order to achieve a similar quality of life as other gender categories. Youth, on the other hand, have limited access to external resources because they have to rely on family resources that are managed by the head of the household,

who decides how they are deployed. As a result, most adult unmarried youth are unable to make independent decisions about the use of external farm inputs. In addition, the youth lacked information and experienced cultural setbacks that hampered their ability to acquire and own assets.

Some strategies proposed to increase access to external inputs for vulnerable gender categories included: i) facilitating easy access to loans from local micro finance institutions, ii) conducting trainings aimed at sensitizing various stakeholders on gender dimensions in the potato value chain, emphasizing the need for inclusivity and resource sharing, and iii) promoting off-farm income generating activities, particularly for women and youth. For example, women can be encouraged to form seed production groups in order to gain access to improved varieties, oxen ploughing services; and v) improve youth, women, and other vulnerable groups' access to information, training opportunities, and markets.



Fig.4: Gender assessment and training workshop participants from Adet ARC in Amhara (left and centre) and Welkite in Oromia present group findings in plenary (April 2022)

3.4.4 Control over and sharing of benefits from seed potato production

The fourth group identified the benefits of seed potato production as i) securing food for the family, ii) a source of income for basic household needs, iii) a source of income for family health care and children's education, and iv) a source of income for family investment. All participants agreed that in the majority of project sites, men have complete control over how seed potato benefits are allocated in a household. The reasons given were i) cultural: women are perceived to "belong to the kitchen" and men are expected to participate in various income-generating activities. ii) men's negative attitude toward women, assuming women are incapable of managing critical family resources such as money; iii) most rural women in Ethiopia lack basic education. Household financial management is done by men due to women's lack of financial literacy and confidence; (iv) men are

more mobile and have more business networks and government representatives compared to women; and (v) men do not trust women to keep money or invest it in serious income-generating ventures.

Participants proposed strategies and solutions to improve control and benefit sharing among family members. The gender officer for Gumer district shared an innovative "couple approach" to addressing this challenge in Welkite (Textbox 2).

The Couple Approach in Gumer District, Ethiopia

The Gender Officer for Gumer Woreda explained that couples are invited for trainings and other capacity initiatives. A key game changer is where men and women are asked to switch roles for just a day. This enables men to appreciate the challenges women face and are now more appreciative of their contribution to the household and to the farm enterprises. As a result, the household benefits are better shared, and women have improved access and control over how they are apportioned.

Textbox 2: The couple approach in Gumer district, Ethiopia



Fig.5: The Gumer district's gender community development officer presents her group work findings in plenary during the workshop in Welkite (April 2022)

Other strategies proposed for improving benefit sharing from seed potato enterprises included i) providing basic education to women, (ii) involving women in various training activities, particularly marketing, (iii) sensitizing men to change their perceptions of women's ability to manage resources, and (iv) sensitizing men and women about the importance of equitable benefit sharing amongst family members.

3.5. Mainstreaming gender in potato R&D activities

Participants were asked to consider gender disparities and how they impede progress along the potato value chain. To streamline the discussions, workshop participants' ideas about gender mainstreaming were collected, collated, and thematic issues for gender mainstreaming identified for designing strategies for gender integration in community development activities. A presentation was given emphasizing the significance of gender mainstreaming in project activities, future interventions, and routine community development assignments. Some of the strategies developed by participants in response to the four themes identified for reducing gender inequality and embedding gender responsive scaling are provided below.

3.5.1. Addressing unpaid labour and time poverty

Theme: Women are more affected by time poverty than men. What farm activities do women participate in? What can be done to alleviate women's time poverty and enable them to achieve a better work-life balance? Women frequently experience time poverty as a result of their heavy workloads and competing responsibilities. Women in the study area were involved in multiple activities including reproductive (such as baby and childcare, cooking, fetching water, washing clothes, cleaning the house), productive (such as weeding potatoes, cleaning livestock pens, feeding/grazing livestock, and social (such as cleaning water points).

The solutions proposed to reduce drudgery and time poverty for women included:

- i) Discussing with men about taking over some activities from women that would not have an impact on the social structure or standing of either sex in society.
- ii) Encourage men to engage in reproductive roles that are not considered taboo by either sex.
- iii) Gender equity and equality training for both men and women.
- iv) Talking with men and women about ways to reduce beliefs and cultural barriers that prevent either sex from participating in certain activities.
- v) Dealing with the male superiority and female inferiority complexes.
- vi) Fostering family understanding among men and women in terms of sharing common resources and benefits.
- vii) Tracking progress toward gender equality and equity at the family and community levels.
- viii) Involving religious leaders in addressing gender issues by enlisting their support.
- ix) Participating in activities that promote gender equality, redistribution of family labour, joint family planning, budgeting and distribution of benefits, and women education.
- x) Promoting technologies that reduce drudgery and dispel the notion that certain activities or jobs are taboo for either men or women.

3.5.2. Addressing equitable access to benefits from the farm enterprises

Theme: Women have little or no say over how farm benefits are distributed or used. How can we encourage women to have a greater share of farm benefits without men fearing that resources will be wasted or that men will lose control?

Participants proposed several strategies to promote gender equity in routine extension service delivery or in project interventions that ensure that both men and women, as well as other vulnerable groups, share in benefits.

- i) Identifying both men and women to engage in and benefit from development interventions.
- ii) Identifying factors that prevent women from participating in and equitable sharing of on-farm benefits.
- iii) Raising awareness among men about the difficulties that women face in their daily farm family activities.
- iv) Identifying economic activities performed by men and women, how women and men can better relate to increase income generation, and how benefits can be shared equitably at the household level.
- v) Providing opportunities for men and women to change their behavior, acquire resources, and gain equal access to education.
- vi) Conducting gender scoping studies to assess issues of inequality that may affect outreach to women and other vulnerable gender groups.

When undertaking gender awareness creation intended to improve sharing of roles and benefits in a family or among members of the community, group participants emphasized that development facilitators should be mindful of the beneficiary men and women's educational level, economic status, gender category distribution, access to information, religious background, and peer influence.

The working groups proposed a series of activities that need to be implemented so as to affect the proposed strategies. The approaches suggested included but were not limited to:

- i) Setting up technology demonstrations and encouraging men and women to participate together.
- ii) Organizing study tours and exchange visits to areas where the gender divide has been deconstructed.
- iii) Encouraging men to enable women participate in financial transactions (selling and buying).
- iv) Regular training, supervision, mentoring, and knowledge sharing between men and women.
- v) Educating men to assist women in making household economic decisions and participating in household economic activities.

3.5.3. Addressing women's limited access to improved inputs

Theme: Women are less likely than men to use farm income to purchase improved agro-inputs to increase potato production. Women will purchase household goods and consumables. What factors, as agricultural extension and development agents, compel women to invest in household items rather than improved farm inputs? How can we persuade women to invest their earnings in potato yield-boosting technologies such as improved seed, fertilizers, and so on?

Participants at the workshop proposed strategies to improve women's access to external farm inputs, which included:

- i) Educating both men and women about the importance of using improved farm inputs.
- ii) Increasing women's self-esteem and encouraging them to organize protests.
- iii) As a motivation, farmers are given participation certificates after training.
- iv) Promoting changes in community culture and social behavior that may discourage women from participating in farmer training.

- v) Organizing experience-sharing events and ensuring that such events benefit women.
- vi) Consider reducing men's superiority complexes and women's inferiority complexes.
- vii) Encourage and promote the equitable distribution of farm income and other benefits.
- viii) Fostering a sense of ownership in family endowments.
- ix) Try to involve women in participatory rural appraisals in order to better understand the factors that influence their use of improved farm inputs.



Fig. 6: Selected workshop participants in Welkite in a group discussion

3.5.4. Addressing women's limited participation in project and development activities

Theme: Women make a marginally higher percentage of our communities than men. However, they are underrepresented in most community development activities, such as meetings and farmer group committees.

The few who attend such meetings or serve on group committees appear to be passive participants or keen listeners. What factors discourage women from engaging in mixed-sex activities? How can we increase the number of women who actively participate in community development activities?

Group four participants in Debre Tabor examined these issues and identified the following factors that discourage women from participating in development activities:

- i) Due to cultural and traditional influences, women are often shy and fear speaking in front of men or working with men.
- ii) They lack experience in engaging in face-to-face meetings, particularly when men are present.
- iii) They have a lot of housework, making it difficult for them to attend community meetings.
- iv) They may be prevented or negatively influenced not to participate by the husband.

- v) Because they are not mobile and rarely receive services from agricultural extension officers, they lack information about development initiatives.
- vi) They believe they are inferior to men and may be ignored in community meetings.
- vii) Men believe they are superior in terms of monetary resource decision making.

The groups also identified ways to increase the number of women who would actively participate in community development activities:

- i) Raising community awareness, with a focus on men, in order to challenge traditional beliefs.
- ii) Reducing women's workload through family group discussions
- iii) Hold joint discussion forums for men and women and encourage the development of communication skills.
- iv) Implement affirmative action for women to allow them to participate in group meetings and activities.
- v) Form associations and groups in which men and women are equally represented.
- vi) Create special management positions for women in mixed-gender organizations.
- vii) Involve community leaders and influential people in promoting gender equality.
- viii) Work to reduce men's unnecessary superiority.

Participants also identified negative cultural and traditional beliefs that impair women's control and sharing of family resources.

- When given more authority over money and family resources, women may abuse them.
- Men believe they are superior to women in every way, including household resource management.
- Men believe that women will spend money on household and personal care items while ignoring farm and family income-generating investments.
- Men do not give money to their wives, and they do not want to disclose all of their income because it may lead to family misunderstandings.
- Men assume sole responsibility for managing family finances and are not required to share this role with other family members, including their wives.
- Men are afraid of losing power and superiority if some of their responsibilities are delegated to women.

4. Triangulating views on gender integration and inclusion: outputs of the focus group discussions

4.1 Demographic characteristics of participants of focus group discussions

The average age of the FGD respondents was forty for women and forty-three for men. Men headed households had about six members, while women headed households had five. The size of a farm family's household reflects the availability of labour, and this was not significantly different between men- and women-headed households. The male FGD participants were all married, whereas more than 20% of the female FGD participants were widows. Men received an average of six years of formal education, while women received only 1.6 years. There was a significant disparity in productive farmland endowments, with men owning an average of six hectares compared to women's 1.6 ha. The number of participants by district was thirty-two for Gumer (5F, 32M); 30 in Quarit (7F, 23M), 26 in Farta (6F, 20M) and 30 in Wolmera (12F, 18M) (Fig. 7). According to the data, there was a much lower representation of women which reflects their low recruitment in farmer trainings and, consequently, in technology scaling.

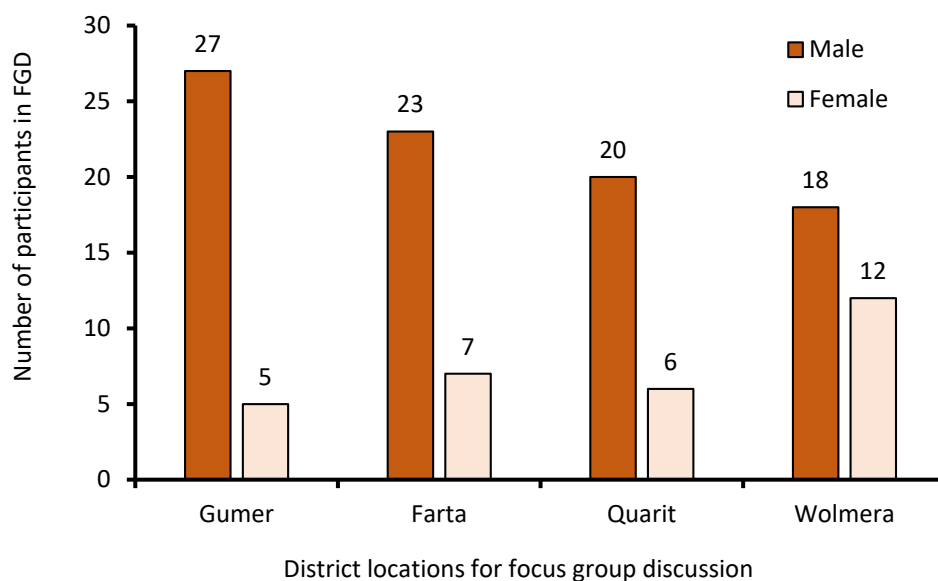


Fig. 7: Participants for focus group discussions by location and sex in Amhara, Oromia and SNNP regions in April 2022

4.1.1. Use of unpaid family labour and time poverty

Both women and men FGDs participants in Wolmera district agreed that all household members participate in seed production activities and have clearly assigned roles and responsibilities. Men are responsible for ploughing, while women and children are responsible for fertilizer application. Both men and women FGDs recognized the advantages of seed potato production but noted that it requires a lot of manual labour and drudgery. Men and women FGDs indicated that, unlike other crops grown in the area, potato requires a lot of labour and supervision, but it also has one of the highest returns. The crop requires continuous monitoring, timely weeding, earthing up, strict disease and pest control, timely harvesting, and appropriate storage, all of which necessitate additional

labour. The men in Gumer agreed with their counterparts in Wolmera, saying that, “seed potato production is similar to baby care because it requires more attention, consistent follow-up, and supervision until it is sold.” Women in all FGD sites, except Quarit, felt the most impacted by the increased drudgery in seed potato production. This is similar to the opinion expressed by extension agents during the workshops. Women in Quarit district on the other hand, felt they had not experienced any drudgery or extra workload in the production of seed potatoes because this is what they normally do. According to FGDs in Wolmera, Gumer, and Farta districts, women do the majority of the work in seed potato production. Women in Wolmera district FDG stated that even if a farm activity is done jointly with their spouses, they still have to do household chores after farm work while the men rest, as detailed below.

“We plant potatoes with our husbands, but the women do the weeding, fertilizer application, earthing up, and crop management.’ We harvest potatoes together and select seed for planting. Women and their children transport the seed to the field as well. Even when we work together in the field, when we get home, we have to cook and do all the other household chores because the men are somewhere else. As a result, we (women) are the most affected.” Participant, Women FGD Wolmera District.

In the Gumer district FGD, women emphasized that, while men and older boys apply agrochemicals, women fetch and deliver water for mixing pesticides, which is a critical activity because it would take more time and effort if the spraying team had to fetch the spraying mixing water as well. FGD participants in Farta district confirmed this, saying,

“We the women fetch water for spraying.’ Water is easily accessible during the rainy season. However, fetching water can be a difficult and exhausting task at other times because water sources are usually far away. And, depending on the size of the garden, you will have to fetch and deliver a 20-liter jerrycan three or four times.” Participant, Women FGD Farta District.

The potato harvesting season was highlighted as a time of intense activity especially for women. Women are responsible for preparing food for the family, harvesting workers, and gathering feed for livestock, among other activities. This is in addition to collecting and transporting the tubers harvested by their husbands and workers. Women in the Farta district said it was difficult to collect and transport potato tubers to the store. Men in Gumer revealed that loading and unloading seed tubers in diffused light stores (DLS) was an arduous task, especially given the store's high shelves. This means that the height of store shelves should be reconsidered, even though tall shelves tend to carry more seed tubers than short ones.

Men in Wolmera and women in Quarit perceived that the former sex bears the greater burden in the production seed potato compared to women. The men stated that, whereas women only planted, weeded, and harvested, men undertake rest of the activities from land preparation to potato marketing. The women in Quarit district revealed that 'the farmer,' (referring to the men), performed the majority of the potato production tasks. Despite this perception, when asked to elaborate on women's roles and responsibilities, they were similar to what women in the other study sites had mentioned, implying that women still bear the greater burden in seed potato production in Quarit. However, both men and women from the two districts reported that the burden was heavier for women-headed households, particularly during land preparation.

Men in the Farta district listed activities requiring more physical strength, such as ploughing, hurling harvested potatoes from the field, potato loading and offloading. According to the men in Farta, the women in this district are responsible for lighter tasks such as gathering harvested tubers. Planting, fertilizer application, weeding and earthing up, men and women shared rouging, and other tasks. Men and women perceived those men spend more time on seed potato production activities than women because women are equally occupied with domestic and childcare activities. After much deliberation and brainstorming, both men and women agreed that, despite having separate roles in a farm family and in potato production, the workload in a given day was equal for both sexes due to the gendered division of roles.

Participants in the Gumer district FGD for men disagreed on who in the family bore the greatest burden in potato production. They developed three schools of thought. The first subgroup claimed that both men and women spend equal amounts of time in potato fields. The second group believed that women were more burdened than men because the women have to do household chores as well as participating equally in agricultural activities. The third group perceived that men were the most affected because they are charged with the most difficult and labor-intensive tasks than women.

“The majority of us in this group are experiencing back pain as a result of loading and unloading seed potatoes. We expend more energy during seed production.” Participant; Men FGD Gumer district.

Women also mentioned health issues that arose as a result of working hard in potato fields.

‘Take a look at my chin and his chin’ (referring to a brother-in-law). My face is the colour of a liver, and my skin tone has changed as a result of my constant work in the fields. My chin is damaged because I work more than he does. We also have to give birth, use birth control, and care for the children. Farm work is extremely difficult for us women’. Participant, women FGD Farta district

The data from all FGDs on gender roles in the seed potato chain was compiled and summarized in Fig. 8.

- i) We require technology to assist with ridging and weeding so that we can save time and relax (Women in Wolmera district).
- ii) A weeding and ridging machine would make us very happy because it would eliminate the current manual labour in these activities. The rest of the chores can be done by my husband and children, allowing me to focus on housework.
- iii) My husband and children assist - my husband assists with fetching water, and my children assist when they return from school.
- iv) I wish I could spend less time in the field and more time on housework.
- v) We must give up and grow tired because potato production is extremely beneficial to us. Meanwhile, my husband and older children should pitch in, so we should do the work together so that we can all benefit. We must make a sacrifice in order to receive the benefits we seek.
- vi) Working as a group would allow us to spend less time in the field and more time at home.
- vii) Technology in the form of ploughing, transportation, and other machinery should be introduced. There is a need for innovative ideas for loading and unloading seed tubers from DLS shelves. (Gumer, Men).
- viii) Forming a farmer seed group cooperative aids in the reduction of labor-intensive activities. New projects should assist the FSGCs even more. (Gumer, Men).
- ix) To reduce potato workload in the community, activities such as "Debo" (free assistance from neighbors) and "Wonfel" (working together in rounds) that include women can be used.

Both men and women in Gumer district attested to changing norms, particularly regarding gendered roles and responsibilities. This was accomplished through ongoing sensitization and training (Textbox 3).



Changing norms - Men now help with housework

After finished the field work, my husband and I will participate in the household chores. For example my husband may fetch water while I am cooking, or he will split/prepare firewood. However, he would not help me in making enset (kocho) although it is a laborious task. This is because it is not traditionally considered good for men to prepare kocho. A man who does so would not be considered to be "man" enough. Yet it is a long and laborious process; and we never get any help from our husbands. *(Women participant, FGD Gumer district).*

Textbox 3: Changing norms - Men now help with housework

This was echoed in Wolmera districts, where women shared several indicators of empowerment, such as joint family planning, bank account ownership, and the ability to decide how household labour resources and benefits should be allocated.

While it may be difficult to estimate who in the family carries the greater burden in potato production, it is important to advocate for joint planning and distribution of roles and responsibilities at household level. Joint planning and decision are renowned strategies that not only promote equity in gendered division of labour; but also improve women's agency as exemplified in Uganda (Acosta *et al.*, 2020).

4.1.2. Control over use of critical on-farm resources

Labor, land, draught animals, stores, ploughing tools, sprayers, and farm tools were identified as critical on-farm resources during FGDs and these were similar between men and women groups. Men claimed control over these resources in the majority of the men FGDs because they are responsible for the majority of the activities associated with their acquisition and use. Ploughing, for example, is a male responsibility in Wolmera and Farta districts, so men have complete control over draught animals and ploughing tools. Men control critical on-farm inputs in Farta district because women have limited access to farm resources, lack information, and have limited access to loans from friends, relatives, and credit institutions. Because of poor mobility and networking, men observed that women had limited control over the use of on-farm resources.

Women in Gumer district revealed that they discuss, persuade, and agree on common issues such as crop land allocation during each cropping season with their husbands. Everything is discussed as a family in this district, which is attributed to the community's adequate training and exposure. This was discovered to be true even for women who are not members of their cooperative. The women explained that the district's gender development officer is very active in promoting equality, and some of their experiences are detailed below.

“If a family has a problem, they seek her advice, which has improved family cooperation. That is why the gender equality situation in our community and throughout the region is better than it was previously. Zulfah is also well-known to us (the district gender specialist). She has taught us a lot, for example, about child feeding and vegetable production - we admire her.” We also know Zulfah quite well (the Woreda gender specialist). She has trained us a lot e.g., child feeding, production of vegetables – we admire her. Participants, Women FGD, Gumer district.



Fig. 9: A focus group discussion session for men (left) and women (right) in the Wolmera district (right) in April 2022

Men in Farta district shared the belief that men and women have varying levels of access to and control over critical on-farm inputs. For example, women were in charge of composting and seed preparation, whereas men were in charge of draught animals and land issues such as ploughing. They did, however, indicate that, while control over these resources differs, decisions about how to use them were made jointly. Women in Quarit district admitted that, while they may work together, men ultimately decide how labour and inputs should be allocated in both male-managed and female-managed potato plots.

Analytical discussions with farmers revealed both similarities and differences in the management of critical on-farm resources with the perception held by district extension staff. FGD participants also suggested ways to improve women's control and sharing of these resources. The men in Farta suggested increased family sensitization and joint spousal discussions on resource allocation and use. Women in Wolmera district revealed that seed potato production is a profitable business for both men and women, but women allow men to have slightly more control in the family for managerial and leadership reasons. Men in Quarit district admitted that there was still a significant gender disparity in this dimension and advocated for increased awareness and training because families who are aware of the benefits of gender equity make better decisions and relate better. Women in Quarit district agreed with their male counterparts but added that because men make the majority of family decisions, it was critical to educate them on the importance of increasing women's control over critical on-farm resources.

4.1.3. Access to external inputs for production of seed potato

The external inputs required for seed potato production cited by FGD participants were similar to those identified by agricultural extensionists (Section 3.3.3). The men in Wolmera district revealed that if external farm inputs were available in the market, any family member could buy them, whereas women found it difficult to buy fertilizer because it was heavy and thus difficult to deliver to the farm. Nonetheless, women in the same district reported that, despite men having greater access to external inputs, their acquisition decisions were made collaboratively, as detailed below.

“Although these decisions are usually made jointly, men source and hire land and labour because they have more bargaining power. Similarly, men are more likely than women to purchase fertilizer and fungicides because they are more mobile; however, the decision on what to purchase is made jointly. Nonetheless, if an external input is required urgently in the absence of the man, we as women assume this responsibility as long as we have the means. We can go shopping whenever we want. We are the ones who keep the money after selling livestock, for example, because the men give it to us to keep because we can better care for it.” Participants, Women FGD, Wolmera district.

Women in Quarit district revealed that fathers (men) had greater access to external inputs than mothers (women). This was due to the fact that some of the inputs, such as fertilizer, are heavy and would require a stronger person, such as a man, to purchase them from the market, and transport it to the farm. Despite the difficulties, the woman takes charge in the absence of the man. In female-headed households, women acquire inputs on their own, even fertilizer, which is considered an arduous task. This shows that in the absence of a man, women are capable of taking on difficult roles if they have the means and resources. The women in Farta district revealed that many families find it difficult to access external inputs, particularly seed, because it is only given to model farmers. The women FGD participants also revealed that they consult with their husbands and use gentle persuasion to access the family's meagre resource endowment. They emphasized that "as a family, we must stand together if we are to succeed," as explained below.

“If my husband goes out for paid labour, I stay at home and manage the farm. If I need a new wrapper, my husband and I will go to the market and purchase one. We grow a variety of crops, and in many cases, this is insufficient to feed the family. If we need to buy more food, such as teff, we decide on a quantity together. We go to the market together to sell potatoes, and the money earned is not brought home but spent in the market because it is never a lot anyway.” Participants, Women FGD Farta district.

Participants in FGDs also revealed that in an emergency, a family may sell their livestock or obtain a loan from an extended family member, but access to credit is still difficult. They mentioned that their families had existed harmoniously for many generations, and they would like to pass this on to their children.

Participants in the FGDs advocated for greater access for women to external farm inputs. Men in Quarit and Farta districts suggested that hired labour could increase women's access to agrochemicals, for example. Others suggested that the government shoulder taken on the responsibility of subsidizing fertilizer and ensuring timely delivery to both men and women farmers.

As in Gumer, both men and women were content with the status quo in Wolmera. Before gender sensitization and awareness, women in Gumer would hide a portion of the harvest from their husbands and sell it to meet personal needs. This has recently changed due to the promotion of gender equality and spouses discussing openly and honestly.

In general, men manage external farm inputs and resources in male-headed households; however, in the absence of the husband, women are able to take over the responsibility provided they have the means. Similarly, despite the difficulty, women in female-headed households take on the responsibility of providing external farm inputs. As a result, women may appear to have little control over external farm inputs because men are always in control. However, in their absence and with the necessary resources, women can purchase and control use of external farm inputs. Nonetheless, in extremely poor families, both men and women must manage and survive on whatever resources are available.

When the four FGD sites were compared, it appeared that the women in Gumer and Wolmera were intrinsically more vibrant and empowered compared to their counterparts in Adet and Farta districts. This could partially be attributed to previous interventions by various development organizations that have advocated for gender mainstreaming in livelihood development. It could thus be argued that gender inequalities should be addressed alongside poverty alleviation initiatives, for more meaningful change.

4.1.4. Control over and sharing benefits from the seed potato

The households' goal in producing seed potatoes was to increase household income, which was universal across all FGDs. According to the FGD participants, the income generated from seed potatoes is used to purchase fertilizer, oxen for ploughing, other foodstuffs such as maize, as well as catering health care and children's education. Women in the Farta district stated that harvested potatoes are usually used in three ways; (i) for home consumption, (ii) for sale as ware, and (iii) reserved and sold or used as seed for the following cropping season.

Furthermore, after the main harvest, the women scout the garden for any remaining tubers or ground keepers that can be used for food.

FGD participants at the Wolmera, Gumer, and Farta sites agreed that the family, particularly the wife and husband, decide how to distribute farm benefits. Women in the Farta district, on the other hand, revealed that money is usually given to men after harvesting and selling potatoes. Nonetheless, the decision to sell is made jointly, and most spouses agree on how to spend the proceeds.

The women discussed how family benefits were distributed, as detailed below.

“Unlike our mothers, who had no idea how much was harvested, sold, or earned, we now discuss and plan with our spouses. There has been considerable progress. We know what is harvested, sold, earned, invested, and saved in the bank.” (Participants in women FGD in Wolmera district).

“There is now less burden than there was previously. Previously, if there was food grain in the store, my husband would simply take it without informing me. Today, we decided together how much to sell and how to use the family benefit.” (Gumer FGD female participants).

Women participants in Gumer shared that, while most families in the community currently plan together, there are a few homes where this does not occur. When asked to describe the nature of such homes, they described the men as 'badly' behaved, polygamous, and negligent. There is no peace in such homes, the man is frequently drunk, and domestic violence is common, especially when women demand financial support for household needs. In such families, there may be cases of young children leaving homes or older children with their mother rebelling against the father.



Fig. 10: Men (left) and women (right) focus group discussion participants in Gumer district in April 2022

Women in Quarit district revealed that men were more influential in deciding how to use farm benefits because they are the 'farmers' and are more knowledgeable about the types of inputs to purchase. Furthermore, men were reported to have better opportunities than women to obtain information about diverse types of inputs in the market from development agents and other farmers. That is why men make the majority of decisions regarding the use of family income. Women, on the other hand, are the ones who keep the money from the sale of agricultural produce but cannot use it without the husband's permission. Women traditionally grow other crops such as garlic and Rhamnus along the compound as a source of personal income to supplement their

income. However, if this income is substantial, the wife must also declare it to the husband. This demonstrates that women in Quarit district have very little control over the use of farm benefits, despite the fact that their location is as rural as Gumer district, where women have a considerable influence over the use of family income. Participants in focus groups proposed changes to improve women's control over benefits shared by the sexes in a farm family. Both men and women in Gumer and Wolmera districts were content with the status quo. However, the women were quick to point out that in order to amplify the voice of women, it is critical to promote girlchild education while not neglecting boys as a means of reducing the gender gap. One participant described how her parents only educated her brothers, and how as a child she felt a "hunger" for education. She partially addressed her dream by enrolling in Functional Adult Literacy (FAL) classes and ensuring that all of her children, regardless of gender, attend school.

Women in Quarit district were more disenfranchised and felt they should have some say over how family income was spent. This is because, in the absence of their husbands, they must ensure that farm activities continue, which is difficult given husbands' current restrictions on the use of family income. They proposed that both husband and wife be educated and sensitized about the negative effects of gender disparities, as well as the importance of cooperation and sharing farm benefits.

District health and gender officers in Farta were praised for their efforts in training and sensitizing rural farmers about gender equality and equity, which has resulted in harmonious families in the majority of households. They have accomplished this through home visits in which they have shared information about the importance of family collaboration as well as the need for equitable sharing of family benefits. The men also praised the practice and suggested that it be expanded to other areas of regional government. According to extension agents, nutritionists, and gender officers, the difference can be seen in the marked difference in wellbeing between homes where men share roles and benefits with their wives and homes where men have complete control over decision making and the use of family resources. Gender equality, according to the FGD participants, fosters peace and love in families and communities, which is the foundation of a successful community and country.

5. Discussion and conclusions

Women play a significant role in many smallholder farming systems in Sub-Saharan Africa, accounting for at least half of the labour required in African agriculture. However, in male-dominated crops such as potato, women's contributions are rarely recognized, and women are 'invisible' actors in the value chain. In this study, we sought to determine whether or not women were involved in the seed potato value chain in project target areas in Ethiopia, as well as the gender constraints that may limit their participation.

While women continue to face significant disadvantages, particularly in terms of unpaid labour, access to on-farm resources, and external inputs, our findings show that gender norms are changing in Wolmera and Gumer districts. Further, the lessons learned in these two districts can be applied to other project intervention areas. The women and men we interacted with in both districts revealed the changes they had witnessed as a result of gender mainstreaming. Women not only demonstrated higher levels of agency (the ability to make decisions and capitalize on opportunities), but they were also relatively empowered.

The women revealed that the changes in division of roles and responsibilities within their families have contributed to reduction of their workload. They mentioned that through sensitization and trainings, domestic and farm work is now shared with their spouses which has led to bet spousal relations. Women in Gumer and Wolmera districts further reported having more time to themselves to rest or engage in other income-generating activities than before. Another indicator of progress in gender equality is the ownership of individual and joint bank accounts, the performance of which can be tracked, as shown below.

“As a woman, I have my own pocket money and bank account, and my husband has his own as well, but we also have a joint bank account.’ Despite the fact that the spouses have separate bank accounts, they are aware of what the other has in the bank. We know what the men have, and they know what we have. I will ask my child to read for me even if I do not know how to read. I do not need my husband’s permission to purchase such items for my personal needs. After all, we women are the ones who purchase all of the household necessities.”

It was interesting to learn that men confirmed this in their groups. The men stressed that they have both individual and joint accounts with their wives, emphasizing the importance of trust and joint decision making. Both men and women were quick to point out that this was only possible as a result of ongoing sensitization and training from NGOs, research, and educated family members, and that it may not be a common occurrence throughout the district. Such low-hanging fruit should be harvested for the benefit of other areas that are lagging behind in terms of gender equity, particularly Quarit district and, to a lesser extent, Farta.

The gender equality strategies developed by workshop participants will be useful, especially since they will be based on what has worked in the Gumer and Wolmera districts. As a result, we recommend that the following strategies be prioritized in future development interventions to achieve greater equality and equity.

1. Conduct gender scoping studies to assess existing gender disparities in labour use, resource access, and benefit sharing.
2. Conduct sensitization and awareness-raising activities to highlight gender disparities and their impact on family nutrition, stability, food security, and income security.
3. Involve communities in the targeted areas in the participatory design of 'solutions' to address gender disparities.
4. Create simple indicators to track progress toward gender equity and equality.
5. Make exposure, study, and exchange visits to and among communities that have made strides in improving gender relations.

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Appendix

Appendix A: List of gender assessment training workshop participants - Debre Tabor site

No	Name	Sex	Position	District
1	Wassie Alemu	M	Team Leader	Farta
2	Getachew Wondim	M	Kebele head	Farta
3	Yirga Miteku	M	Crop expert	Farta
4	Alemayehu Tigabu	M	Kebele head	Farta
5	Zemenay Gabriela	F	Crop expert	Farta
6	Kassew Azeze	M	Kebele head	Farta
7	Birkeye Gashaw	F	Crop expert	Farta
8	Zebider Adugan	F	Gender expert	Farta
9	Adissu Yesmaw	M	Team Leader	Fagita Lekoma
10	Misganaw Abebe	M	Gender expert	Fagita Lekoma
11	Yohanes Workie	M	Kebele head	Fagita Lekoma
12	Melkamu Desie	M	Crop expert	Fagita Lekoma
13	Asmare Menayehu	M	Kebele head	Fagita Lekoma
14	Chalie Gebru	M	Crop expert	Fagita Lekoma
15	Tsehayneh Cheklie	M	Kebele head	Fagita Lekoma
16	Negerew Tadele	M	Crop expert	Fagita Lekoma
17	Haymanot Atnafie	M	Team Leader	Guagusa Shikudad
18	Animut Bogale	M	Gender expert	Guagusa Shikudad
19	Esubalew Mekonen	M	Kebele head	Guagusa Shikudad
20	Alemnesh Zeleke	F	Crop expert	Guagusa Shikudad
21	Amare Ayen	M	Kebele head	Guagusa Shikudad
22	Zigale Berhanu	M	Crop expert	Guagusa Shikudad
23	Mekonen Yazie	M	Team Leader	Lay Gayint
24	Emebiet Tefera	F	Gender expert	Lay Gayint
25	Tamiru Adam	M	Kebele head	Lay Gayint
26	Mulunesh Mareye	F	Crop expert	Lay Gayint
27	Melaku Ayechew	M	Kebele head	Lay Gayint
28	Eyerus Enyew	F	Crop expert	Lay Gayint

Appendix B: List of gender assessment and training workshop participants – Adet ARC site

No	Name	Sex	Position	District
1	Gebeyaw Chanie	M	Team Leader	Quarit
2	Getenet Awoke	M	Gender expert	Quarit
3	Yechale Adam	M	Crop expert	Quarit
4	Wubaye Dagnachew	F	Crop expert	Quarit
5	Tesema Workie	M	Kebele head	Quarit
6	Andualem Amara	M	Kebele head	Quarit
7	Yalemtsehay Miheret	F	Crop expert	Quarit
8	Selenat Chekol	F	Crop expert	Quarit
9	Abebaw Aemiro	M	Horticulture	Dega Damot
10	Tadesse Siraye	M	Kebele head	Dega Damot
11	Fikerie Menuye	M	Crop expert	Dega Damot
12	Kefale Belay	M	Kebele head	Dega Damot
13	Hibrie Melak	F	Crop expert	Dega Damot
14	Melkamu Lake	M	Kebele head	Dega Damot
15	Lakachew Enyew	M	Crop expert	Dega Damot
16	Zelege Shegaw	M	Gender expert	Dega Damot
17	Atalay Waga	M	Kebele head	Dega Damot
18	Tirualem Alemsha	F	Crop Expert	Dega Damot
19	Yibeltal Mulugeta	M	Team leader	Yilmana Densa
20	Wubayehu Yesiwas	F	Gender expert	Yilmana Densa
21	Menichil Mekonen	M	Kebele head	Yilmana Densa
22	Dasash Ayalew	F	Crop expert	Yilmana Densa
23	Desalegn Adissu	M	Kebele head	Yilmana Densa
24	Kassaye Bimerew	F	Crop expert	Yilmana Densa
25	Tewachew Tadese	M	Kebele head	Yilmana Densa
26	Sefinew Getachew	M	Crop expert	Yilmana Densa

Appendix C: Lists of gender assessment and training workshop participants – Holetta ARC site

No	Name	Sex	Position	District
1	Bayisa Fana	M	Gender expert	Jeldu
2	Tadesse Nureg	M	Supervisor	Jeldu
3	Diro Chelkeba	M	Supervisor	Jeldu
4	Dame Benti	F	Supervisor	Jeldu
5	Negasa Teresa	M	Development agent	Jeldu
6	Bayisa Lenjisa	M	Development agent	Jeldu
7	Doche Kebede	F	Development agent	Jeldu
8	Getachew Tibebe	M	Development agent	Jeldu
9	Derartu Gonefa	F	Horticulture	Jeldu
10	Tolosa Debele	M	Horticulture	Jeldu
11	Fekadu Getachew	M	Horticulture	Degem
12	Chaltu Kebede	F	Gender expert	Degem
13	Girma Habtamu	M	Development agent	Degem
14	Berhanie Abere	M	Development agent	Degem
15	Gedefa Gemeda	M	Development agent	Degem
16	Tesemie Assefa	M	Development agent	Degem
17	Abera Seyum	M	Development agent	Degem
18	Galene Demesie	F	Development agent	Degem
19	Konjit Abebe	F	Development agent	Degem
20	Dechasa Feyesa	M	Development agent	Degem
21	Shumet Embiale	M	Focal	Wolmera
22	Zufan Assefa	F	Gender	Wolmera
23	Mikiyas Biru	M	Horticulture	Wolmera
24	Meseret Gizachew	F	Supervisor	Wolmera
25	Tamirat Feyisa	M	Supervisor	Wolmera
26	Ayichilum Deme	M	Supervisor	Wolmera
27	Aberash Tadesse	F	Development agent	Wolmera
28	Kibi Terefe	F	Development agent	Wolmera
29	Regasa Belayinu	M	Development agent	Wolmera
30	Wasanelesh Abera	F	Development agent	Wolmera

Appendix D: Lists of gender assessment and training workshop participants – Welkite site

No	Name	Sex	Position	District
1	Berhanu Hailemeskel	M	Focal	Wonchi
2	Huluagersh Seyum	F	Gender	Wonchi
3	Alemnesh Bedada	F	Development agent	Wonchi
4	Tadele Degu	M	Supervisor	Wonchi
5	Fatuma Leta	M	Development agent	Wonchi
6	Mosisa Abera	M	Supervisor	Wonchi
7	Alemayehu Woldemichael	M	Development agent	Wonchi
8	Temesgen Misgan	M	Supervisor	Wonchi
9	Adane Fentaye	M	Development agent	Wonchi
10	Gashaw Berhanu	M	Supervisor	Wonchi
11	Tesfaye Nedese	M	Development agent	Wonchi
12	Tariku Abebe	M	Supervisor	Wonchi
13	Solomon Berhanu	M	Supervisor	Gumer
14	Tadele Ahmed	M	Focal	Gumer
15	Nur Merheye	M	Supervisor	Gumer
16	Girma Assefa	M	Supervisor	Gumer
17	Zulfa Sunkie	F	Gender	Gumer
18	Yehiya Siraj	F	Development agent	Gumer
19	Jilalu Kemal	M	Development agent	Gumer
20	Bereket Mesele	M	Development agent	Gumer
21	Yordanos Woldemetkin	F	Development agent	Gumer
22	Temesgen Abebe	M	Supervisor	Gumer
23	Abdi Kedir	M	Horticulture	Mirab Azernet
24	Abera Anito	M	Supervisor	Mirab Azernet
25	Belay Gebtago	M	Development agent	Mirab Azernet
26	Adinew Ayele	M	Supervisor	Mirab Azernet
27	Mukamil Hayilu	M	Development agent	Mirab Azernet
28	Melese Teklie	M	Supervisor	Mirab Azernet
29	Lemira Nuri	F	Development agent	Mirab Azernet
30	Seyefu Haileyesus	M	Supervisor	Mirab Azernet
31	Nesir Seid	M	Development agent	Mirab Azernet
32	Zubeyeda Siraj	F	Gender	Mirab Azernet

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