

Gender Analysis Report

STDF/PG/807

Managing scale insects in fresh fruits in East Africa to
enhance market access.



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List of Abbreviations

CABI	Centre for Agriculture and Biosciences International
EAC	East African Community
ISABU	Institut des Sciences Agronomiques du Burundi
KALRO	Kenya Agricultural and Livestock Research Organisation
KEFRI	Kenya Forestry Research Institute
KEPHIS	Kenya Plant Health Inspectorate Service
NMK	National Museums of Kenya
NPPOs	National Plant Protection Organizations
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility

1. Executive Summary

This report presents the results of a gender analysis conducted for the STDF-funded project titled "Managing scale insects in fresh fruits in East Africa to enhance market access" (STDF/PG/807). With a focus on papaya, pineapples, avocados, and mangoes. The objective of the gender analysis was to identify and understand how gender dynamics influence the management of invasive scale insects, production, and market access of quality fruit in East Africa. The report provides valuable insights and recommendations on promoting gender equality and inclusivity within the project.

The gender analysis was conducted using a diverse range of qualitative and quantitative research methods, including literature review and fieldwork. The research questions addressed gender roles, responsibilities, barriers, and opportunities related to the management of invasive scale insects. The goal was to analyse how gender dynamics shape social systems and provide recommendations for a more inclusive and transformative project design and implementation.

The key findings are highlighted below based on the research questions.

How gender roles and responsibilities influence participation in initiatives targeting the management of invasive scale insect pests and subsequent market access

- Gender roles significantly influence participation in scale insect management and market access for horticultural products in Burundi, Kenya, and Uganda. Women are extensively involved in the production of targeted fruits, handling crucial tasks such as weeding, harvesting, and post-harvest processing. Men, on the other hand, are more involved in commercial production and marketing. Despite this division of labour, 50.6% of respondents perceive an equal distribution of roles in the horticulture sector. Notably, 54.3% of women and 48% of men agree on the perceived equality, suggesting women may feel more empowered in their roles.
- Access to resources varies, with women in Uganda and Kenya having relatively equal access compared to men, while in Burundi, men dominate resource acquisition. However, both men and women lack technological skills and face challenges in effectively utilizing information, tools, and technologies.
- Decision-making is inclusive in Uganda and Kenya, but in Burundi, it remains predominantly male-dominated, limiting women's market access and control.

The gender roles and responsibilities in relation to the management of invasive scale insects

- In Uganda, traditional gender roles are shifting as all genders increasingly engage in various production levels; men primarily perform hard labour, while women handle less physically demanding tasks.
- In Kenya, men and women share roles in farm preparation, planting, and spraying, with women also handling weeding and men focusing on market access; youth are involved in marketing, spraying chemicals, applying fertilizer, pruning, and irrigation.

- In Burundi, women's agricultural contributions are significant but constrained by a patriarchal society where men dominate decision-making, limiting women's market access and control.
- Generally, women actively participate in on-farm activities like scale insect monitoring and organic pest control but face challenges due to limited access to labour-saving technologies and resources, while men dominate the commercial aspects of fruit production and income control. Although women receive training on pest control, their contributions to its design and implementation are restricted by social norms and mobility issues, whereas men benefit more from extension services and hold influential roles in decision-making. Consequently, women's perspectives are often underrepresented in community pest management discussions, and their input lacks the necessary weight in consultations, further entrenching men's dominance in agricultural decision-making processes.

The gender-specific barriers and facilitators for effective participation in surveillance measures against invasive scale insects

- Gender-specific barriers, such as limited mobility due to household responsibilities, time constraints, and access to information, hinder women's full participation in scale insect surveillance and management activities. Women face difficulties attending training sessions during the day due to domestic chores.
- Market access and control are also impacted by gender-specific barriers, with women facing operational difficulties in the export sector and intermediary involvement increasing prices, though age-specific barriers are absent.
- Facilitators, such as leveraging women's traditional pest control knowledge and providing gender-responsive extension services, including convenient training times and female extension agents, can enhance women's engagement.

The gender-specific challenges and opportunities encountered

- Gender-specific barriers significantly impact access to resources, technologies, and knowledge for scale insect management. Women often face limited access to land, finance, and inputs, while men generally have better access to these resources.
- In Uganda, women are primarily affected by limited access to land. Men primarily face challenges with accessing genuine agricultural inputs. Although women also struggle with counterfeit inputs, land access remains their primary concern.
- In Kenya, both genders struggle with limited access to agricultural inputs, affecting productivity and pest management.
- In Burundi, women face significant land access issues, and men are equally affected by limited land and agricultural inputs.
- Across Kenya, Burundi, and Uganda, more women than men recognize gender-specific barriers to market access and control, with transportation and market information being key obstacles. Men may underestimate these challenges due to their relative advantages.
- Access to training and skills development is notably limited, with high percentages of both women and men in all three countries acknowledging this issue. Enhancing training opportunities is crucial for empowering individuals and improving market engagement.

How gender dynamics influence the inclusivity of stakeholder engagement strategies

- Inclusion of voices: A higher percentage of female respondents compared to male respondents feel that their voices and perspectives are rarely or never included in the decision-making processes related to their participation in the fruit production sector. This indicates a significant gender gap in inclusive decision-making practices.
- Personal empowerment: Men perceive more available opportunities for growth compared to women, suggesting fewer barriers for men or greater access to leadership positions. Women face barriers such as restrictive social norms, lack of access to resources, limited networks, and confidence issues. These barriers are deeply rooted in traditional gender roles and power structures that favour men, hindering women's agency and personal empowerment in the sector.

Specific recommendations for integration in the project to inform and strengthen project, design, implementation, monitoring, and evaluation.

- **Leverage women's traditional ecological knowledge for scale insect management:**
 - Identify and document the traditional pest control methods used by women farmers, such as the use of local botanical extracts or cultural practices.
 - Integrate these indigenous techniques into the project's Integrated Pest Management (IPM) strategies, validating their efficacy and promoting their use alongside other scientific methods.
 - Ensure women farmers are actively involved in adapting and disseminating these traditional approaches within their communities.
- **Establish gender-responsive extension and advisory services:**
 - Train both male and female extension agents on gender-sensitive approaches to scale insect management and market access.
 - Employ more female extension agents to better reach and support women farmers, building on their trust and understanding of women's needs.
 - Develop gender-responsive extension materials and delivery channels (e.g., farmer field schools, demonstration plots) that cater to the learning preferences and time constraints of women. Using participatory approaches like farmer field schools and demonstration plots with appropriate operational timings. Additionally, providing supportive environments, ongoing technical support, and regular feedback mechanisms ensures the effectiveness and inclusivity of these programs.
- **Promote women's leadership and decision-making in farmer organizations:**
 - Encourage the formation of women-led farmer groups or cooperatives focused on scale insect management and fruit marketing.
 - Provide leadership and negotiation skills training to women to increase their representation and influence in existing farmer organizations and value chain platforms.
 - Ensure women's voices are heard and their needs are addressed in the project's stakeholder engagement processes and decision-making bodies.
- **Address the gendered division of labour and household dynamics:**

- Engage both men and women in discussions about the distribution of additional income and decision-making power resulting from improved scale insect management and increased fruit yields.
 - Promote joint household-level planning and agreements on the allocation of resources and benefits to ensure equitable distribution.
 - Support the adoption of labour-saving technologies (e.g., sprayers, pruning tools) that can reduce the workload of women in scale insect management activities.
- **Monitor and evaluate the gender-differentiated impacts:**
- Develop a robust gender-responsive monitoring and evaluation framework that includes specific indicators for tracking women's participation and contributions in pest management activities.
 - Collect sex-disaggregated data and qualitative information to assess the differentiated impacts on men and women, including changes in their knowledge, practices, access to resources, and decision-making power.
 - Regularly review and adapt the project's strategies based on the gender-specific findings to ensure equitable and transformative outcomes.

Conclusion.

The gender analysis provides critical insights to guide the STDF-funded project in managing scale insects in fresh fruits in East Africa. By understanding the gender-differentiated roles, barriers, and opportunities related to scale insect management and market access, the project could design and implement more inclusive and transformative interventions. The key recommendations outlined in this report, such as promoting joint decision-making on income distribution, strengthening women's participation in marketing, and addressing gender gaps in access to resources and technologies, will be instrumental in ensuring equitable benefits for both men and women engaged in the horticultural value chains. Moving forward, the project should continue to monitor and adapt its approach to address any unintended negative consequences and foster sustainable, gender-responsive outcomes. Applying a gender lens throughout the project cycle will contribute to more meaningful and lasting impacts on communities in Burundi, Kenya, and Uganda.

2 Introduction

2.1 About CABI and key partners

CABI, an international non-profit organisation with the guidance of 49 Member Countries, applies scientific knowledge to improve lives worldwide, focusing on agriculture and environmental challenges. They empower people by providing them with information, skills, and tools through their global network of scientific staff. The Centre for Agriculture and Biosciences International (CABI) is dedicated to addressing global issues such as poverty, hunger, education, equality, sustainability, climate change, and biodiversity by sharing knowledge and scientific expertise. They achieve this by assisting farmers in increasing their crop yields and reducing losses, combating threats to agriculture and the

environment from pests and diseases, safeguarding natural ecosystems from invasive species, and enhancing access to scientific knowledge.

CABI collaborates with key partners including the following. Kenya Plant Health Inspectorate Service (KEPHIS), a government parastatal whose responsibility is to assure the quality of agricultural inputs and produce to prevent adverse impacts on the economy, the environment, and human health. Uganda National Plant Protection Organisation (NAPO), which is the department of crop inspection and certification, in Uganda's Ministry of Agriculture Animal Industry and Fisheries. The Plant Protection Department of the Ministry of the Environment, Agriculture and Livestock in Burundi, is charged with the role of plant protection in Burundi. Kenya Forestry Research Institute (KEFRI), whose mission is to conduct research in forestry and allied natural resources for sustainable development through innovations, capacity building and technology transfer.

2.2 Background and Rationale

The Standards and Trade Development Facility ¹(STDF) is a global partnership to facilitate safe trade, contributing to sustainable economic growth, poverty reduction and food security. It promotes improved food safety, animal, and plant health capacity in developing countries.

The STDF approaches gender as a crosscutting theme and aims to mainstream and/or integrate gender analysis and perspectives across STDF's global programme and workstreams including STDF projects. Mainstreaming gender is important to improve the results and impacts of STDF's work, in line with the STDF Strategy 2020-2024 "Safe and Inclusive Trade Horizons for Developing Countries".² The STDF Gender Action Plan provides a systematic and coherent approach to mainstream gender in all STDF work.

This document outlines the implementation details for a gender analysis of the STDF-funded project entitled, "Managing scale insects in fresh fruits in East Africa to enhance market access". The project will enhance regional collaboration in managing scale insects by sharing new pest reports of invasive species, improving cross-border inspection regulations and practice, sharing pest interception reports and generally, follow the EAC SPS protocol and WTO-SPS agreement. Consequently, the project recognises the need for collaboration with the different stakeholders. The countries of focus for the project are Kenya, Uganda, and Burundi.

The objective of this project is to increase production and market access to quality fruit (papaya, pineapple, avocados and mangoes) in East Africa through improved surveillance, management of scale insect pests and compliance with SPS export trade requirements through (1) Improved identification capacity of invasive scale insects by taxonomists, NPPOs and extension officers; (2) Improved skills in pest surveillance and monitoring capacity of invasive scale insects pests by NPPOs; (3) Effective management of invasive scale insects at farm level, and (4) Enhanced stakeholder dialogue and sector

¹ See: <https://www.standardsfacility.org/fr>

² See: [STDF_Strategy_2020-2024.pdf \(standardsfacility.org\)](#)

analysis for effective communication and advocacy among traders, plant health actors and exporters.

2.3 Purpose, objectives, and scope of the assessment

The objective of this gender analysis was to identify and understand the different ways in which gender and power dynamics affect the management of invasive scale insects, production, and market access of quality fruit in East Africa, identify and analyse how gender relations and inequalities (in terms of needs, challenges and opportunities) shape and are shaped by power dynamics within the focus counties. This included looking at how gender roles, gender relations, stereotypes, and discrimination affect or contribute to access to resources, opportunities, and decision-making power for different groups of people. The goal of the gender analysis was to understand how gender dynamics shape social systems and how to promote gender equality in these societies, and to make sectorial-level recommendations (within the project's scope and budget) on how the project can be designed and implemented to be more inclusive and transformative for all genders. This research also aimed at providing the project with a deeper contextual understanding of the more complex dynamics in the target communities (Micro level analysis), sectorial thematic level support (Meso and Macro level analysis) on gender, production, and market access on the focus fruits (papaya, pineapples, avocados and mangoes), voice and leadership leading to effective and transformative advocacy.

The findings and recommendations of this gender analysis should be integrated into the project in a relevant and meaningful way to inform and strengthen the project, design, implementation, monitoring, and evaluation.

2.4 Research Questions

This study examines how gender dynamics impact participation and outcomes in initiatives targeting invasive-scale insect management in Burundi, Kenya, and Uganda's horticulture sectors. It explores gender-specific barriers, facilitators, and differentiated impacts, while assessing the inclusivity of stakeholder engagement and potential for gender-transformative approaches. The findings aim to inform future programs that promote equitable and impactful pest management practices in the region by expanding on the below research questions.

- I. How do gender roles and responsibilities influence participation in initiatives targeting the management of invasive scale insect pests and subsequent market access for horticultural products in Burundi, Kenya, and Uganda?
- II. What are the gender roles and responsibilities in relation to the management of invasive scale insects (both in private vs public sectors)?
- III. What are the gender-specific barriers and facilitators to effective participation in surveillance measures against invasive scale insects?
- IV. What are the gender-specific challenges and opportunities encountered by men and women in accessing and utilizing resources, technologies, and knowledge for the implementation of enhanced management approaches for invasive scale insects?

- V. How do gender dynamics influence the inclusivity of stakeholder engagement strategies, dialogue platforms, and sector analyses in enhancing communication, collaboration, and advocacy efforts within the targeted horticultural commodities?
- VI. Assess if there are lessons/best practices that demonstrate the positive impact of gender-transformative approaches on the effectiveness, sustainability, and inclusivity of management strategies for invasive scale insects in targeted horticultural commodities and how they can be applied to the project.

3 Methodology

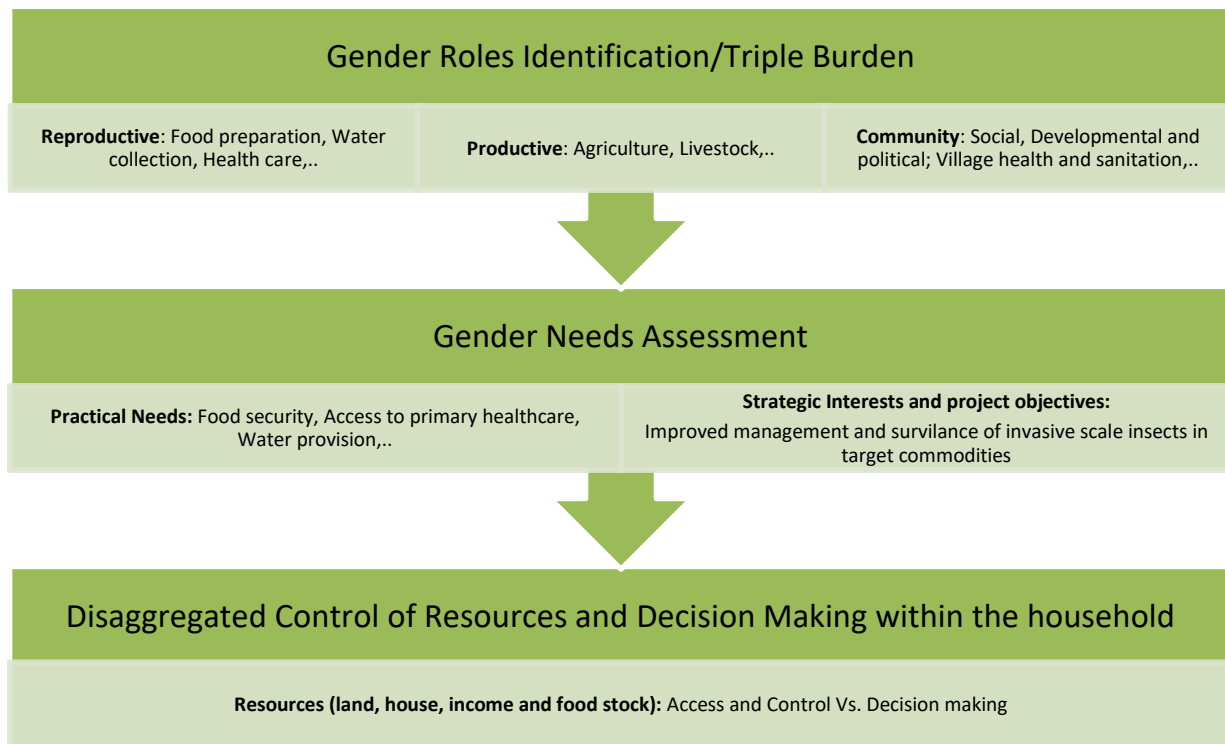
This gender analysis utilized a diverse range of methodologies, incorporating qualitative and quantitative methods for both data collection and analysis. The insights garnered from a combined approach of literature review and fieldwork provide valuable input for crafting inclusive interventions. Following the Moser Framework for Gender Planning³ as it best suits the need to identify the gender roles within the areas of interest; assess the gender needs, understand the differential control of resources and decision-making within the household, and understand the balance between the triple roles of women (i.e. productive, reproductive and community).

Figure 1: Application of Moser Framework In the “Managing scale insects in fresh fruits in East Africa to enhance market access” Project.

The Moser gender analysis matrix framework as indicated in figure 1, encourages bottom-up analysis through community participation to identify how gender differences impact on four areas: labour; time; resources; and sociocultural factors. This framework provides a community-based technique for the identification and analysis of gender differences and is applied on the level of society, the community, the household, and women and men as individuals. In doing so, it assists the community in identifying and challenging their assumptions about gender roles in a constructive manner.^[1]

[1] https://eige.europa.eu/sites/default/files/mh0319271enn_002.pdf

³ https://eige.europa.eu/sites/default/files/documents/mh0319273enn_002.pdf



This gender analysis was implemented in four phases: 1. A desk review of relevant national policies, legal and regulatory frameworks, and preexisting assessments in the sector. 2. Stakeholder analysis and mapping of all relevant authorities and NPPOs 3. Consultations with relevant local government authorities and villagers in three villages in two of the target provinces. 4. Data analysis and presentation of recommendations.

3.1 Sampling Design

The standard formula below determines the sample size for the quantitative data collection. The formula provides a minimum sample for obtaining accurate results at a confidence level of 95%. This formula was used because it is difficult to know the total population of those involved in the production of the targeted fresh fruits.

$$n = \frac{Z^2 Pq}{e^2}$$

In this case, n is the sample size, Z=1.96, on the Z table at a 95% confidence level, E is the sampling error at 10%⁴, P is the proportion of the population in support of the variable (or

⁴ The sampling error highly determines the sample size. In this case, it was set at 10%, thus sample size determined was 96. Assuming a sampling error of 5%, a sample of 384 would have been drawn.

maximum variability of the population at 50% (0.5), q=1-P proportion of the population not supporting the variable

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.1^2}$$

$$n = \frac{0.9604}{0.01}$$

$$n = 96.04$$

The estimated minimum sample size for each country is therefore 96. That is, 96 in Kenya, 96 in Uganda and 96 in Burundi.

Simple Random Sampling: the sample was randomly selected from the identified categories (women, men, and youth) in the targeted commodities.

3.2 Demographics of Survey Respondents

A total of 24 Key Informant Interviews and 10 Focus Group Discussions were conducted in 9 counties in Burundi, Kenya, and Uganda. Please refer to Annex B and C for data description and list of interviewees.

Quantitative data was triangulated with qualitative data to understand how gender and power dynamics affect the management of invasive scale insects, production, and market access of quality fruit in East Africa. The quantitative data was collected through a survey that was administered among farmers in Burundi, Kenya, and Uganda. The required sample for each country was 96. We received 102 responses in Burundi, 77 farmers responded in Uganda and 76 in Kenya. The approach of engagement (survey) yielded better results in terms of response, compared to Uganda and Kenya where farmers where external factors such as farming schedules, market activities, and weather limited participation.

In total, 255 responses were received from in the three countries, of which, 59% (150) were from males and 41% (105) from females (**Details are provided in Annex 1**). 81% of the respondents were above 36 years while 19% were 35 years and below (the youth). 89% were from rural areas, 9% from peri-urban areas and 1% were from urban areas. Other demographic aspects are summarised in **Annex B**.

The demographics indicate higher education levels among male respondents compared to the females, which potentially indicates higher chances for the men to have more access to information and knowledge about modern agricultural practices, pest management techniques, and market dynamics.

A higher percentage of men own farms mangoes, avocados, papayas, and passion fruits farms compared to women. Farm ownership translates to control over land and resources. Men owning more farms means they have greater access to land, which is a critical asset for agricultural production and implementing pest management strategies.

4 Desk Review (literature review)

The contextual situation of gender equality in East Africa

Despite significant advancements in economic growth and the increased presence of women in leadership roles across East Africa, gender inequality persists as a substantial obstacle to progress and well-being in the region (World Bank, 2022). Women encounter various barriers in accessing assets, markets, capital, training, and technologies, and they remain underrepresented, if not excluded, from decision-making processes at all levels (UN Women, 2020). This hinders their ability to realize their full potential and make meaningful contributions to their countries' economies (OECD, 2019).

Multiple efforts and initiatives remain striving to enhance economic empowerment opportunities and bridge gender disparities in participation between women and men. These initiatives facilitate women's access to credit, facilitate their engagement in international trade, and connect them with global markets (OECD, 2019).

While regional economies are transitioning from predominantly agrarian to service- and industry-based, a significant percentage of women in Burundi, Kenya, Rwanda, Tanzania, and Uganda still engage in agricultural work, more specifically, 96% of women in Burundi, 76% in Kenya, 84% in Rwanda, 71% in Tanzania and 77% in Uganda still work in agriculture (FAO, 2021). Despite its time-intensive and often unpaid nature, which constrains their ability to pursue paid employment (ILO, 2018). Furthermore, women's land ownership rights remain limited in many countries due to ambiguities in national laws or discriminatory customary practices (UNDP, 2018). Access to financial services such as bank accounts and mobile money accounts is disproportionately low among women, exacerbated by factors such as affordability, illiteracy, and a lack of digital skills, which contribute to the widening gender digital gap and hinder women's access to mobile phones and ownership (GSMA, 2021). Moreover, inadequate measures exist to protect women from sexual harassment, violence, and property rights violations (UNFPA, 2020).

The Meta Level: Norms and Traditional Roles of Women and Men in East Africa

In East Africa, norms and traditional roles of women and men are deeply entrenched in cultural, social, and historical contexts, shaping the fabric of everyday life (Tamale, 2020). Traditionally, women in East African societies have been assigned roles primarily centred around the domestic sphere. They are often responsible for household chores, child-rearing, and nurturing familial relationships (Silberschmidt, 2001). Additionally, women frequently play vital roles in agricultural activities, contributing significantly to food production and sustaining rural economies (FAO, 2020). However, despite these essential roles, women have often faced systemic barriers to education, employment, and decision-making, perpetuating gender inequalities (UNDP, 2018). According to data from the World Bank's "Women, Business, and the Law 2020" report, only 32.6% of women in East Africa participate in the labour force, compared to 75.1% of men, reflecting the stark disparities in economic opportunities (World Bank, 2020).

Conversely, men in East African societies have historically been assigned roles that emphasize provision, protection, and authority (Silberschmidt, 2001). Traditionally, men are expected to be the primary breadwinners, engaging in activities such as farming, herding, or other forms of labour to support their families financially (Morrell & Jewkes, 2011). Moreover, men often hold positions of leadership within the community, exerting influence over social, economic, and political affairs (Tamale, 2020). However, these traditional roles can also be restrictive, placing immense pressure on men to conform to rigid expectations of masculinity, which may limit their emotional expression and personal fulfilment (Morrell & Jewkes, 2011). According to UNICEF's "The State of the World's Children 2021" report, only 25% of boys in East Africa complete secondary education, compared to 27% of girls, highlighting the complex intersections between traditional gender roles and educational outcomes (UNICEF, 2021).

In recent years, there have been notable shifts in gender dynamics in East Africa, influenced by factors such as urbanization, globalization, and advancements in education and technology (Tamale, 2020). Increasingly, women are challenging traditional gender roles and stereotypes, advocating for gender equality, access to education, and economic empowerment (UN Women, 2021). Similarly, there is a growing recognition of the importance of involving men as allies in promoting gender equality and dismantling harmful patriarchal norms (Morrell & Jewkes, 2011). As East African societies continue to evolve, there is a pressing need to foster inclusive environments that value the contributions and agency of both women and men, paving the way for more equitable and prosperous communities (UNDP, 2018).

Macro Level: International and Regional Commitments & National Legislation and Policies

In East Africa, international and regional commitments, as well as national legislation and policies, play crucial roles in shaping gender roles and promoting gender equality. At the international level, countries in East Africa are signatories to various conventions and agreements aimed at advancing women's rights and gender equality, including the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Beijing Declaration and Platform for Action (United Nations, 1979). These agreements set forth principles and guidelines for governments to address gender disparities and discrimination, emphasizing the importance of women's empowerment, access to education, and participation in decision-making processes. Additionally, at the regional level, organizations such as the African Union (AU) have adopted frameworks such as the Maputo Protocol, which specifically addresses women's rights and gender equality in Africa. These regional commitments provide further impetus for governments in East Africa to enact and implement policies that promote gender equality (African Union, 2003).

Nationally, governments in East Africa have developed legislative and policy frameworks to address gender disparities and promote women's empowerment. For example, countries like Rwanda have implemented gender quotas in political representation, resulting in one of the highest proportions of women in parliament globally (Rwanda's Inter-Parliamentary Union, 2021). Moreover, various countries in the region have enacted laws to combat gender-based violence and discrimination, such as Kenya's Sexual Offences Act (Government of Kenya,

2006) and Tanzania's Law of Marriage Act. These legislative measures aim to protect women's rights and ensure equal access to justice and opportunities.

Furthermore, governments in East Africa have adopted national gender policies and action plans to mainstream gender considerations across various sectors, including education, health, and economic development. For instance, Uganda's National Gender Policy prioritizes women's economic empowerment and access to education and healthcare (Government of Uganda, 2007). Similarly, Ethiopia's Gender Equality and Women's Empowerment Policy Framework focuses on addressing gender disparities in education, employment, and political participation (Government of Ethiopia, 2017).

Overall, international, and regional commitments, coupled with national legislation and policies, play integral roles in advancing gender equality and transforming gender roles in East Africa. However, challenges remain in translating these commitments into meaningful action and achieving substantive gender equality outcomes. Continued efforts are needed to strengthen legal frameworks, enhance institutional capacity, and promote social and cultural change to realize the full potential of gender equality in the region.

Political participation: decision making and leadership.

Political participation, decision-making, and leadership in East Africa are areas where gender roles and gender equality have significant implications. Historically, women in the region have been underrepresented in political spheres, with limited access to decision-making positions and leadership roles (IFES, 2019). Despite constitutional provisions and legal frameworks promoting gender equality, such as quotas for women's representation in parliament, gender disparities persist. In many East African countries, patriarchal norms and cultural attitudes continue to hinder women's full participation in politics (UNDP, 2020). For instance, Rwanda stands out as a notable exception, with the highest proportion of women in parliament globally, largely attributed to gender quotas and deliberate efforts to promote women's leadership (IFES, 2019). However, in other countries like Kenya and Tanzania, women still face challenges such as gender-based violence, lack of access to resources, and societal expectations that prioritize men's political involvement (Human Rights Watch, 2020).

Efforts to address these disparities include advocacy for women's rights, capacity-building programs, and initiatives to promote women's leadership in political parties and civil society organizations (ISS, 2020). As East African societies strive for more inclusive political systems, addressing gender disparities in political participation remains a critical priority to ensure the full realization of democracy and equitable governance.

Education

Education in East Africa is a crucial arena for addressing gender roles and advancing gender equality. Historically, gender disparities have persisted in access to education, with girls facing systemic barriers such as cultural norms, early marriage, household responsibilities, and limited infrastructure (UNESCO, 2020). Despite progress in enrolment rates, particularly at the primary level, girls often face challenges in continuing their education beyond the primary level. Moreover, gender gaps persist in fields such as science, technology,

engineering, and mathematics (STEM), where girls are underrepresented due to stereotypes and biases (UNICEF, 2019).

Efforts to promote gender equality in education include policy interventions such as abolishing school fees, providing scholarships for girls, and implementing gender-sensitive curriculum reforms (Africa Gender Equality Index, 2021). Additionally, initiatives focusing on girls' empowerment, parental engagement, and community sensitization have shown promising results in improving girls' access to education and retention rates (Plan International, 2020). However, challenges remain, including inadequate resources, teacher training, and persistent cultural beliefs that prioritize boys' education over girls' (Save the Children, 2019). As East African countries strive to achieve Sustainable Development Goal 4 (Quality Education) and promote inclusive and equitable education systems, addressing gender disparities in education remains paramount to unlocking the full potential of individuals and societies.

Economic participation

Economic participation in East Africa is intricately linked to gender roles and equality, reflecting both progress and persistent challenges. Traditionally, women have been active participants in the region's informal economy, engaging in activities such as agriculture, trade, and small-scale entrepreneurship (World Bank, 2020). However, women often face barriers to accessing formal employment, credit, and land ownership, limiting their economic empowerment and perpetuating gender disparities (UN Women, 2021). Gender gaps also persist in sectors such as technology and finance, where women are underrepresented due to limited access to education and training opportunities (African Development Bank, 2019). Efforts to promote gender equality in the economic sphere include initiatives to enhance women's access to financial services, skills development programs, and support for women-owned businesses (African Union, 2018).

Additionally, legal reforms and policy interventions, such as affirmative action measures and gender-responsive budgeting, aim to address structural inequalities and promote women's economic inclusion (World Bank, 2020). Despite these efforts, challenges remain, including discriminatory practices, cultural norms, and limited awareness of women's rights (United Nations, 2020). As East African countries pursue sustainable development goals and strive for inclusive economic growth, addressing gender disparities in economic participation is essential for unlocking the region's full potential and fostering prosperity for all.

5 Analysis Results

In general, the initiative of management of scale insects in fresh fruits is well anticipated by all consulted stakeholders, including those at the district and village levels. Participants at these levels observed that resources (seeds, tools, pesticides, fertilisers) are becoming increasingly scarce and of poorer quality. Women, who play a significant role in the farming industry, possess extensive knowledge about farming and have witnessed the detrimental effects of pesticides and the degradation of fruit quality. Different roles were identified from

the analyses, similar in all three countries surveyed. Women's roles are mainly focused on weeding, planting and harvesting fruits, while men work on pruning, scouting and spraying, finally, youth's roles come as assistants to either men or women depending on the gender. As the quality of all fruits continues to decline, women are faced with the challenge of either travelling longer distances or having access to fewer products for domestic consumption. [BA2] Additionally, stakeholders have expressed concerns about the production processes regarding pests and diseases, climate change, the cost of production and the role of intermediaries.[BA3]

Below are key findings from the whole assessment synthesizing results from the three methodologies conducted.

5.1 Gender Roles in Agriculture and Production of Avocado, Papaya, Pineapples, and Mangoes:

According to data from the Food and Agriculture Organization (FAO), the production of key tropical fruits in Kenya, Burundi, and Uganda has increased in recent years, accompanied by slight changes in the gender composition of the agricultural workforce.

In Kenya, avocado production has steadily increased from 185,000 metric tons in 2015 to 218,000 metric tons in 2020 (FAO, 2022a). During the same period, the number of Kenyan avocado farmers grew from 500,000 to 600,000, with women accounting for 45% of the total workforce in 2020, up from 40% in 2015 (FAO, 2022a).

In Burundi, pineapple production has risen from 83,000 metric tons in 2015 to 95,000 metric tons in 2020 (FAO, 2022b), with the number of pineapple farmers increasing from 150,000 to 180,000. The proportion of women among pineapple farmers has remained relatively stable, at around 35% over the same period (FAO, 2022b).

Meanwhile, in Uganda, mango production has expanded from 280,000 metric tons in 2015 to 320,000 metric tons in 2020 (FAO, 2022c), accompanied by a growth in the number of mango farmers from 350,000 to 400,000. The share of women among mango farmers has increased from 42% in 2015 to 47% in 2020 (FAO, 2022c). Papaya production in Uganda has also increased, from 85,000 metric tons in 2015 to 95,000 metric tons in 2020 (FAO, 2022c), with the number of papaya farmers rising from 120,000 to 140,000. The proportion of women among papaya farmers has remained stable at around 40% during this period (FAO, 2022c).

These production and workforce trends highlight the important role of both men and women in the agricultural economies of Kenya, Burundi, and Uganda, with a gradual shift towards greater gender parity in some sectors. In fruit production, women are integral participants, engaging in various agricultural tasks ranging from planting and weeding to harvesting and post-harvest processing. Conversely, men commonly undertake responsibilities like land preparation, irrigation, and marketing within the same domain. Recognizing and valuing the

contributions of both genders is paramount, emphasizing the need for equitable opportunities in participation and decision-making processes within fruit production.

Study findings indicated in table 1 below, show that, overall, 50.6% of the respondents in Kenya, Uganda and Burundi agree that the roles among the men, women and youth are equally distributed in the horticulture sector. The fact that slightly over half of the respondents believe roles are equally distributed suggests a perception of fairness and equality.

Table 1: Distribution of roles between men, women, and youth

Country	Variable	Options	Men (n=150)	Women (n=105)	Overall (n=255)
Overall (3 countries)	Distribution of roles between men, women, and youth in the horticulture sector	Women's roles are limited to specific tasks	11.3%	15.2%	12.9%
		Roles are shared equally	48.0%	54.3%	50.6%
		Men have more decision-making roles	39.3%	23.8%	32.9%
		Others	1.3%	6.7%	3.5%
Country	Variable	Options	Men (n= 52)	Women (n=25)	Overall (n=77)
Uganda	Distribution of roles between men, women, and youth in the horticulture sector	Women's roles are limited to specific tasks	19.2%	24.0%	20.8%
		Roles are shared equally	51.9%	40.0%	48.1%
		Men have more decision-making roles	26.9%	32.0%	28.6%
		Others	1.9%	4.0%	2.6%
Country	Variable	Options	Men (n= 43)	Women (n=33)	Overall (n=76)
Kenya	Distribution of roles between men, women, and youth in the horticulture sector	Women's roles are limited to specific tasks	7.0%	15.2%	10.5%
		Roles are shared equally	48.8%	54.5%	51.3%
		Men have more decision-making roles	44.2%	21.2%	34.2%
		Others	0.0%	9.1%	3.9%
Country	Variable	Options	Men (n= 55)	Women (n=47)	Overall (n=102)

Burundi	Distribution of roles between men, women, and youth in the horticulture sector	Women's roles are limited to specific tasks	7.3%	10.6%	8.8%
		Roles are shared equally	43.6%	61.7%	52.0%
		Men have more decision-making roles	47.3%	21.3%	35.3%
		Others	1.8%	6.4%	3.9%

Source: Quantitative Survey by Author, May 2024

As indicated in table 1 above, in Uganda, a higher percentage of female respondents compared to the male, believe that women's roles are limited to specific tasks and that men have more decision-making roles. On the other hand, a higher percentage of male respondents compared to the females believe that roles are shared in the value chain of production of mangoes, avocados, pineapples, and papayas. The findings reflect women's awareness of existing inequalities, highlighting their limited involvement in decision-making processes and their confinement to specific tasks. Some key insights from respondents in Uganda regarding the distribution of roles are highlighted in Box 1 below.

Box 1: Reasons for distribution of roles in the mango, avocado, pineapples and papaya value chains in Uganda

<p>Roles are shared equally "We share work, me and my wife"</p> <p>Men have more decision-making roles "We grew up knowing that males are superior and have to direct through decision"</p> <p>Women's roles are limited to specific tasks "My wife has much work at home, so I do most of the farm work"</p>

In Kenya, the percentage of female respondents who agree that Women's roles are limited to specific tasks is twice that of the males. The substantial disparity in perceptions between female and male respondents indicates a pronounced perception gap regarding women's roles in the value chain of passion fruits, avocados, and mangoes. It also suggests that women are more aware of and perhaps more affected by the limitations placed on their roles within the value chains.

Similarly, the percentage of male respondents in Kenya who agree that men have more decision-making roles is twice that of female respondents. This implies that men recognize their dominance in their decision-making roles, which the females are less willing to acknowledge. This means that strategies and decisions regarding pest management are primarily male-driven. Box 2 below presents some perspectives on the distribution of roles within the value chain of the aforementioned products in Kenya.

Box 2: Reasons for distribution of roles in the value chain of passion fruits, avocado, and mangoes in Kenya

Roles are shared equally
 "Each gender has a role to play"
Men have more decision-making roles
 "Men have been in the field of agriculture for so long.
 Women are trying to catch up. Youth are yet to accept horticulture as
 a profession"

In addition to the above, in Kenya, youth are involved in marketing, spraying chemicals, applying fertilizer, pruning, and irrigation. It was indicated that, in certain cases, young people often take part in selling fruit products, leveraging both traditional markets and modern platforms such as social media to reach wider audiences and buyers. They are also involved in applying synthetic pesticides and fertilizers, contributing significantly to pest control and crop productivity.

In Burundi, a very big percentage (61.7%) of female respondents argued that roles are shared equally. Comparatively, only 43.6% of the males agreed to it. Similarly, the percentage of male respondents who agreed that men have more decision-making roles was twice that of the female respondents. The higher percentage of women believing in equal role distribution potentially reflects an optimistic view or a lack of full awareness of the existing inequalities in decision-making. Box 3 below outlines key justifications for the views expressed by respondents in Burundi, on the distribution of roles in the value chain.

Box 3: Reasons for distribution of roles in the value chain of mangoes, and avocados in

Roles are shared equally
 "Because we are religious, we share roles and responsibilities"

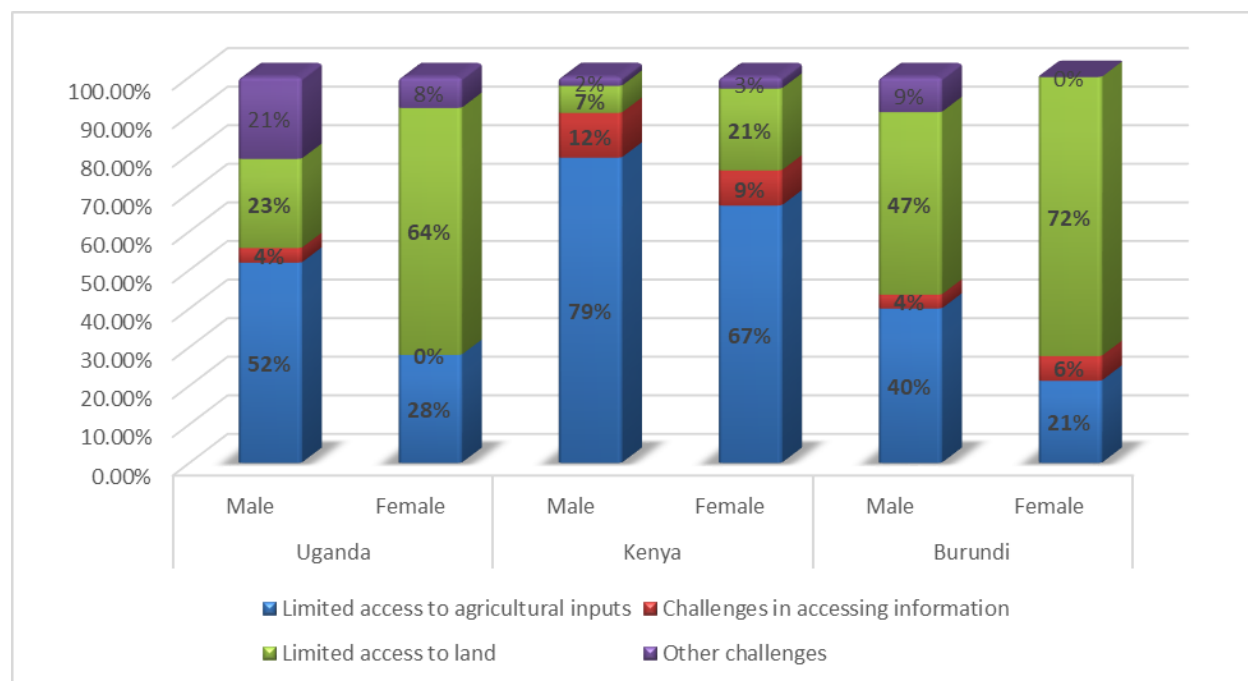
Men have more decision-making roles
 "As I am the only bread earner, I am the decision maker"
 Women's roles are limited to specific tasks
 "Women focus on growing food crops for home consumption"
 "Women are busy with household work"

Burundi

5.2.2 The main challenges faced in the production value chain of mangoes, avocados, pineapples, papaya and passion fruits.

The main challenges affecting farmers differ by country and gender as indicated in figure 2 below.

Figure 2: Summary of challenges faced in the production of mangoes, avocados, papaya, pineapples and passion fruits by country and gender.



Source: Quantitative Survey by Author, May 2024

In Uganda, women are mainly impacted by limited access to land, while men primarily struggle with accessing genuine agricultural inputs due to issues with counterfeits. Although women also face challenges with counterfeit agricultural inputs, their primary concern remains limited land access. Limited access to land for women severely restricts their ability to participate fully in agricultural production

In Kenya, both males and females are mainly affected by the limited access to agricultural inputs, such as seeds, fertilizers, and pest control products. This hinders the women and men's ability to maintain high productivity and effectively manage invasive pests in Uganda.

In Burundi, the females are mainly affected by the limited access to land, while the males are equally affected by the limited access to land and limited access to agricultural inputs. The challenge of limited access to land is more profound in Burundi and Uganda compared to Kenya.

In addition to the above, table 2 below, presents perspectives from respondents on how challenges affect men and women in the value chain of the aforementioned products.

Table 2 How the challenges affect men and women

Men	Women
"Farmers spend a lot of money to get the agricultural inputs, hence straining their economic strength. I have to sell household belongings such as chicken to get inputs."	"Limited information on control of pests and diseases".

Men	Women
"Poor fruit quality leading to poor pay after eating up on family funds".	"I use too much money to transport water during the dry season and lack of farm inputs leads to low fruit harvest".
"Limited information on pest control lowers the income because the affected fruits cannot be exported"	"We end up spending a lot of family money on inputs and water hence our children cannot access quality education, or most are frequently sent home".
"Low-quality fruits, which fetch low in the market hence the family, do not get enough money"	"Limited access to pesticides reduces output thus reducing income".
"We earn less than what we invest, seasons change, and farmers don't get this information in time. This affects farming when rains delay, or become too much"	"Sometimes you can harvest when the season for pineapple prices is low the above costs reduce your profit margin due to high initial input".
"Strain to buy pesticides for managing scale insects".	"I end up guessing what inputs to use to treat the pests in the absence of a well-trained, technical pineapple extension worker. The suckers lead to my harvesting of poor-quality pineapples."
"Affects the production of fruits and my income because much of the money goes to labour and fake expensive inputs	"Limited information on control of pests and diseases".

5.3 Access to Resources:

Women in fruit production often encounter obstacles when it comes to accessing essential resources like land, credit, and agricultural inputs. These challenges stem from gender-based barriers, entrenched cultural norms, and their limited control over productive assets. Such constraints can significantly impede women's productivity and ability to generate income within the sector. To address these disparities, there is a pressing need to implement gender-responsive policies and programs that actively dismantle these barriers and facilitate equitable access to resources for both women and men involved in fruit production.

Specific country perspectives on how women's access to resources compares to that of men are presented in table 3 below.

Table 3: How does women's access to resources in agriculture compare to that of men?

Challenges	Uganda		Kenya		Burundi	
	Male (n= 52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)
Resources are equally distributed.	28.8%	12.0%	32.6%	12.1%	27.3%	17.0%

Challenges	Uganda		Kenya		Burundi	
	Male (n= 52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)
Resources are somehow equally distributed.	21.2%	12.0%	27.9%	36.4%	10.9%	2.1%
Women have more access	5.8%	8.0%	7.0%	18.2%	34.5%	59.6%
Resources are not equally distributed.	38.5%	64.0%	32.6%	33.3%	25.5%	19.1%
Not Sure	5.8%	4.0%			1.8%	2.1%

Source: Primary Quantitative Survey by Author, May 2024

In Uganda, 64.0% of the female respondents and 38.5% of the male respondents agree that resources regarding the production of mangoes, avocados, pineapples, and papaya are not equally distributed. On the other hand, 28.8% of the male respondents and 12.0% of the female respondents argue that resources are equally distributed. The female mainly indicated limited access to land, as the main challenge affecting their production.

In Kenya, a higher percentage of male respondents compared to females agree that resources are equally distributed. In addition, the percentage of female respondents who argue that women have more access to resources is twice that of men. 33.3% of the female respondents and 32.6% of the male respondents agree that resources are not equally distributed.

In Burundi, 59.6% of the female respondents and 34.5% of the male respondents argue that women have more access to resources. 27.3% of the male respondents and 17.0% of the female respondents argue that resources are equally distributed.

The resources that the respondents mainly lacked were water, fertilizers, quality seedlings, trainings, information and land.

Decision-Making and Leadership:

Ensuring women's active involvement in decision-making processes concerning agriculture and fruit production is imperative for addressing their unique needs and priorities within the sector. At the household level, women's active participation is required in decisions regarding the day-to-day operations of farming, division of labour, resource allocation, crop selection, and fruit production. At the community level, the participation of women is required in establishing farmer groups to increase bargaining power and share resources, and utilization of agricultural extension services and training programs.

By actively promoting women's inclusion in leadership positions and decision-making bodies, agricultural practices can become more equitable and sustainable. Therefore, prioritizing initiatives aimed at fostering women's leadership roles and enhancing their participation in decision-making forums is essential for cultivating gender-responsive and inclusive fruit production systems.

These initiatives can be through;

- Offering gender-responsive training programs on post-harvest handling, value addition, packaging, and other relevant technical skills to enhance women's competitiveness.
- Build the capacity of women to interpret and utilize market information for informed decision-making.
- Advocate for policies and regulations that protect women's rights and promote gender equality in the agricultural and horticultural sectors.

The project can actively promote women's inclusion in leadership positions through;

- Proactively identify and recruit qualified women for leadership roles within the project implementation processes and community leaders.
- Provide leadership development training, mentoring, peer-to-peer learning and networking opportunities to build the skills and confidence of aspiring women leaders.
- Work with communities to challenge gender stereotypes and social norms that limit women's leadership and decision-making power through raising awareness.
- Sensitize male stakeholders and male champions within the communities on the importance of women's leadership and active participation in project activities.
- Review and revise project policies, procedures, and governance structures to ensure they are gender-responsive and inclusive.
- Ensure that project activities, schedules, and logistics accommodate women's practical needs and responsibilities (e.g., childcare, transportation).
- Systematically collect and analyze sex-disaggregated data on women's participation and leadership roles.
- Assess the project's progress regularly in promoting women's leadership and make necessary adjustments to the implementation strategy.

Market Access and Value Chains:

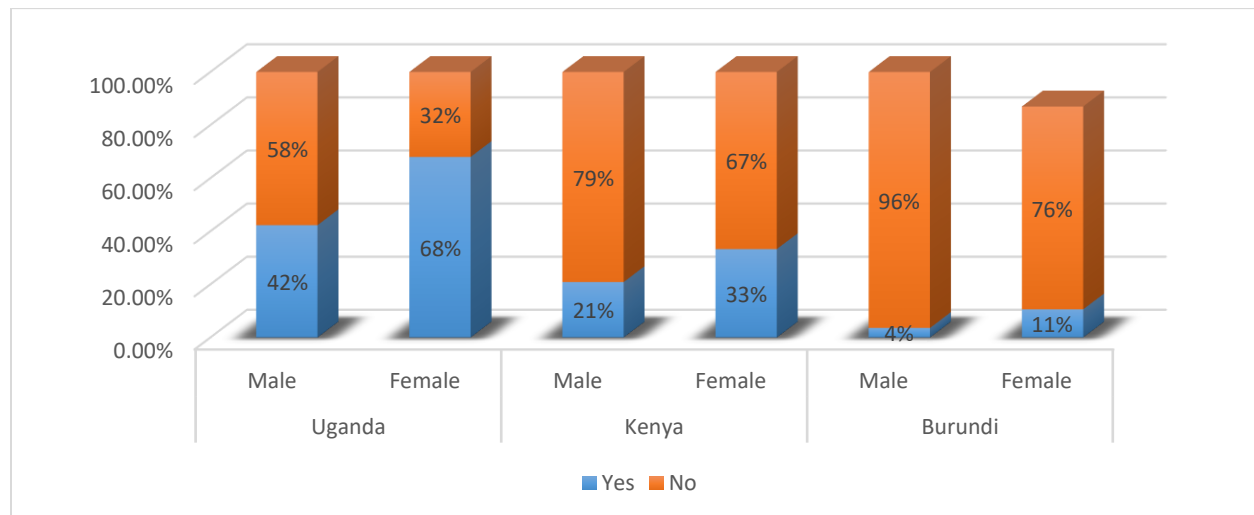
Women frequently encounter obstacles when attempting to access markets, confronting issues such as a lack of market information, transportation difficulties, and discriminatory practice for example in some cases, marketing is perceived as a men's role. To facilitate their economic empowerment and enhance income generation, it is crucial to improve women's access to markets and value chains. This can be achieved through initiatives aimed at strengthening market linkages, disseminating market information, offering relevant training opportunities, and addressing discriminatory practices that impede women's participation and equitable benefits within fruit value chains. These initiatives need to use gender-sensitive indicators to monitor their impact on women's economic status and ensure that women benefit as well. Some of these are the frequency and reach of market information

dissemination targeting women, the increase in average income for women involved in fruit value chains and the number of training sessions specifically designed for women and youth.

By dismantling these barriers and fostering inclusive market environments, women can fully harness their potential as active contributors to and beneficiaries of fruit production economies.

In all three countries, of Kenya, Burundi and Uganda, a higher percentage of female respondents compared to the male respondents agreed there are gender-specific barriers to market access and control in the production of mangoes, avocados, pineapples, papaya and passion fruits, as indicated in figure 3 below. The lower percentage of men acknowledging these barriers suggests that men may underestimate the challenges faced by women or perceive the market dynamics differently due to their relative advantages. The main barrier to market access identified is the lack of transportation and market information.

Figure 3: Are there gender-specific barriers to market access and control?



Source: Primary Quantitative Survey by Author, May 2024

Market access specific recommendations:

- Provide business management, financial literacy, and entrepreneurship training to strengthen women's capacities in running successful horticultural enterprises.
- Facilitate access to extension services, technology, and infrastructure to support women's productivity and market engagement.
- Facilitate women's access to local, regional, and export markets for horticultural products by establishing sustainable market linkages and partnerships.
- Provide training and support for women on market identification, negotiation skills, and developing effective marketing strategies.
- Assist women in meeting quality standards and certification requirements to access higher-value markets.
- Ensure that women have equal access to up-to-date market information on prices, demand trends, and market requirements. through using mobile technology, community information centers, radio programs, women's groups, and training workshops tailored to their needs.
- Utilize appropriate communication channels and platforms to effectively reach women producers and traders with relevant market intelligence.

Capacity Building and Training:

As indicated in table 4, in Uganda, 85.0% of the female respondents and 57.7% of male respondents agreed that access to training and skills development opportunities in fresh fruit production is very limited. The perception of limited access to training and skills development opportunities among a significant portion of both female and male respondents in Uganda highlights the need for comprehensive and inclusive strategies to enhance training accessibility. Addressing these limitations, particularly the higher barriers faced by women, is essential for improving productivity, promoting gender equity, and fostering sustainable development in the fresh fruit production sector.

Table 4: Responses of training opportunities

Variable	Options	Uganda		Kenya		Burundi	
		Male (n=52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)
Access to training and skill development opportunities in fresh fruit production	Very limited	57.7%	84.0%	14.0%	33.3%	50.9%	34.0%
	Limited	32.7%	8.0%	60.5%	60.6%	36.4%	53.2%
	Adequate	9.6%	8.0%	25.5%	6.1%	3.6%	10.6%
	Abundant	-	-	-	-	9.1%	2.1%
	Yes, some	30.8%	32.0%	58.1%	27.3%	5.5%	6.4%
	No, very few	19.2%	16.0%	32.6%	33.3%	3.6%	6.4%
	None	23.1%	40.0%	2.3%	15.2%	72.7%	83.0%

Source: Primary Quantitative Survey by Author, May 2024

In Kenya, 93.9% of the female respondents and 74.5% of the male respondents agree that there is limited or very limited access to training and skills development opportunities in fresh fruit production. However, 25.5% of the male respondents compared to 6.1% of the female respondents argue that there is adequate access to training and skills development opportunities in fresh fruit production. This implies that the limited access to training affects the women more than the men.

In Burundi, 87.3% of the male respondents compared to 87.2% of the female respondents agree that there is either limited or very limited access to training and skill development opportunities in fresh fruit production.

Offering tailored training and capacity-building initiatives for women and youth involved in fruit production represents a valuable opportunity to bolster their skills, expertise, and overall productivity within the sector. These programs can concentrate on critical areas such as pest management, post-harvest handling techniques, value addition strategies, and entrepreneurial skills, thereby empowering participants to actively engage in and contribute to the fruit industry. Crucially, ensuring the accessibility of these training programs, coupled with a gender-responsive approach, is essential for addressing the specific needs and

aspirations of women and youth, thus fostering their meaningful participation and advancement in fruit production endeavours.

- Women farmers may feel more comfortable and encouraged to participate in training programs led by other women, who can better understand their unique challenges and needs.
- Female extension workers can serve as role models and inspire more women to pursue careers in agricultural extension and support services.
- Ensure that training curricula and materials address the specific challenges faced by women farmers, such as access to land, finance, and technology.
- Incorporate topics on gender-responsive agricultural practices, entrepreneurship, and leadership development to empower women.
- Offer training sessions at times and locations that accommodate women's schedules and responsibilities, such as childcare and household duties.
- Actively encourage and support women's participation in training programs through targeted outreach, scholarships, and transportation assistance.
- Provide a safe and inclusive learning environment that fosters open dialogue and collaboration among women participants.
- Engage with community leaders and male farmers to promote the importance of women's roles and their participation in the fruit production value chain.
- Encourage male champions within the communities to increase awareness on gender stereotypes and bias.
- Collect and analyze sex-disaggregated data on training participation, knowledge retention, and application of learned skills.
- Regularly assess the impact of training programs on women's decision-making power, income, and overall well-being within the fruit production sector.
- Use the findings to continuously improve the design and implementation of gender-responsive training initiatives.

Social Norms and Gender Equality:

Fostering gender equality and challenging entrenched social norms within the agricultural sector is paramount to establishing a supportive environment for women and youth. By advocating for equal opportunities, rights, and access to resources, the agricultural sector can cultivate more inclusive and sustainable fruit production systems. This necessitates concerted efforts in awareness raising, advocacy, and community engagement to tackle harmful gender norms and promote gender equality across all facets of fruit production. Working with community leaders and respecting the "do no harm" principle are key. The women groups and the female extension officers can also play a role in advocating for gender parity within the communities. By actively addressing these issues, stakeholders can pave the way for a more equitable and empowering landscape that enables the full participation and advancement of women and youth in fruit production endeavours.

Policy, Institutional Support and Strategic Interests:

Establishing enabling policy environments and fostering supportive institutional frameworks are essential components in advancing gender equality within fruit production. Policies must

prioritize gender-responsive approaches, addressing existing disparities in resource allocation and actively promoting women's rights and empowerment. Moreover, it is imperative to enhance the capacity of institutions responsible for agriculture and fruit production, ensuring they are equipped to integrate gender considerations effectively and facilitate the implementation of gender-responsive policies and programs. By fortifying both policy frameworks and institutional structures, stakeholders can create an environment conducive to gender equality, thereby fostering inclusive and sustainable fruit production systems.

Findings as presented in table 5 indicate that, a higher percentage of female respondents compared to male respondents in Uganda, feel that their voices and perspectives are rarely or never included in the decision-making processes related to their participation in the fruit production sector. In addition, 72% of the female respondents argue that they are underrepresented in strategic decisions regarding the value chains of mangoes, avocados, papaya and pineapples.

"We are underrepresented when it comes to issues concerning ownership of land and aspects of price regulation for fruits, we do not know where to go for help. Our participation in decision making is sometimes limited by resources." **(Women FGD Mubende district, Uganda)**

"Women are underrepresented due to failure to invest in identifying voluntary peer members who can mentor, interact with women, youth on matters related to agriculture on a regular basis." **(KII respondent)**

Table 5: Responses on representation in decision-making and strategic interest

Variable	Options	Uganda		Kenya		Burundi	
		Male (n=52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)
Voices and perspectives included in decision-making processes	Always included	19.2%	4.0%	16.3%	18.2%	14.5%	17.0%
	Mostly included	15.4%	4.0%	41.9%	27.3%	21.8%	23.4%
	Sometimes included	17.3%	20.0%	23.3%	24.2%	20.0%	29.8%
	Rarely included	26.9%	40.0%	18.6%	24.2%	10.9%	4.3%
	Never included	21.2%	32.0%	-	6.1%	32.7%	25.5%
Under-representation in strategic decisions	Yes	59.6%	72.0%	27.9%	42.4%	30.9%	27.7%
	No	40.4%	28.0%	72.1%	57.6%	69.1%	72.3%

Source: Primary Quantitative Survey by Author May 2024

In Kenya, more female respondents compared to male respondents argue that their voices and perspectives are rarely or never included in decision-making in the value chains of mangoes and avocados production. A higher percentage of female respondents compared to male respondents argue that they are underrepresented in strategic decisions. However,

most of the respondents across both genders disagree with the notion that they are underrepresented in strategic decisions.

In Burundi, a higher percentage of respondents, as indicated in table 5, argue that their voices and perspectives are rarely or never included in decision-making processes, a challenge that was mainly voiced by male respondents (48.6%) compared to women respondents (29.8%). The higher percentage of male respondents feeling excluded could indicate dissatisfaction with current leadership or governance models, which may not align with their expectations or needs. There might be underlying factors affecting gender dynamics, such as traditional roles, power relations, or specific decision-making forums where men feel less represented.

5.4 Personal empowerment

The responses on personal empowerment are presented in table 6. In Uganda, 56% of the female respondents argue that there are very few or no opportunities to take on leadership roles in initiatives related to fresh fruit production. However, 57.7% of the male respondents argue that there are some and, in some cases, many opportunities to take on leadership roles in initiatives related to fresh fruit production.

In Kenya, 65% of male respondents, compared to 51.5% of female respondents, believe there are opportunities to take on leadership roles in fresh fruit production initiatives.

Men perceiving more available opportunities suggest that they either experience fewer barriers or are more often in positions where leadership opportunities are more accessible. Barriers including social norms, lack of access to resources, limited networks, and confidence issues that hinder women's agency. The data also indicates a power imbalance where men perceive more opportunities for leadership roles than women do. This imbalance is rooted in traditional gender roles and power structures that favour men.

Enhancing women's agency would require targeted empowerment initiatives such as leadership training, mentorship programs, and efforts to boost self-efficacy. The other key initiative is to establish mentorship schemes where successful female leaders can guide and inspire other women, providing them with the necessary support and encouragement.

Table 6: Responses on personal empowerment

Variable	Options	Uganda		Kenya		Burundi	
		Male (n=52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)
Opportunities to take on leadership roles in initiatives related to fresh fruit production	Yes, many	26.9%	12.0%	7.0%	24.2%	18.2%	4.3%
	Yes, some	30.8%	32.0%	58.1%	27.3%	5.5%	6.4%
	No, very few	19.2%	16.0%	32.6%	33.3%	3.6%	6.4%
	None	23.1%	40.0%	2.3%	15.2%	72.7%	83.0%

Source: Primary Quantitative Survey by Author, May 2024

In Burundi, 83.0% of the female respondents and 72.7% of the male respondents argue that there are no opportunities to take on leadership roles in initiatives related to fresh fruit production. The high percentages for both women and men suggest a general lack of opportunities for leadership roles, indicating systemic issues within the sector. The higher percentage of women perceiving a lack of leadership opportunities underscores the additional barriers faced by women, possibly due to gender biases, cultural norms, or lack of support structures.

5.5 Systematic barriers

The study identified some system barriers in the fruit production as indicated below.

"Even though as a woman I have been given access to land by my family, I do not have control over the extent I want to use in my farming, I have to always ask for permission"

"Parents deny young men land to practice horticulture"

"There are some beliefs that a woman's role is limited to being home"

The quotes provided illustrate the types of cultural and social beliefs that still limit women's autonomy and access to productive resources, such as land and livelihood opportunities. This includes the need for women to seek permission from male family members to utilize land, as well as societal expectations that confine women's roles to the domestic sphere.

The example of "parents denying young men land to practice horticulture" suggests that gender norms and access to resources may also be influenced by age, with younger men potentially facing similar constraints as women.

These findings underscore the importance of incorporating gender-disaggregated data and qualitative insights in understanding the nuanced realities of how cultural and social norms continue to shape the lived experiences and economic opportunities of women and men, even as perceptions of change may emerge. Addressing these persistent gender-based barriers is crucial for promoting more equitable and inclusive development outcomes.

5.6 Knowledge specific to the project (Management of scale insects)

The biggest percentage of respondents in the three countries had basic understanding of the management of scale insects in fresh fruits mechanisms and why the programme exists but still required more information about the project. On average, 33.7% of the respondents were not familiar with the project. In addition, over 90% of respondents across countries and genders fully support the project as indicated in table 7.

Table 7: Knowledge specific to the project (Management of scale insects)

Variable	Options	Uganda		Kenya		Burundi	
		Male (n=52)	Female (n=25)	Male (n=43)	Female (n=33)	Male (n=55)	Female (n=47)

Knowledge of management of scale insects in fresh fruit mechanisms	Yes, I am familiar	21.2%	12.0%	14.0%	3.0%	9.1%	4.3%
	Yes, but I need more information	46.2%	52.0%	65.1%	72.7%	43.6%	59.6%
	No, I am not familiar	32.7%	36.0%	20.9%	24.2%	47.3%	36.2%
Support to the project	Fully support	96.2%	96.0%	97.7%	93.9%	96.4%	95.7%
	Partially support	3.8%	4.0%	2.3%	6.1%	1.8%	2.1%
	Do not support	-	-	-	-	1.8%	2.1%

Source: Primary Quantitative Survey by Author, May 2024

There is a strong belief that the project can improve incomes, and food security, and enhance the quality of life through increased production and control of pests and diseases.

5.7 Levels of Participation

The level of participation of men and women in the value chain of the fruit production is analysed in table 8 below.

Table 8: Level of participation in the value chain of the fruit production by gender.

Level of Participation	Women	Men
Material Participation	<ul style="list-style-type: none"> • Women are actively involved in on-farm activities related to scale insect monitoring, manual removal, and application of organic pest control measures. • However, their participation may be constrained by limited access to labour-saving technologies and other resources needed for effective scale insect management. This is due to traditional gender roles and limited control over resources, women may not have the financial means or decision-making power to acquire essential tools, such as mechanized sprayers or other pest control equipment, forcing them to rely on time-intensive manual methods. 	<ul style="list-style-type: none"> • Men are more actively involved in the commercial aspects of fruit production, including the procurement and application of synthetic pesticides for scale insect control. This is because men tend to have better access to financial resources, which allows them to procure inputs for pest management. • They also play a significant role in the marketing and sale of fruits, which gives them greater control over the resulting income. • Their involvement in these critical aspects of production enhances their decision-making power and reinforces their role in managing commercial farming operations
Passive Participation	<ul style="list-style-type: none"> • Women are often the recipients of information and training on scale insect control, but may not actively contribute to the design and implementation of these activities. • Their passive role can be due to social norms, time constraints, and limited mobility that restricts their participation in public forums and meetings. 	<ul style="list-style-type: none"> • Men are often the primary recipients of extension services and technical training on improved scale insect management practices, which they may then apply on their farms. • However, their level of engagement and ability to influence the design and delivery of these services may be higher than women's.

Level of Participation	Women	Men
Participation in Decision Making	<ul style="list-style-type: none"> • Women's representation and influence in decision-making processes, such as community-level pest management planning and policy development, is often limited. • Their voices and perspectives are frequently underrepresented in these high-level discussions, which are typically dominated by men. 	<ul style="list-style-type: none"> • Men hold a dominant position in community-level decision-making bodies, such as farmer groups and cooperatives, where they shape the priorities and strategies for scale insect management and fruit value chain development. • Their leadership roles in these forums grant them greater power to influence policies, resource allocation, and the overall direction of interventions.
Consultative Participation	<ul style="list-style-type: none"> • Women may be occasionally consulted on scale insect management and fruit production issues, but their input may not be given equal weight or effectively incorporated into final decisions. • The consultation process is often ad hoc and not institutionalized, further reducing the chances of women's priorities and concerns being addressed. 	<ul style="list-style-type: none"> • Men are more likely to be consulted by policymakers, extension agents, and value chain actors on issues related to scale insect management and fruit production. • Their opinions and concerns are often given more weight in these consultations, further reinforcing their influence over the decision-making processes.

To promote more equitable and inclusive participation, interventions should focus on:

- Empowering women to actively engage in decision-making processes at all levels.
- Ensuring gender-responsive extension and advisory services that cater to women's specific needs and constraints.
- Facilitating women's access to resources and technologies needed for effective scale insect management.
- Fostering collaborative platforms that bring together men and women to jointly plan and implement pest control strategies.

6. Summary of Results

Gender Dynamics and Challenges in Uganda's (Avocado, Pineapple, Mangoes and Papaya) value chain

The fruit industry in Uganda faces various gender-related challenges and dynamics. The roles, access to resources, financial services, decision-making power, market access, training opportunities, gender norms, policy support, and economic structures all play significant roles in shaping the involvement of men, women, and youth in this sector.

- a) **Roles in the Fruit Industry:** Men are primarily engaged in hard labor, while women participate in less physically demanding tasks. However, there is a shifting trend, with all genders increasingly involved at various levels in the industry.
- b) **Distribution of Work:** Participants observed an unequal distribution of fieldwork between men and women, indicating a gender imbalance.
- c) **Access to Resources:** Women have relatively equal access to resources in the agricultural sector compared to men. However, both men and women lack technological skills and face challenges in effectively utilizing information, tools, and technologies.
- d) **Financial Services:** All genders have access to financial services, but the system is skewed towards loan services rather than savings and utility of finances. Challenges in accessing financial services include language barriers, security concerns, and limited trust in financial institutions.
- e) **Decision-Making Power:** Interviews revealed that women, men, and youth have inclusive participation in decision-making processes related to their involvement in the agriculture sector.
- f) **Market Access and Control:** Gender-specific barriers to market access were identified, such as women facing difficulties operating during certain hours in the

export sector. The involvement of middlemen leads to increased prices. However, there are no age-specific barriers to market access.

- g) **Training and Skill Development:** Opportunities for training and skill development in fresh fruit production are limited for women, men, and youth. Acquiring new skills empowers individuals by enhancing their understanding of market requirements.
- h) **Gender Roles and Norms:** Cultural and social beliefs influence the engagement of women, men, and youth in production activities.
- i) **Policy and Institutional Support:** Existing policies and institutions are seen as restrictive, with limited outreach and implementation beyond policy formulation. This hinders the participation of women, men, and youth in fresh fruit production activities.
- j) **Economic and Market Structures:** Economic and market structures impact women's ability to navigate challenges posed by scale insects, such as the risk of produce rejection without understanding the cause.

Gender Dynamics and Challenges in Kenya's Avocado, Passion fruit and Mango Value Chain

The agricultural sector in Kenya, particularly during the planting season, exhibits distinct gender-specific roles and challenges. The involvement of men, women, and youth in daily routines and agricultural activities, along with the current challenges they face, impacts their livelihoods and the overall dynamics of the fruit industry.

- a) **Daily Routine and Agricultural Activities:** Men are involved in pruning, scouting, harvesting, spraying, and preparing the farm. Women spend considerable time on the farm, engaging in weeding, watering/irrigation, and looking for water. Youth participate in scouting the farm, weeding, and preparing the farm.
- b) **Current Challenges and Livelihood Impact:** Men face challenges related to pests and diseases, market identification, and high production costs. Women encounter middlemen, buyers' delays, insufficient capital, and the incompetence of agro dealers. Youth struggle with scale insects, brokers, limited access to resources and finance, and the need for patience in capital-intensive ventures like mango farming.
- c) **Gender-Specific Roles in the Fruit Industry:** Men and women share similar roles such as farm preparation, planting, and spraying, but women also engage in weeding, while men focus on seeking market access. Youth are involved in marketing, spraying chemicals, applying fertilizer, pruning, and irrigation.
- d) **Fair Distribution of Work:** Men and women perceive that the work in the field is not fairly distributed, with women shouldering a significant portion of the farm work. Women consider themselves the custodians of farms at the household level, while men are more involved in managing and controlling income.

Gender Dynamics and Challenges in Burundi's Avocado and Mango Value Chain

The agricultural sector in Burundi is characterized by significant gender dynamics and disparities in roles, decision-making, resource access, and market participation. Addressing

these issues is crucial for enhancing women's involvement and empowerment in agricultural activities, particularly in managing fruit scale insects.

- a) **Gender Roles and Decision-Making:** Women in Burundi face challenges due to their position in a patriarchal society where men hold decision-making power. Women are often seen as mere executors of decisions made by men, which hampers their ability to take initiatives. While both men and women have important roles in agriculture, women are more actively involved. However, decisions regarding agricultural practices are mostly made by men, limiting women's control and access to markets.
- b) **Access to Resources:** Men predominantly hold the responsibility for acquiring necessary resources for the family, including land. Women have limited access to information and resources, as they are primarily occupied with household chores. This unequal access affects women's ability to participate fully in fruit cultivation and scale insect management.
- c) **Knowledge and Awareness:** Both men and women in Burundi lack awareness and knowledge about managing fruit scale insects and the significance of such measures. Despite recognizing the potential benefits of controlling scale insects, there is a need for increased awareness and training programs accessible to women. Participants emphasize the importance of education on combating fruit scale insects, sustainable agricultural practices, and integrated pest management.
- d) **Empowerment and Market Access:** Participants express the need for women's involvement in the planning, implementation, and evaluation of activities related to fruit scale insect management. They request equitable access to resources such as quality seeds, agricultural tools, pest control products, and technical information. Capacity-building opportunities, including technical training and entrepreneurial development programs, are identified as crucial for enhancing women's skills and autonomy in managing fruit scale insects. Improving market access for women, including overcoming obstacles like land acquisition and information barriers, is seen as vital for strengthening their economic position.

7. Recommendations

In addressing the critical challenge of invasive scale insects in the region, it is essential to adopt a gender-responsive approach that addresses the specific needs, challenges, and roles of men, women, and youth across the agricultural value chain. The following recommendations outline key strategies to enhance collaboration, build capacity, address resource barriers, promote inclusive stakeholder engagement, integrate gender considerations into policies and guidelines, and establish robust monitoring and evaluation frameworks. By taking these steps, we can ensure that the management of invasive scale insects is equitable, sustainable, and beneficial for all stakeholders, regardless of gender.

- **Leverage women's traditional ecological knowledge for scale insect management:**
 - Identify and document the traditional pest control methods used by women farmers, such as the use of local botanical extracts or cultural practices.

- Integrate these indigenous techniques into the project's Integrated Pest Management (IPM) strategies, validating their efficacy and promoting their use alongside other scientific methods.
- Ensure women farmers are actively involved in adapting and disseminating these traditional approaches within their communities.
- **Work on supporting inclusive markets and provide market access opportunities for women and youth:**
 - Provide business management, financial literacy, and entrepreneurship training to enhance women's capabilities in horticulture.
 - Facilitate access to extension services, technology, infrastructure, and market information to boost women's productivity and market engagement.
 - Establish sustainable market linkages and partnerships, and assist women in meeting quality standards to access local, regional, and export markets.
- **Establish gender-responsive extension and advisory services:**
 - Train both male and female extension agents on gender-sensitive approaches to scale insect management and market access.
 - Employ more female extension agents to better reach and support women farmers, building on their trust and understanding of women's needs.
 - Develop gender-responsive extension materials and delivery channels (e.g., farmer field schools, demonstration plots) that cater to the learning preferences and time constraints of women.
- **Promote women's leadership and decision-making in farmer organizations:**
 - Encourage the formation of women-led farmer groups or cooperatives focused on scale insect management and fruit marketing.
 - Provide leadership and negotiation skills training to women to increase their representation and influence in existing farmer organizations and value chain platforms.
 - Ensure women's voices are heard and their needs are addressed in the project's stakeholder engagement processes and decision-making bodies.
- **Address the gendered division of labor and household dynamics:**
 - Engage both men and women in discussions about the distribution of additional income and decision-making power resulting from improved scale insect management and increased fruit yields.
 - Promote joint household-level planning and agreements on the allocation of resources and benefits to ensure equitable distribution.
 - Support the adoption of labor-saving technologies (e.g., sprayers, pruning tools) that can reduce the workload of women in scale insect management activities.
- **Monitor and evaluate the gender-differentiated impacts:**
 - Develop a robust gender-responsive monitoring and evaluation framework that includes specific indicators for tracking women's participation and contributions in pest management activities.

- Collect sex-disaggregated data and qualitative information to assess the differentiated impacts on men and women, including changes in their knowledge, practices, access to resources, and decision-making power.
- Regularly review and adapt the project's strategies based on the gender-specific findings to ensure equitable and transformative outcomes.

8. Challenges faced during data collection

- In Kenya, the planting season led to high agricultural activity on farms, making data collection more difficult to coordinate.
- Obtaining essential farm inputs like fertilizers and seeds was challenging for Kenyan farmers, causing some hesitancy to engage with representatives from the Ministry of Agriculture.
- Rainy weather in parts of Kenya disrupted planned data collection activities.
- Some Kenyan farmers in Makueni County were initially apprehensive about sharing personal information, concerned it could be used for tax purposes, though they were reassured the data was solely for research on scale insects.
- The large distances between farms in Uasin-Gishu, Kenya made it logistically difficult to bring farmers together for focus group discussions, limiting the team to only one youth-focused session in that area.
- In Burundi, delays in local research assistants accessing their funding hindered the timely start of data collection. Scheduling key informant interviews was also challenging due to the other commitments in their schedules.
- Mobilizing female farmers for focus group discussions in Uganda proved difficult, with only one such session held, owing to women's family responsibilities and logistical barriers.
- The remote locations and poor infrastructure in parts of Uganda complicated data collection efforts, especially in rural areas.
- While the available budget necessitated some limitations on the project's geographic scope, team mobility and specific fruit coverage, the research team worked diligently to optimize the data collection and engage key stakeholders within the allocated resources.

9. Conclusion

The gender analysis conducted for the STDF-funded project on managing scale insects in fresh fruits in East Africa has provided valuable insights into the gendered dynamics that influence the project's objectives. The findings highlight the important roles that both men and women play in scale insect management and fruit production, as well as the gender-specific barriers and opportunities they face.

By addressing these gender gaps and inequalities, the project can unlock the full potential of women and men to collectively contribute to and benefit from the improved management of scale insects and enhanced market access for quality fruits. The recommended interventions, such as leveraging women's traditional ecological knowledge, establishing gender-responsive extension services, facilitating women's access to financial resources, and promoting women's leadership in farmer organizations, are critical for ensuring an inclusive and transformative project approach.

Integrating these gender-responsive strategies throughout the project's design, implementation, and monitoring will be key to achieving equitable and sustainable outcomes. Furthermore, the continuous engagement of both male and female stakeholders, including farmers, extension agents, and value chain actors, will be essential for fostering gender-transformative change within the horticulture sector.

By empowering women and addressing the gendered power dynamics, the project can contribute to broader social and economic empowerment, ultimately leading to improved food security, increased household incomes, and more resilient communities in the target regions of Burundi, Kenya, and Uganda.

As the project moves forward, it is crucial to maintain a strong gender lens, regularly collect and analyze sex-disaggregated data, and adapt the strategies based on the evolving gender-specific needs and priorities. This dedicated commitment to gender equality and social inclusion will ensure that the project's benefits are equitably distributed and that no one is left behind in the pursuit of enhanced market access for scale insect-free fresh fruits in East Africa.

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