The Economic Empowerment of Women Small-Scale Sunflower Farmers in Tanzania: A Singida District Case Study

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Key Terms: Sunflower Cultivation, Gender Inequality, Value Chain, Division of Labor, Microeconomic Variable, Middleman, Economic Advancement, Economic Empowerment, Agency, Autonomy, Technology

Abstract

As the Tanzanian economy continues to grow and move towards economic independence, the government has placed focus on increasing domestic production of agricultural goods. One of the largest sectors included in this push is edible oils, specifically the government's efforts to increase sunflower cultivation for the production of sunflower oil. These efforts have included an increase in training, grants, and research in the sunflower industry. While these actions have seen positive results, one important factor has consistently been left out of the conversation of developing the sunflower sector - the inclusion of women sunflower farmers, who are responsible for the majority of sunflower cultivation. This study aims to give these women a voice on the policy stage and subsequently advance their societal and economic stance. In order to do this, a survey of 72 questions was conducted with 117 participants (55% female, 45% male) from the Singida District of Tanzania. The answers given by these participants offer insight into 1) the challenges experienced by both men and women; 2) the difference in participation levels between men and women; and 3) disparities in economic freedom and personal agency between men and women. Using the information gained from the data, this report provides holistic recommendations concerning how to combat the common obstacles faced by sunflower farmers, the creation of programmes that facilitate women's economic empowerment, and innovative approaches to encourage women's participation in the decision making process. This research is part of a larger study on the economic advancement of women within growing agricultural sectors. By focusing on women sunflower farmers in Tanzania, this report gives insight into the relationship between gender and economic development and offers the perspective of those who are too often excluded from the development platform.

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Key Term Definitions

Agency	self-efficacy; having the ability to change one's actions and the belief that one has the power to change their actions (Buvinic, 2017)
Autonomy	self-reliance and control over the decisions in one's life (Buvinic, 2017)
Division of Labor	the systematic separation and assignment of certain aspects of labor to specific groups of individuals (Durkheim, 2018)
Economic Advancement	an increase in economic status through raised income and ability to earn income (Golla et al, 2011)
Economic Empowerment	the ability to make economic decisions without external dependence or pressure (Golla et al, 2011)
Gender Inequality	the occurrence of discrimination in the social or economic aspects of a person's life based on their gender identity (UNDP, 2013)
Microeconomic Variable	a factor or pattern that is assessed on the individual level; can be in relation to daily life or monetary contexts (Taylor, 2017)
Middleman	an individual or group that acts as a midpoint in the value chain between production and manufacturing (SNV, 2012)
Sunflower Cultivation	the process of growing, tending, harvesting, and processing sunflowers (National Sunflower Association, 2017)
Technology	an object or device developed from scientific knowledge that aids in the completion of a task or efficiency of a good (CED, 2018)
Value Chain	the process of a product or good from the beginning stages of production to the final stages of manufacturing and consumer marketing (Taylor, 2017)

Executive Summary

This report is based on a study that was completed in the Singida District of Tanzania, of which the focus was microeconomic disparities between the experiences of women and men small-scale sunflower farmers. The purpose for this research was to fill an existing research gap on the topic and give women small-scale sunflower farmers a platform to share their experiences and have their voices heard. To do this, a 72 question survey was conducted in 5 wards of the Singida District, where 117 sunflower farmers participated in the survey.

The key findings were in the following categories:

- Education/Training Level
  - → a male participant was approximately five times more likely to receive informal training than a female participant
- Technology Access
  - → high percentage of participants who lack continuous access to technology
- Time
  - → On average, a female participant spent 2 more days a week and 1.9 hours a day more in sunflower cultivation than a male participant
- Access to Markets
  - → 98% of all participants said they do not enough access to processing equipment
- work environment
  - → 80% of the female participants said the labor was not equally distributed, while 87% of the male participants said it was equally distributed
- economic advancement
  - → a female participant was approximately 6 times less likely to have freedom to spend income made through sunflower cultivation
- personal agency
  - → female participants were approximately one and a half times less likely to comment on household decisions, two and a half times less likely to feel confident in making business decisions, and three times less likely to be confident in making financial decisions for the household than male participants

The results of this study show three main themes: a split in the sunflower value chain in which women do the manual labor and men handle the post-harvest business aspects, obstacles in economic advancement that disproportionally affect women, and a lack of personal agency for women in decision-making processes. To address these issues, recommendations were made on the inclusion of women in policy and research, emphasis on women's involvement in the entire value chain, building relationships between women sunflower farmers and other key players in the value chain, investment in the industry, and accessible educational programmes that focus on increasing gender equality.

1. Introduction

In the Singida District of Tanzania (maps in Appendix A & Appendix B), women and men's[1] experiences in sunflower cultivation are full of asymmetrical autonomy and extensive gender inequality. For women sunflower farmers this exists in a break of the value chain, where the business and profits of their hard labor go into the hands of their male counterparts, with women having little or no control on the decisions made. The men in the Singida District have maintained this monopoly on business aspects of sunflower cultivation such that women and men's viewpoints of the crop often portray vast inconsistencies and opposing viewpoints. In this study, microeconomic variables are used along with variables derived from women's economic empowerment theory to portray these differences in a holistic attempt to increase awareness and initiative in the sector.

The main findings were in the categories of education/training, technology, time, access to markets, work environment, economic advancement, and personal agency. Each section included questions that addressed the microeconomic aspects of a participant's daily life and experiences with that particular topic. Within multiple categories there was a presence of significant power variation and value chain disconnect between the male and female participants. A comparison of the female and male participants' answers reflects that males have an uneven possession of power over financial aspects of sunflower cultivation and household decisions. The female participants' answers showed an intimate understanding of the labor behind sunflower cultivation that the male participants seemed to lack. This cultural division of labor is the foundation of a value chain disconnect that prevents women sunflower farmers from partaking in the monetary facets of their product.

The results also reflect a multitude of obstacles faced by all the participants. These include lack of formal education and difficulties in accessing technology and sunflower processing facilities. While these obstacles are mentioned in the report and are important to all the participants, they also already the focus of the Tanzanian government (ITC, 2016). Each of these obstacles is not new and is well-understood in the context of agricultural and economic growth. This study and report include these obstacles but urge for a further focus on the women within the sector and the vital yet apparent invisibility of their role in sunflower cultivation.

As the Tanzanian government is currently very interested in investing in sunflower cultivation to enhance economic development, there is potential for women sunflower farmers to capitalize on available grants and loans that would allow then to expand their business and profits (ITC, 2016). In order to do this, the issues presented in this study must first be addressed. The data collected through this study can help by providing a holistic glimpse at the micro-variables influencing women in the sector. The goal, therefore, is to use this unique situation, in

[1] The terminology of women and men throughout this report will refer to the publicly identified cisgender participants of this study. The inclusion of terminology beyond 'women' and 'men' could be confusing in ways of translation as it would not take into account the culture and laws of Tanzanian society. This language has therefore been chosen so that the report reaches and does not alienate those whom it is meant for, the participants and others in similar situations. References to gender in this report are used lightly and when possible, more specific language is implemented.

which investment and policy focus on sunflowers harbors potential in economic growth for women in rural Tanzania, and create new systems and programs to ensure women's economic empowerment. The logistics of how this potential can be reached are included in the report and are based on the nature of the sunflower industry in Tanzania, women's economic empowerment theory, and most importantly, the responses of each participant included in the study.

2. Background and Related Literature

2.1 A Growing Consumer Base

Sunflowers are currently growing in popularity within the global market, and as a result so is sunflower production in Tanzania. In 2016 the country produced approximately 900,000 tonnes of sunflower seeds (FAO, 2016). These seeds were grown by small-scale farmers in rural Tanzania, most of which were women. Historically, sunflower cultivation has been associated with a woman or poor man's occupation in rural Tanzania, explaining women's majority in the sector (SNV, 2012). While there are various potential uses for sunflowers, the most common product in Tanzania is sunflower oil.

As sunflower oil has grown in popularity due to natural product trends and its health benefits, so has its regional cultivation (National Sunflower Association, 2017 & Harvard Medical School, 2015). Areas in Europe, North America, and Sub Saharan Africa have been increasing their sunflower yields on a yearly basis, with the Ukraine being the world's top producer at 13.6 million tonnes in 2016 (National Sunflower Association, 2017 & FAO, 2016). For Tanzanian small-scale farmers, this increase in demand opens channels for economic growth and has increased profits but only for the farmers that can access the proper market avenues. Women small-scale farmers rarely have access to such channels.

2.2 Previous Research on the Sunflower Value Chain in Tanzania

According to research conducted by the Netherlands Development Organization (SNV. 2012), small-scale sunflower farmers in rural Tanzania face many challenges to economic growth, such as lack of access to international markets, insufficient capital, absence of modern technology, and low-quality seeds. The SNV states the instability of infrastructure in rural Tanzania also affects these farmers as it limits their access to transportation, which causes them to need middlemen who can transport their yields to larger cities. While the SNV's research offers general insight into the obstacles rural Tanzanian sunflower farmers face, it does so through an industrial lens that limits its portrayal to a business-model-like perspective where the focus is profitability and capital growth. In contrast, the study included in this report has a focus on microeconomic externalities beyond that of monetary gain as it reaches into ideals of equality and shared decision-making.

Enock A. Ndondole's (2014) work on the sunflower sector in Tanzania gives light to how limiting factors of economic growth are exacerbated by the gender inequality present in rural

Tanzania. He states that low education rates for women and legal constraints that prevent most women from owning land or receiving loans are just a couple examples of this inequality. Ndondole's focus, however, is the overall state of sunflower cultivation, giving little space to gender-based issues within the work. The study presented in this report uses several factors like the ones mentioned by Ndondole and appropriately analyzes these variables to uncover any potential exacerbation that is correlated to a participant's gender.

While using the above research as a starting foundation, this report aims to remedy the exclusion of women's perspectives through an examination of the microeconomic aspects of sunflower cultivation and their influence on women's economic empowerment. As no research has effectively done this in a comprehensive manner, such approach is widely needed throughout the sunflower industry and economic development sector in Tanzania.

2.3 Similar Studies

Even as women small-scale farmers are the largest producers of sunflowers in Tanzania, research on the industry leaves them out of the discussion on the economics and future of sunflower cultivation. While some studies include women participants in their surveys on economic growth, the number of women included in the surveys has not been proportional to the number of women small-scale farmers. For example, one study had 229 participants from four different areas, of which only 29% were women. Additionally, the questions asked in this study were general questions about sunflower cultivation with no regard to how women and men's experiences might be different or variables that would represent these potential disparities (Ugulumua & Inanga, 2013). This report aims to counter these issues by including a proportional number of women participants and by including questions that have potential to reflect any economic gender inequality that is present.

Emmanuel Mroto (2015) performed a gender analysis of the sunflower value chain in the Mvomero District of Tanzania that had a similar goal and found significant drawbacks for women in the sunflower industry. Mroto's research included participants from the cultivating and processing subsectors, which resulted in most of the female participants being part of the drying and winnowing of sunflowers, not farming. While the data collected through this analysis is relevant to the proposed research topic, it subsequently does not provide direct information regarding women's economic empowerment as small-scale farmers. The study also included variables that examined household work, land ownership, and amount of training, but only in the context of showing that inequalities within these variables exist (Mroto, 2015). In order to further examine these variables, the study on this report used similar instruments to demonstrate gender inequality along with additional variables that indicate the level to which this inequality has directly influenced women's economic empowerment.

2.4 Measuring Women's Economic Empowerment

In the last twenty years, there has been substantial research on identifying the best indicators for women's economic empowerment. Mayra Buvinic (2017), a specialist in such research, states that women's economic empowerment can best be measured through three main concepts: the autonomy, agency, and achievements of women. It is stated by Buvinic that the level at which women have the power to possess these qualities shows their status not just economically but also as an individual. This is important to note as some women may be economically stable but have little independence with their finances.

These concepts were incorporated into the questions of the survey used in this report in order to address the autonomy, agency, and achievements of each participant. By using these concepts, the results of the survey allow for a comparison between the male and female participants' level of economic empowerment, giving insight on how the status of women's economic empowerment may be different than men's within the sunflower sector. In addition to these questions, the participants were also asked about factors outside of sunflower farming to gain a comparative understanding of the participants' relationship with the industry.

3. Setting

3.1 The Singida District, Tanzania

The participants in this study are individuals involved in sunflower cultivation in the Singida District of the Republic of Tanzania. This district is commonly known for its sunflower production and has one of the highest concentrations of small-scale sunflower farmers in the country, making it an ideal area to gather a sample population for the survey (ITC, 2016). Located in Central Tanzania, the Singida District offers proper climate conditions for sunflower growth, with growing season typically being between February and May and harvesting season being between June and July. This study took place in June while many of the participants were harvesting their sunflower crops and sending the seeds to be processed into oil.

The act of oil processing is one that many of the participants in this study did not take part in. For sunflower seeds to be transformed into oil, there are usually two machines used: an oil extractor and an oil refiner (see Appendix C & Appendix D). In most of the villages within Singida, this equipment is not available, forcing farmers to sell their raw sunflower seeds to middlemen instead. These farmers are often underpaid as the middlemen are aware that the farmers do not have access to other buyers. While this is the typical experience in Singida, some farmers are able to access processing facilities at which they pay the processors a set fee per liter of oil produced (see Appendix E). This allows farmers to have a choice in how much their seeds are sold for and allows them to evade the low payments given by middlemen. To increase the possibility of farmers going straight to processors, many villages in Singida have goals of owning and operating their own processing facilities. For two of the villages we visited, Mtinko and Msange, this is a reality.

It is vital to understand this extensive value chain before going through the findings of this study. While the value chain seems straightforward, a prominent issue is women get cut off at a certain point within the process. This typically comes when harvesting is finished and the sunflower seeds are ready to either be sold to a middleman or brought to a processing facility. It is in these steps that men step in and takeover the value chain, though all steps before (growing, harvesting, winnowing) are predominately completed by women. This is the cultural way of handling agricultural goods, but with the government's increasing interest in sunflower oil and the possibility it holds for women's economic empowerment, there are hopes that the value chain will shift in the future to aid the women behind the industry.

4. Methodology

4.1 Methods of Research

In order to fully access the microeconomic aspects of each participant's livelihood, a 72 question survey was created that addressed eight topics: the demographics, education/training level, technology access and training, time spent doing various daily activities, access to markets, work environment, economic advancement, and personal agency of each participant (see Appendix F). The survey was originally written in English and was translated by a two-person team at the District Council of Singida. Before the pilot interviews, the translated survey was circulated around to different officers at the District Council to insure the translation was correct and made logical sense.

Once the translated version of the survey was approved, two participants from the Mtinko Village were interviewed as part of the pilot process. Changes were made after the pilot as certain questions were not thoroughly understood by participants due to vagueness or inapplicability. These questions were either adjusted or removal from the survey.

After the pilot interviews, the survey began to take place. The first ward visited was Mtinko, then Mudida, Makuro, Mwasauya, and Msange. These visits took place over the course of five days. At each ward participants were gathered by an affiliate of the District Council who worked with the sunflower groups of that region. Attendance differed at each ward, with low turnout at some and very high turnout at others.

For each ward, there were two individual interviews (one male and one female) and the rest of the participants were divided into two groups, one group consisting of female participants and the other of male participants. All males, including those in the individual and group interviews, were interviewed by the male translator, while all females were interviewed by the female translator. This is meant to take away any intimidation or bias that may come with having an interviewer of the opposite sex.

In the individual interviews, the translators went through the 72 question survey and recorded the answers of the participant on a hard copy of the survey. For group interviews, the translators went through the survey likewise and recorded the answers of all participants. The reasoning for doing both individual and group interviews was based on 1) maintaining respect

for the participants' time, especially since the survey was conducted during harvesting season, 2) to allow comradeship for those uncomfortable answering questions in a one-on-one setting, and 3) to facilitate discussion on the topics brought up by the questions. Elaboration and further discussion by the participants was encouraged in both the individual and group interviews and was recorded by the translators. All participants were provided light refreshments while the study took place.

At the end of the study, there was a total of 117 participants, 53 males and 64 females. The data collected was entered into spreadsheets, organized by group interviews, individual interviews, and one spreadsheet that included all 117 participants' responses. This report is based on the data from the comprehensive responses of all 117 participants in order to provide a detailed overlook of the disparities in answers between the male and female participants.

4.2 *Limitations*

There were various challenges throughout the study that limited its expanse and content. Location was one of these challenges; the villages that were visited were far away from the District Council's office, creating time and monetary constraints. The added language barrier between the researcher (native English speaker) and the participants (native Swahili speakers) was a challenge as some English terminology does not exist in Swahili. This resulted in some questions not translating appropriately, needing to be either heavily revised or thrown out. The questions also relied on honest, detailed answers from the participants, of which there was no guarantee.

Another limitation involved the youth culture of the area. It was difficult to achieve youth representation throughout the study as most individuals who were 18-24 years of age were either not independent from their parental household or had no interest in being part of the study. This lack of interest is a continuing issue for the District Council in their youth outreach initiatives. Other sunflower farmers were not able to participate simply due to it being harvesting season, the busiest time of the year. Even with these mild setbacks, the survey did reach many participants that represented an array of demographics.

5. Data Analysis and Findings

5.a. Demographics

Number and Geography of Participants

The participants of this study represented five wards, shown in Table 1 in the order of which they were visited, and fourteen villages[2] of the Singida District.

Table 1: Geographical Location of Participants

Ward	Participants (Female)	Participants (Male)	
Mudida	8	8	
Mtinko	13	15	
Makuro	18	15	
Mwasauya	5	12	**Total**
Msange	20	3	**Participants**
Total	64 (55%)	53 (45%)	117

The number of female participants represents approximately 10% of the available female sunflower farmers in the area, while the male participants represent approximately 9% of the available male participants, making the sample at approximately 9.5% of the available sunflower farmers in the area. Representation within the available sunflower farmers was 53% female and 47% male, indicating the representation of male and female participants in the sample is very similar to their representation in the available population. These estimations are based on documents and survey results from the District Council of Singida. In such surveys, farmers who had a minimal amount of land dedicated to sunflowers could consider themselves sunflower farmers. This study, however, specifically looked for sunflower farmers who cultivated sunflowers for profit, not just household use. If these for-profit farmers were the only ones included in the initial District Council's reports, the percentages of representation would therefore be higher and indicate a more significant sample size.

In relation to geography, each of the five Wards represented are considered to be part of rural Tanzania. The town of Singida, which consists of small guest houses, a moderate market, and multiple small supermarkets, is the location of the District Council's head offices. Mtinko is

[2] The fourteen villages represented are (in alphabetical order): Kibaoni, Malolo, Matumbo, Migugu, Minyenye, Mpambaa, Mpipiti, Mpoku, Msange, Mtinko, Mudida, Mwakichenchi, Ngamu, and Ng'ongoampoku.

the closest ward to town, approximately 65 km away, while Msange is the farthest, approximately 90 km away. The location of the participants becomes a vital detail in considering their obstacles, especially those of women sunflower farmers.

Age

Each participant was asked to provide their age. Most were able to provide an exact age; for those who were unsure we asked that they provide a range for their age. The averages of participant ages are located in Table 2.

Table 2: Average Ages of Participants

	Men's Avg. Age	Women's Avg. Age
Group 1	48.7	47.4
Group 2	Ranges Given	44.9
Group 3	Ranges Given	36.4
Group 4	41	32.3
Group 5	46.9	36.5
Group 6	42	43.3
Individual Interviews	39.5	40.3
Total Average	43.6[3]	40.2

As can be seen in Table 2, most of the participants were middle aged (54% of those who gave ranges instead of an exact age were above the age of 35 years old), averaging between 10-16 years of experience in sunflower cultivation[4]. While there were some younger participants, classified as under 25 years old, their presence was rare in this study. The likely reasons behind this is that there is a current shift for younger rural Tanzanians to seek employment in urban areas, as well as the general understanding that those who have spent a longer time in sunflower

[3] This number was calculated using the responses of the 29 male participants who were able to give a specific number for their age (55% of male participants). The ranges given by the other participants puts them in the following age categories: 18-35 years old (11 participants), 36-50 years old (8 participants), 51 & up years old (5 participants). As not knowing your age can be a sensitive subject for many rural Tanzanians, they were not pushed to give an exact age nor were they pressured to place themselves in a smaller range than the ones given.

[4] This average was calculated using the participants responses when asked: How many years have you worked with sunflowers?

cultivation are more likely to engage in a study concerning the crop. This is important to note as this study predominately represents the views of middle-aged sunflower cultivators, leaving little room for the influence of younger people's ideas or experiences, which may add a different perspective as they have grown up in a more globalized culture than the generation before them.

Religion

Table 3: Religion of Male Participants

	Christian	Muslim
Group 1	3	4
Group 2	3	7
Group 3	3	11
Group 4	1	2
Group 5	5	6
Group 6	2	0
Individual Interviews	3	3
Total	20 (38%)	33 (62%)

Table 4: Religion of Female Participants

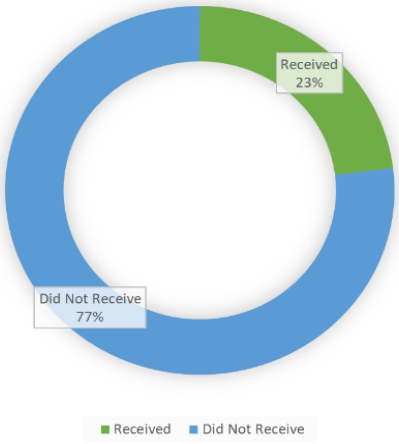
	Christian	Muslim
Group 1	3	4
Group 2	0	8
Group 3	3	14
Group 4	3	0
Group 5	3	1
Group 6	9	10
Individual Interviews	4	2
Total	25 (39%)	39 (61%)

Table 3 and Table 4 show the religious representation of the participants in the study. As can be seen, there were similar ratios of Christian and Muslim representation for both female and male participants.[5] In the Singida District the most prominent religions are Christianity and Islam, with the majority of individuals in the rural areas practicing Islam, which is reflected in the sample. The ideology of these religions subsequently influences the culture and actions of Tanzanians in the area. It was therefore important to include a religion variable within the study and keep the representation of these religions in mind when evaluating the data, especially in regards to questions that concern the differing roles of men and women in daily life.

[5] The participants were given a third choice of 'other religion/no religion.' There were no participants who gave this response.

5.b. Education/Training

Figure 1: Formal Training of Participants



In Fig. 1 the percentages of participants that did and did not receive formal training are shown. Formal training in this context was defined as participating in a training program that was held by the government or another organization in which lessons were held by an expert of agriculture or by someone who specialized specifically in sunflower cultivation. It is not uncommon that an overwhelming majority of the participants had not received such training; their villages are often too far for NGO's to reach and their governments simply do not have the capital for holding formal training events. Those that did receive formal training often had to travel to a different ward, paying for transportation through their personal funds.

Figure 2: Informal Training of Participants

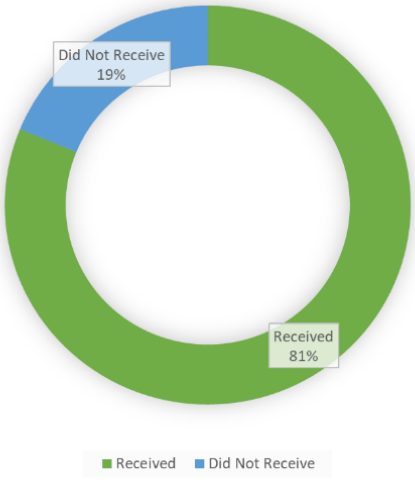


Fig. 2 presents the percentage of participants that did or did not receive informal training. For the sake of this study, informal training was defined as involving lessons from a local farmer or family member who had experience in sunflower cultivation. It is expected that most participants would receive informal training through these means, as it is accessible and often free. Those who did not receive informal training were predominately women, with 30% of female participants and 6% of male participants not receiving informal training. This means on average, a male participant was approximately five times more likely to receive informal training than a female, despite females being the main growers and harvesters of sunflowers.

Other questions in this section addressed the effectiveness of the training participants had received. Effectiveness was described to the participants as managing crops well enough to produce the highest possible yields and highest possible quality of those yields. Each participant was asked: how much did the training you received increase your effectiveness in sunflower cultivation? The possible answer choices given to the participants were ‘not well’ (indicating no or very little increase), ‘average’ (indicating a slight but not significant increase), and ‘well’ (indicating a significant increase). The female participants responded as such: 6% said ‘not well,’ 61% said ‘average,’ 9% said ‘well,’ and 23% were not able to answer the question because they had received no training at all. For the male participants’ responses, 0% said ‘not well,’ 87% said ‘average,’ and 13% said “well.”

In order to take into account the number of female participants (15 participants) who were not able to answer this question, a shifting of the percentages to a denominator of 49 (the number of female participants who had received training) is necessary. The percentages are then 8% said ‘not well’, 80% said ‘average,’ 12% said ‘well.’ These percentages represent the proportion of female participants who gave that response of those who were able to answer. After this calculation, it is seen that female and male participants who had received training had

similar views on the effectiveness of that training, with the largest disparity in the sample being the 23% of female participants who had no training.

5.c. Technology Access

Figure 3: Participants' Continuous Access to Technology

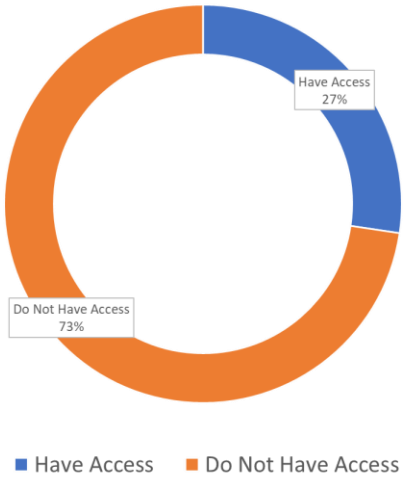
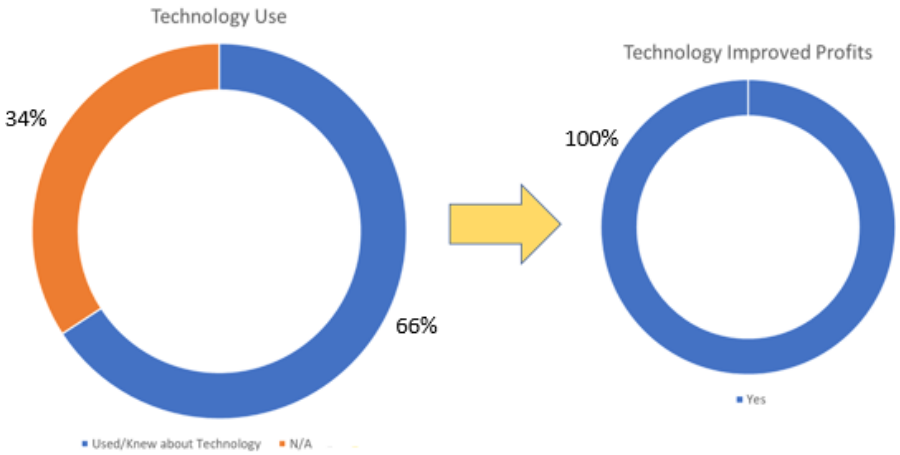


Fig. 3 shows the percentage of participants who did or did not have continuous access to technology. Technology was described to the participants as high-quality seeds, tractors, new plows, and fertilizer. Continuous access in this context is defined as being able to continually use this technology throughout the planting and harvesting seasons. Of the participants, 27% had this level of access while 73% did not. Among both male and female participants, this level of access was highly unavailable with 68% of male participants and 77% of female participants not being able to continuously access any form of technology. These high percentages for both men and women show continuous access to technology is a prominent obstacle in sunflower cultivation, with women still being less likely to have this access by approximately 11%.

Figure 4: Participants' Usage and Views of Technology

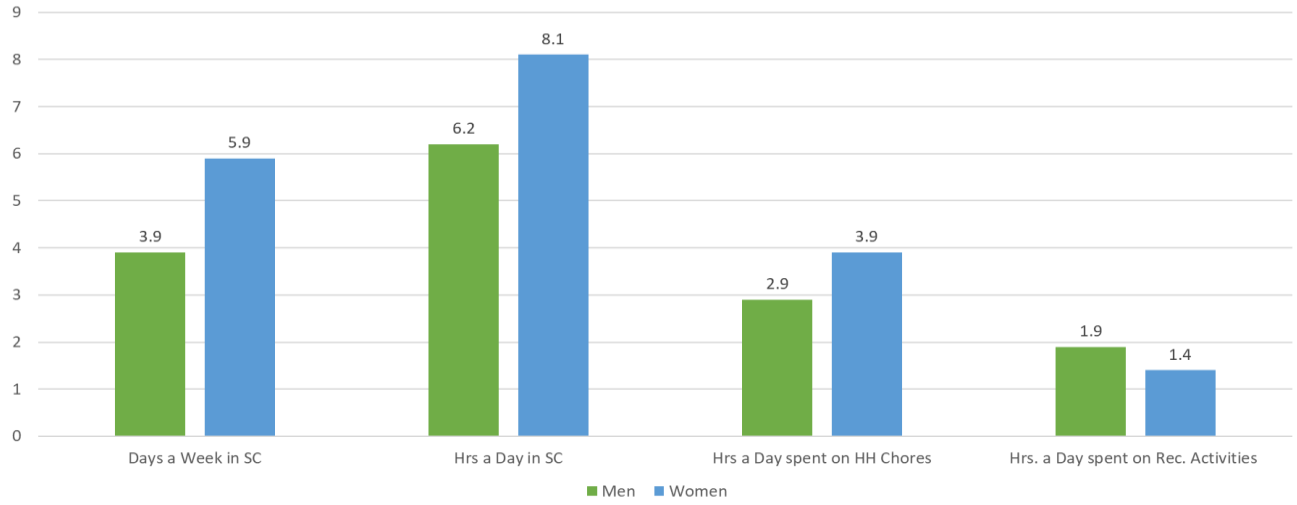


The graph on the left side of Fig. 4 shows the percentages for how many participants had experience using technology. Of the 34% who did not have experience using technology, all of them were women. This 34% represents 40 female participants, making up 63% of all the female participants. When asked how effective they felt technology was in sunflower cultivation, the remaining 37% of female participants answered as such: 8% said 'not effective', 28% said 'effective,' and 2% said 'highly effective.' Adjusting for those who were not able to answer by switching the denominator to the number of female participants who were able to answer (24), the percentages change to 21% said 'not effective,' 75% said 'effective,' and 4% said 'highly effective.' Of the male participants, all of whom were able to answer, 0% said 'not effective,' 75% said 'effective,' and 25% said 'highly effective."

Even when accounting for the female participants who were not able to answer, there are still large discrepancies between whether a female or male participant who had experience with technology viewed that technology as 'not effective' or 'highly effective.' Using explanations provided by the participants, there are two main reasons behind this 1) men are almost always the ones put in charge of technology when it is available, and 2) women are predominantly the ones doing manual labor, in which they often prefer to implement more traditional ways of growing and harvesting that have been around for centuries and therefore do not require modern technology. It is also important to remember the 40 female participants who did not have any experience with technology, and how these explanations may apply to them.

5.d. Time

Figure 5: Time Differences between Men and Women within Daily Activities



In Fig. 5, the average responses to questions regarding how participants spend their time are presented. Each participant was informed that in this context sunflower cultivation included any work done in regard to sunflowers, household chores meant any routine activities that were done within their household such as cleaning or mending to repairs in the house, and recreational activities could be reading, watching television, playing sports or similar pastimes. Female participants reported spending more days of the week and hours a day in sunflower cultivation than male participants. On average, a female participant spent 2 more days a week and 1.9 hours a day more in sunflower cultivation than the male participants. The female participants also spent on average 1 more hour a day on household chores than the male participants. Within the time category, male participants only surpassed female participants in hours spent on recreational activities, in which the male participants on average spent half an hour more than female participants.

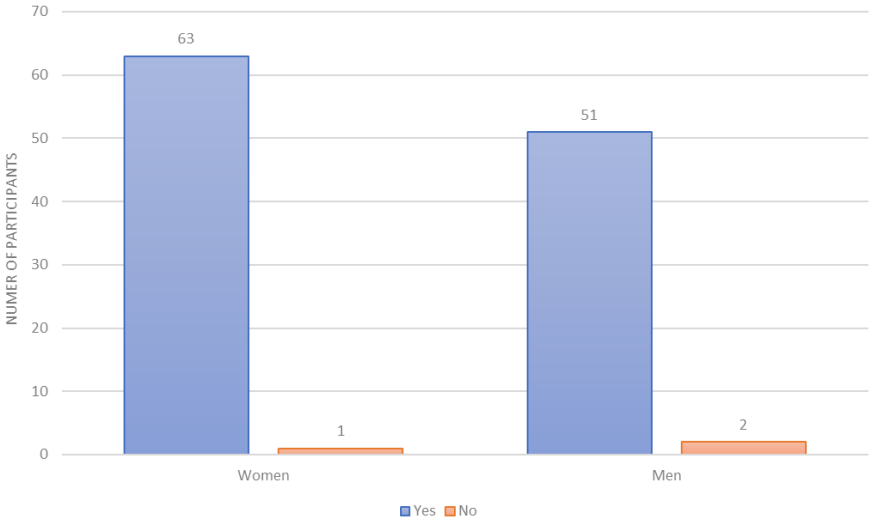
If these time tables were put into the context of a 24-hour day, a female participant would spend on average 34% of the day on sunflower cultivation, 16% on household chores, and 6% on recreational activities, leaving 44% of her day, or approximately 10 hours and 36 minutes, for rest and miscellaneous activities. For male participants, their average responses culminate to 26% of their day spent on sunflower cultivation, 12% on household chores, and 8% on recreational activities, leaving 54% of the day, or approximately 13 hours, for rest and miscellaneous activities.

Each participant was also asked if they felt they had enough time to complete all their tasks. 84% of the female participants said they felt they did have enough time, while 49% of male participants said the same. This leaves a large inconsistency as over half of the male

participants felt they did not have enough time to fulfill their daily tasks, even though they had more time than the female participants based on the above timeline assessment. When asked to elaborate, one explanation that was given is that women have very set daily responsibilities, allowing them to manage their time more efficiently, whereas men are responsible for the management of a more diverse set of tasks, such as traveling to markets and organizing inventory, that are more difficult to plan around. A more common explanation, predominately provided by the female participants, was that women are simply better at time management than men.

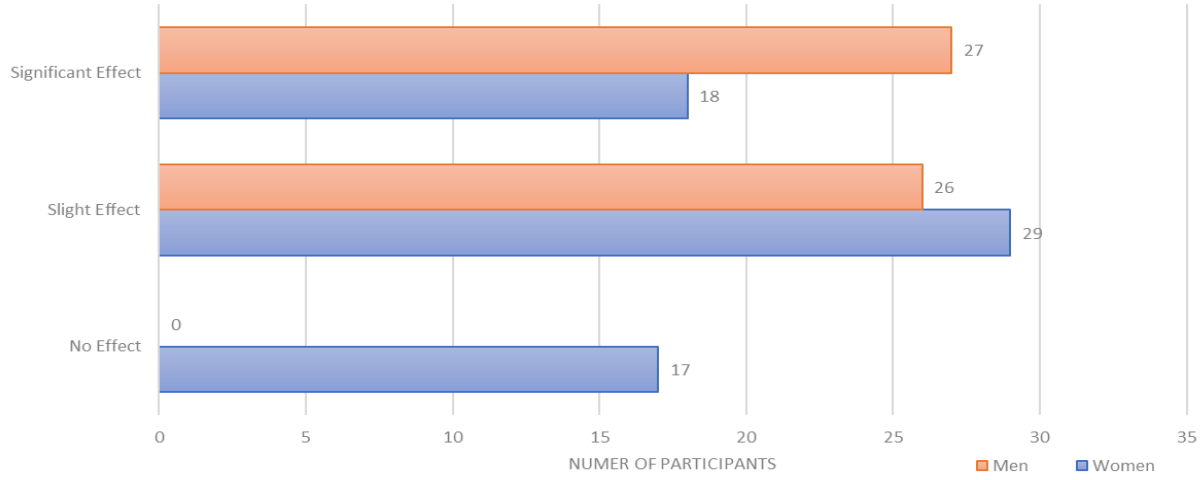
5.e. Access to Markets

Figure 6: Participants' Usage of Middlemen



The above graph (Fig. 6) shows the responses of female and male participants when asked if they sell to a middleman. The little discrepancy between their answers represents one of the main challenges for sunflower cultivators in the Singida District. They were also asked if they thought it was easy to access wholesale merchants. 63% of the female participants and 91% of the male participants said 'no,' that is was not easy. Similar responses were given when the participants were asked if they had enough access to processing equipment as 98% of female participants and 98% of male participants said 'no,' they do not.

Figure 7: The Influences of Location on Business



In the above graph (Fig. 7), the responses to the question – how do you feel your location affects your business? – are shown. Female participants answered as such, 27% said 'no effect,' 45% said 'slight effect,' and 28% said 'significant effect.' The male participants' responses were 0% said 'no effect,' 49% said 'slight effect,' and 51% said 'significant effect.' These responses indicate that a male participant was approximately two times more likely to feel that location had a significant effect on business.

A similar discrepancy is seen in the responses of the following question: Do you think it is safe to travel for your business? 50% of female participants and 100% of male participants said they felt it was not safe to travel, meaning a male participant was approximately two times more likely to feel unsafe traveling for his business. The main reason behind these vast differences is that the female participants were generally disconnected from the business aspects of sunflower cultivation, which often involves traveling long distances on extremely rough roads. There were no female participants of the 64 asked that had ever traveled for their business, leaving them with little first-hand experience of how traveling affected their profits. This sex-based disconnection was present in other questions that dealt with specifics of the business aspects of sunflower cultivation.

5.f. Work Environment

Figure 8: Views on Labor Division

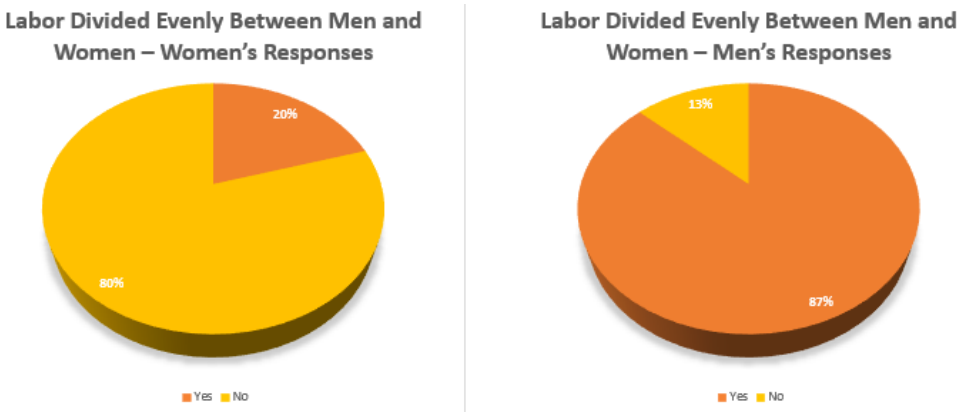
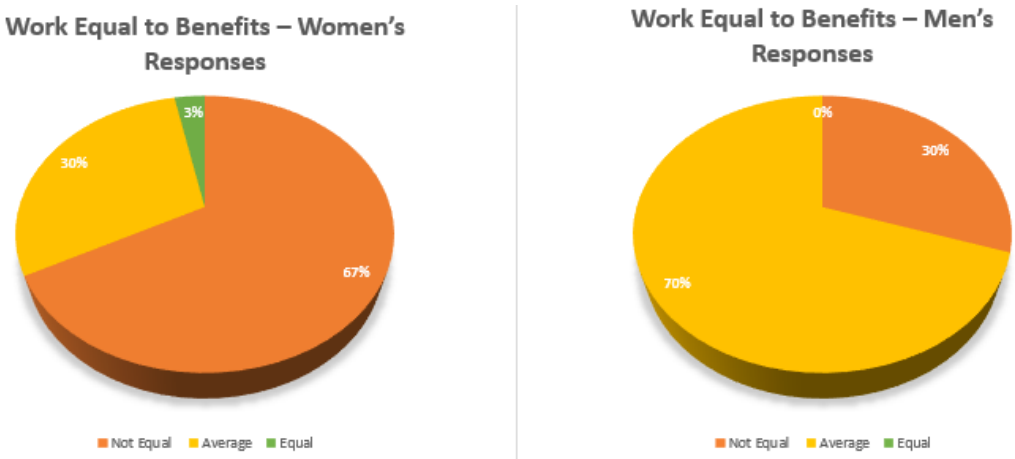


Fig. 8 illustrates the different responses that were given by female and male participants when asked if they felt labor was divided evenly between men and women. While 80% of the female participants said labor was not equally distributed, 87% of the male participants said it was equally distributed. Reasoning behind this vast difference in the responses reflects a misunderstanding concerning the difficulties both male and female participants experienced as they each played their role in the sunflower sector. Within their explanations, female participants were disconnected from the work that comes with handling the business side, while the men often underestimated the physical labor that comes with sunflower cultivation.

Figure 9: Views on Benefits from Sunflower Cultivation

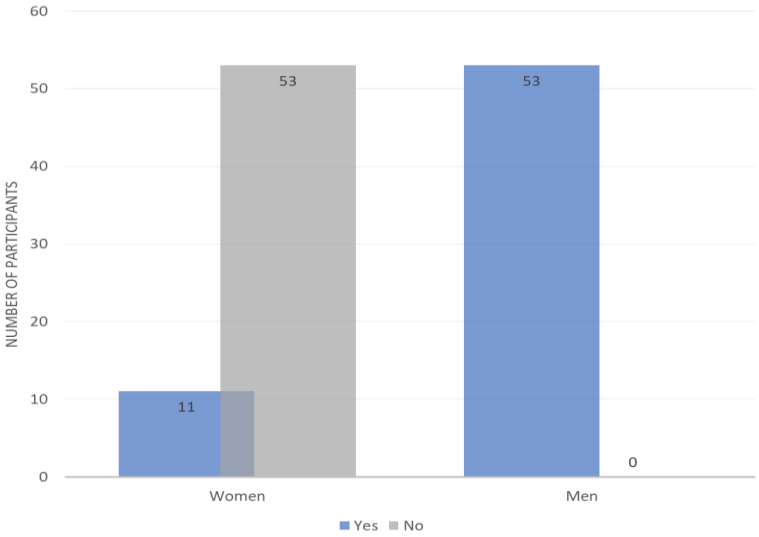


Another question that reflected such disconnect is the following: Do you think the benefits from sunflower cultivation are equal to the amount of work you do in sunflower cultivation? The responses to this question are shown in Figure 9. 67% of female participants

said it is not equal, while 30% said it was on average equal[6], and 3% said it is equal. Of the male participants, 30% said it is not equal, 70% said it was on average equal, and 0% said it was equal. Using these responses, it is seen that a female participant was approximately two times more likely to consider the work not equal to the benefits of sunflower cultivation. This relates back to the disconnect that was present throughout the majority of this study, where physically arduous and difficult labor is the responsibility of women sunflower farmers.

5.g. Economic Advancement

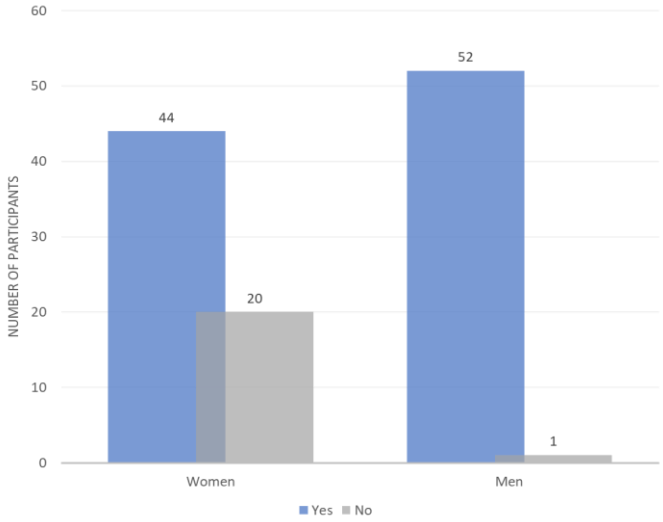
Figure 10: Participants' Freedom to spend Income made from Sunflower Cultivation



The graph in Fig. 10 shows the participants' responses when asked if they had the freedom to spend income made from sunflower cultivation. 100% of the male participants said they had this freedom, while 17% of the female participants said the same. This means that a female participant was approximately six times less likely to have the freedom to spend income made through sunflower cultivation. Using knowledge derived from other responses in the survey, this discrepancy does not match the work female participants were putting into sunflower cultivation, creating an unfair balance between those who are producing the good and those who are benefiting most from the profits of that good. It also shows that 83% of the female participants were not independently benefiting from their work, preventing potential economic advancement that could come from having control over the full value chain of their product.

[6] 'On average equal' within this context means that the participant felt the work they put in sunflower cultivation was not completely equal but not completely unequal to the benefits they received, leaving them with some benefits from the industry but not to the extent they expected.

Figure 11: Participants' Ability to Purchase Necessities

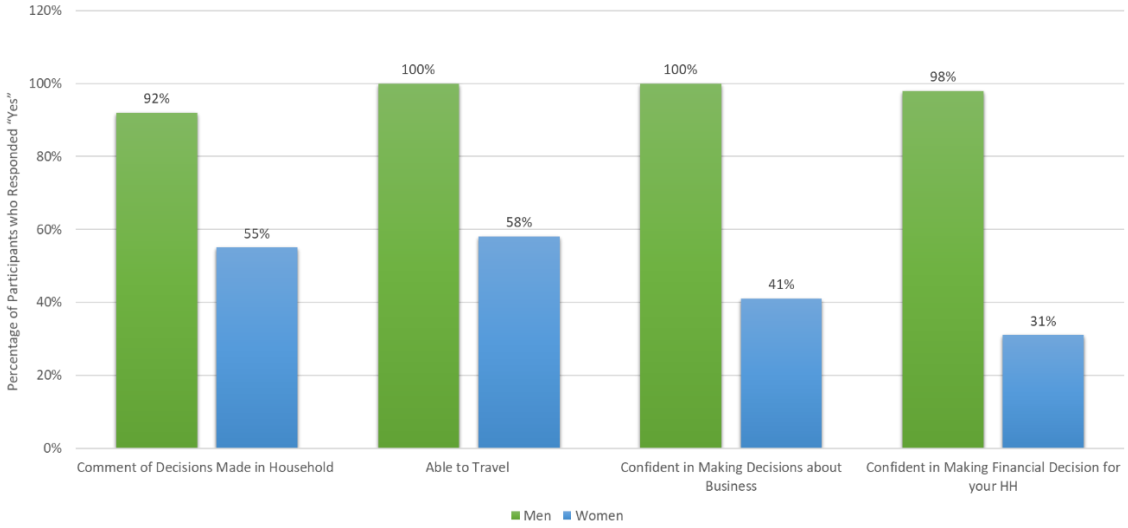


In the above graph (Fig. 11), the responses for the following question are represented: Does sunflower cultivation provide enough income for you to buy necessities? 69% of the female participants and 98% of male participants said sunflower cultivation did provide enough income to buy necessities. The 29% difference in these responses goes back to the disconnection that exists between the female participants and the business aspects of sunflower cultivation. In their explanations, the male participants viewed sunflower cultivation as a prosperous business, while the female participants who answered 'no' to this question felt it brought in some income but not nearly enough. The mentality behind this also reflects the female and male participants' views on whether the benefits of sunflower cultivation are equal to work they put in.

It is also important to note the participants' responses to a very similar question, in which they were asked if they were able to purchase necessities for their family with no specific indication of where the income to do so came from. In their responses to this question, 98% of female participants and 98% of male participants said they were able to buy necessities. So while sunflower cultivation itself may not be providing adequate income for 18% of the participants (calculated collectively among female and male participants), only 2% actually reported they could not the buy necessities even with additional income. With this information, it is apparent that even though there is a discrepancy between the female and male participants' responses, sunflower cultivation is aiding in the economic advancement of at least 82% of the participants. As it is mostly women who are left out of this, making up 95% of the leftover 18%, a focus is needed specifically on their economic advancement and how it is related to the amount of work they put into sunflower cultivation.

5.h. Personal Agency

Figure 12: Participants' Personal Agency in Decision Making



There were several questions within the survey that addressed the personal agency of each participant by focusing on power within independent choices and decision making. The responses to four of these questions are depicted in the graphs of Fig. 12, in which the percentages shown represent the amount of female or male participants who answered 'yes' to that specific question. The answers are shown for the following questions (in order from right to left in Fig. 12): Are you able to comment on the decisions made in your household?; Are you able to travel when needed?; Do you feel confident in making decisions about business?; and Do you feel confident about making financial decisions in your household?

The answers to these questions culminate to female participants being approximately one and a half times less likely to comment on household decisions, two times less likely to be able to travel when needed, two and a half times less likely to feel confident in making business decisions, and three times less likely to be confident in making financial decisions for the household than male participants. These answers reflect a lack of personal agency for the female participants, while the male participants seem to lack very little personal agency among all four questions (only 5 male participants answered 'no' to one of the four questions and no male participant answered 'no' to more than one of these questions).

Other questions concerning personal agency were: Do you feel confident in buying possessions for the household; and Do you feel confident in buying personal possessions? 39% of female participants and 100% of male participants said they felt confident in buying possessions for the household. 33% of female participants and 100% of male participants said they were confident in buying personal possessions. This translates to female participants being approximately two and a half times less likely to feel confident in buying possessions for the

household and three times less likely to feel confident in buying personal possessions. These differences in personal agency reflect deep cultural and sometime religious beliefs about the expected responsibilities of both men and women. If an individual were to act outside of these beliefs they would likely face social consequences, a communal way of encouraging traditional ways of life.

6. Recommended Initiatives

The results of this study show three prominent themes: a split in the sunflower value chain in which women do the manual labor and men handle the post-harvest business aspects, obstacles in economic advancement that disproportionally affect women, and a lack of personal agency for women in decision-making processes. There are five main recommendations, derived from the main findings of the study, that if followed have the potential to lessen the severity of these issues:

1) Including women and gender specific variables in all policies, policy briefs, development strategies, and research projects.

2) Emphasizing the inclusion of women in all steps of sunflower cultivation, including the selling of seeds and production of sunflower oil.

3) Facilitating the building of relationships between women sunflower farmers, sunflower oil processors, and government officials who handle the regulation of sunflower oil.

4) Investing in sunflower farming, such as providing better quality seeds and farming equipment, and ensuring women are not left out of this process.

5) Educating men and women through accessible workshops, readily available literature, and lectures that promote an increase in inclusivity and a decrease in traditional patriarchal values and practices.

These recommended actions are meant to increase women sunflower farmer's economic empowerment. This change would not only improve the quality of life for thousands of Tanzanian women, but it would also open avenues to increase the domestic production of sunflowers. As the main producers of sunflowers would be more involved in the sector, there would be more profit-incentive to grow that sector into the internationally competitive market that is desired by the Tanzanian government. The recommendations to do this are feasible and within the means of even the lowest funded branches of the government. At their foundation, they require gradual steps in keeping women in mind during policy discussions, enhancing

already existing programmes to include the perspective of women, and ensuring that current and future investments in the sector are being appropriately allocated so that they do not exclude women.

If the recommendations were to be followed, assessment of their effectiveness would need to include the microeconomic variables mentioned in this report. Such assessments could be done within months to years after implementation and should be done regularly. Adjustments to each recommended action can then be made so that each initiative fits the specific needs of the individuals involved.

7. Conclusion

The main purpose of this report is to bring attention to small-scale women sunflower farmers in rural Tanzania. They are part of an exponentially growing sector and it is vital to Tanzanian society and the Tanzanian economy that these individuals are not left out of such growth. Along with the findings from this study, a very important perspective to keep in mind is that most individuals involved in policy making and most sunflower farmers already know strict economic limitations exist for women sunflower farmers. Even for those who want to help, the task of fixing the systematic oppression and cultural values that perpetuate economic discrimination against women seems too overwhelming and immense to tackle. This study aims to change this narrative by using specially chosen variables to break down that task into smaller, palatable pieces of the story. Each of these pieces provides information that gives everyone involved the opportunity to start making slight changes in the right direction. While there may not be a radical solution to this problem, such gradual change can make an impact. By approaching this issue through its microeconomic elements, there is hope that such efforts will lead to broader, widespread change for thousands of women sunflower farmers in Tanzania.

Appendix

(A) Map of Tanzania showing district lines. The district of Singida is located in Central Tanzania, below the district of Arusha and above the district of Mbeya. (produced and provided by the Tanzanian Government, 2015)

(B) Close up of the District of Singida. This gives an idea of the geography of Singida. There was no available map that accurately portrayed the wards and villages of the area. (produced and provided by the Tanzanian Government, 2015)

(C) An oil extracting machine used in the Msange Village. (photo by author)

(D) An oil refining machine used in the Msange Village. (photo by author)

(E) Refined and bottled sunflower oil at a market in Singida. (photo by author)

(F) Survey used in study with English and Swahili translations. (Original survey by author, translations by Singida District Council members)

SEHEMU A. / Section A

1.Jina Mdau aliyeojiwa.....

1. Name……..

2.Kata anayotoka.....

2. Ward……

3 Kijiji anachotoka.....

3. Village…….

4.Jinsi.....1.mme(.....) 2 mke ( ) weka alama ya √ panapohusika

4. Sex……..

5.Umri .....(miaka)

5. Age……

6. Dini yako ni …….. a) Mkristo b) Muislamu c) Sina dini

6. Religion …….. a) Christian b) Muslim c) No religion

SEHEMU B / Section B

7. Mbali na kilimo cha zao la alizeti ,unalima mazao mengine? a)**ndio** b) **hapana**

7. In addition to sunflower cultivation, do you grow other crops? a) yes b) no

8. Je unajimudu katika zao la alizeti au unautegemezi?.....

8. Are you an independent sunflower farmer? a) yes b)no

9. Je unamiaka mingapi unajishughulisha na kilimo cha alizeti?.....

9. How many years have you worked with sunflowers?

10. Katika kilimo cha Alizeti wewe unajishughulisha na nini? (Kulima kawaida, kuchambua/kupeta, unatumia mashine)

10. Which sector of sunflower cultivation do you work in? (farming, winnowing/sorting, processing machinery)

11. Je umepata elimu/mafunzo rasmi ya kilimo cha zao la alizeti? **a) ndio b)hapana**

11. Have you received formal education / training for sunflower cultivation? a) yes b) no

12. Je umepata elimu/mafunzo yasiyo rasmi ya kilimo cha zao la alizeti? **a) ndio b)hapana**

12. Have you received informal education / training for sunflower cultivation? a) yes b) no

13. Ni kwa namna gani mafunzo uliyopata yameongeza ufanisi katika kazi yako" **a)Sio vizuri** b)**wastani** C)**vizuri**

13. How did the training you have gained increase your effectiveness in your work? A) Not good b) average C) well

14.Je mafunzo uliyoyapata yamekusaidia kupata ujuzi na maarifa katika kilimo cha alizeti? ?**a) ndio b)hapana**

14. Do you feel you have gained useful skills and knowledge through your training? a) yes b) no

15. Je ujuzi na maarifa uliyopata katika mafunzo ya kilimo cha alizeti yamekuwezesha kufanikiwa katika kilimo cha mazao mengine? **a) ndio b)hapana**

15. Have the skills and knowledge you have gained through sunflower farming helped you be successful in other sectors? a) yes b) no

16. Je unafikiri mafunzo uliyoyapata yatawezesha kuongeza mahitaji yako kwa ujumla? **a) ndio b)hapana**

16. Do you feel the training you received will enable you to access your overall needs (overall well-being)? a) yes b) no

17. Je umepata mafunzo ya tekinolojia zinazohitahika katika uzalishaji wa zao la alizeti? **a) ndio b)hapana**

17. Have you received training for technology used in the production of sunflowers? a) yes b) no

18. Je Umepata teknolojia za muhimu zinazotakiwa katika uzalishaji wa zao la alizeti? **a) ndio b)hapana**

18. Do you have access to technology that is necessary for sunflower production? a) yes b) no

19. Ni kwa ugumu gani unaoupata kufikia hizo teknolojia? **a) hakuna ugumu b) wastani c) Kuna ugumu**

19. How difficult do you feel it is to access those technologies? a) no difficulty b) average c) There is difficulty

20. Je unauwezo wa kupata pembejeo zilizo bora? mfano mbegu, mbolea na madawa. ? **a) ndio b)hapana**

20. Does the participant have access to quality seeds, fertilizer, and pesticides? a) yes b) no

21. Ni kwa mara ngapi unatumia tekinolojia hii **a) Sio mara nyingi b) mara nyingi c)mara nyingi zaidi**

21. How often do you use this technology? A) Not often b) often c) very often

22. Je unamiliki tekinolojia uliyoipata ? **a) ndio b)hapana**

22. Do you own this technology? a) yes b) no

23. Ni zana zipi zinatumika katika kilimo cha alizeti.....,.....,.....

23. What tools do you use in sunflower cultivation?

24. Je ni kwa namna gani ufanisi wa tekinolojia unaitajika katika kilimo cha alizeti? **a)sio kwa ufanisi. b) kwa ufanisi c)kwa ufanisi wa hali ya juu.**

24. How effective does the participant feel technology is in sunflower cultivation? a) is not effective. b) efficiently c) to the highest efficiency.

25. Je Unahisi tekinolojia inayotumika ni muhimu katika kilimo cha alizeti? **a)ndio b)hapana**

25. Do you feel using technology is important in sunflower cultivation? a) yes b) no

26.Ni kiwango gani unafikiri matumizi ya tekinolojia yameathiri kipato chako?

a) haikuathiri, b)imeathiri c)imeathiri sana

26. How much do you feel using technology affects your income? a) yes b) no

27. Je unafikiri mafunzo ya tekinolojia uliyopata yameboresha faida? **a)ndio b)hapana**

27. Do you think technology training has improved profits? a) yes b)no

28. Ni masaa mangapi unayatumia kwa siku unaposhiriki katika kilimo cha alizeti?.....

28. How many hours a day do you spend participating in sunflower cultivation?

29. Ni masaa mangapi unayotumia kwa siku katika kufanya kazi za nyumbani?.....

29. How many hours a day do you spend doing housework (household chores)?

30. Ni masaa mangapi unayotumia katika shamba la alizeti kwa wiki ?.....

30. How many days a week do you participate in sunflower cultivation?

31. Ni masaa mangapi unayotumia kwa shughuli za burudani kwa siku?.....

31. How many hours per day do you spend participating in recreational activities?

32. Je unafikiri huna muda wa kutosha katika kukamilisha kukamilisha majukumu yako yote? **a) ndio b)hapana**

32. Do you feel that you do not have enough time to complete all of your tasks?

33. Je vikwazo vya muda vinakusababishia mawazo? **a) ndio b)hapana**

33. Do time constraints cause you to worry? a) yes b) no

34. Je unauza mazao yako kwa wafanya biashara wa kati? **a) ndio b)hapana**

34. Do you sell your products to middleman? a) yes b) no

35. Je unauza mazao yako kwa wafanya biashara wa jumla? **a) ndio b)hapana**

35. Do you sell your products to wholesale merchants? a) yes b) no

36. Je unasafiri kwenda kuuza mazao yako? **a) ndio b)hapana**

36. Do you travel to sell your products? a) yes b) no

37. Kama jibu la swali la 36 ni ndio unasafiri kilomita ngapi .....

37. If you answered yes to questions 36, how many miles do you travel?

38. Je ni kwa namna gani unafikiri eneo ulilopo linakuathiri katika biashara ya mazao yako?

a)hakuna athari b) athari kidogo c)athari kubwa

38. How do you feel your location (area/province) affects your business? a) no effect b) slight effect c) significant effect

39. Je unafikiri ni salama katika usafirishaji wa biashara yako? **a) ndio b)hapana**

39. Do you think it is safe to travel for your business? a) yes b)no

40.Je unafikiri ni urahisi kuwafikia wauzaji wa jumla? **a) ndio b)hapana**

40. Do you think it is easy to access wholesalers? a) yes b) no

41. Je unauwezo wa kutosha wa kupata vifaa vya usindikaji? **a) ndio b)hapana**

41. Do you have enough access to processing equipment? a) yes b) no

42.Je, unaona mazingira ya kazi katika kilimo cha Alizeti ni salama? **a) ndio b)hapana**

42. Do you feel the working environment in sunflower farming is safe? a) yes b) no

43. Je, unafikiri faida anayoipata inalingana na kiasi cha kazi unayoifanya katika kilimo cha alizeti? **a) sio sawa b) wastani c) sawa**

43. Do you think the benefits it gets are equal to the amount of work you do in the sunflower farming? a) not equal b) average c) equal

44. Je, kuna mgawanyo wa kazi kati ya mwanaume na mwanamke katika kilimo cha Alizeti? **a) ndio b)hapana**

44. Is the labor evenly distributed between men and women in sunflower farming? a) yes b) no

45. Je, una uhuru wa matumizi ya kipato kitokanacho na kilimo cha alizeti? a)ndio b)hapana

45. Do you have freedom to spend the income from sunflower cultivation? a) yes b) no

46. Kilimo cha alizeti kimeweza kuinua kipato cha familia yako? **a) ndio b)hapana**

kama ni ndio eleza kwa namna gani.....

46. Ha sunflower cultivation raised your family's income? a) yes b) no

If yes, explain how ....

47. Je, Katika eneo lenu mkulima anaweza kupata mkopo toka kwa watu binafsi **a) ndio b) hapana**

47. In your area, do farmers have access to loans from individuals? a) yes b) no

48. Je, Eneo unalolima Alizeti unalimiliki? **a) ndio b)hapana**

48. Do you own the land on which you cultivate sunflowers? a) yes b) no

49. Unasehemu salama ya kuhifadhi fedha zitokanazo na mauzo ya zao la Alizeti? **a) ndio b)hapana**

49. Do you feel it is safe to store (save) money made from the sales of sunflower products? a) yes b) no

50. Unauwezo wa kuhifadhi fedha zinazotokana na mauzo ya zao la Alizeti? **a) ndio b)hapana**

50. Are you able to save money made from the sales of sunflower products? a) yes b) no

51.Kipato cha kaya yao ni Ths. Ngapi?Kwa mwezi?.....

51. What is your household income? How much per month?

52. Je unachangia kikamilifu kwenye pato la Kaya yako? **a) ndio b)hapana**

52. Do you fully contribute to the income of your household? a) yes b) no

53. Je unatumia kipato unachokipata mwenyewe? **a) ndio b)hapana**

53. Do you spend the income that you earn? a) yes b) no

54. Asilimia ngapiya kipato unachopata kinatumiwa na familia/? .....

54. What percentage of your income is spent on your family?

55. Unaweza kununua mahitaji ya lazima ya familia yako? **a) ndio b)hapana**

55. Are you able to provide (buy) the needs (necessities) of your family? a) yes b) no

56. Unaweza kupeleka watoto shule kutokana na kipato cha kilimo cha alizeti? **a) ndio b)hapana**

56. Can you pay for your children to go to school through the income earned from sunflower cultivation? a) yes b) no

57.Je Unaweza kununua bidhaa za kifahari kwa mfano……,……? **a) ndio b)hapana**

57. Are you able to buy luxury products? For example? a) yes b) no

58. Je Kilimo cha Alizeti kinakuwezesha kupata mahitaji yako ya lazima? **a) ndio b)hapana**

58. Does sunflower cultivation provide enough (allow) for you to buy (get) your necessities? a) yes b) no

59.Je kilimo cha alizeti kinakuwezesha kupata mahitaji ya familia? **a) ndio b)hapana**

59. Does sunflower cultivation provide enough (allow) for you to buy (get) your family's necessities? a) yes b) no

60. Kwa namna gani unafikiri kipato kitokanacho na kilimo cha alizeti kupelekea kuwepo mabadiliko katika afya yako? a) **Kidogo** ,b) **Wastani**, c) **Sana**.

60. How much do you think income from sunflower cultivation has affected your health? a) small b) average c) very

61.Je kipato kitokanacho na kilimo cha alizeti kimeweza kuleta mabadiliko katika afya yako na familia yako? **a) Kidogo** ,b) **Wastani**, **c) Sana**.

61. How much do you think income from sunflower cultivation has affected your family's health? a) small b) average c) very

62. Je unahusika katika utoaji wa maamuzi katika kaya yenu? a) ndio b)hapana

62. Are you involved in decision making in your household? a) yes b) no

63. Je unaweza kuyasemea maamuzi yanayotolewa katika kaya yenu? a) ndio b)hapana

63. Are you able to comment on the decision made in your household? a) yes b) no

64. Je unaweza kusafiri wakati ukihitajika? a) ndio b)hapana

64. Are you able to travel when needed? a) yes b) no

65. Unaweza kutumia simu ya mkononi inapohitajika? **a) ndio b)hapana**

65. Are you able to use a cell phone when needed? a) yes b) no

66. Unaweza kupata huduma ya mtandao wa intaneti pale unapohitajika? **a) ndio b)hapana**

66. Are you able to access internet when it is needed? a) yes b) no

67.Je unaweza kupata habari kupitia vyombo vya habari? **a) ndio b)hapana**

67. Are you able to access information via media (news)? a) yes b) no

68.Je unaoujasiri wa kufanya maamuzi katika biashara yako? **a) ndio b)hapana**

68. Do you feel confident in making decisions in your business? a) yes b) no

69. Je unaujasiri wa kufanya maamuzi yeyote katika kaya ? **a) ndio b)hapana**

69. Do you feel confident in making decisions in your household? a) yes b) no

70.Je unaujasiri wa kufanya maamuzi ya matumizi ya fedha katika kaya? **a) ndio b)hapana**

70. Do you feel confident about making decisions about money in the household? a) yes b) no

71.Je unaujasiri wa kununua mali zingine katika kaya? **a)ndio b)hapana**

71. Do you feel confident in buying possession/property for the household? a) yes b) no

72.Je unamiliki mali zako binafsi? **a) ndio b)hapana**

72. Are you confident in buying personal property/possessions? a) yes b) no

References

Buvinic, M. (2017). Measuring Women's Economic Empowerment: Overview. *Data2x*. Retrieved from http://www.data2x.org/wpcontent/uploads/2017/06/Meas ures_Overview.pdf.

Durkheim, E. (2018). "The division of labor in society." In *Inequality* (pp. 55-64). Routledge.

Harvard Medical School, Harvard Health Publishing. (2017). "The truth about fats: the good, the bad, and the in-between." Retrieved from https://www.health.harvard.edu/staying-healthy/the-truth-about-fats-bad-and-good.

International Trade Centre (ITC). (2016). United Republic Of Tanzania Sunflower Sector Development Strategy. Retrieved from http://unossc1.undp.org/sscexpo/cont ent/ssc/library/solutions/partners/expo/2016/GSSD%20Expo%20Dubai%202016%20PPT /Day%202_November%201/SF%204_Room%20D_ITC/Value%20chain%20roadmaps/T anzania/Tanzania%20Sunflower%20Sector%20Development%20Strategy.pdf

FAO. (2016). Sunflower Seed Production: Tanzania. Retrieved from http://www.fao.org/faostat/ en/#data/QC.

FAO. (2016). Sunflower Seed Production: Ukraine. Retrieved from http://www.fao.org/fa ostat/en/# data/QC.

Golla A. M., Malhotra A., Nanda P., and Mehra R. (2011). Understanding and Measuring Women's Economic Empowerment: Definition, Framework and Indicators. *International Center for Research on Women (ICRW)*. Retrieved from https://www.icrw.org/wp-content/uploads/2016/10/ Understanding-measuring-womens-economic-empowerment.pdf.

Mroto, M. H. (2015). "Gender Analysis in the Sunflower Value Chain: A Case of Mvomero District, Tanzania." The Sokoine University of Agriculture, Morogoro, Tanzania. Retrieved from http://www.suaire.suanet.ac.tz:8080/xmlui/bitstream/handl e/123456789/1830/EMMANUEL%20HONGO%20MROTO.pdf?sequence=1&isAllowe d=y.

Ndondole, N. A. (2014). Sunflower Value Chain Development in Tanzania: The case of SHADECO in Village Based Contract. Presentation at *Multi-Stakeholder Conference on Agricultural Investment Gender and Land in Africa. Capetown- RSA*. Retrieved from http://bestdialogue. antenna.nl/jspui/bitstream/20.500.12018/2659/1/Sunflower %20Value%20Chain%20Development%20in%20Tanzania.pdf.

SNV Norwegian Development Organisation. (2012). SNV Tanzania. Retrieved from http://www.tzdpg. or.tz/fileadmin/_migrated/content_uploads/Final_Tz_Edible_O ilseeds_Brochure_2012.pdf.

Taylor, T. (2017). "Part III: The Fundamentals of Microeconomic Theory." *Principles of Economics: Economics and the Economy* (4th ed.). St. Paul, Minnesota: Textbook Media Press.

The National Sunflower Association. (2017). "Sunflower Sustainability: The substance behind the seed." Retrieved from https://www.sunflowernsa.com/uploads/2/sustainability-use_layout-1.pdf.

United Nations Development Programme (UNDP). (2013). Humanity divided: Confronting inequality in developing countries - Chapter 3: Gender Inequality. Retrieved from http://www.undp.org/content/dam/undp/library/Poverty%20Reduction/Inclusive%20development/Humanity%20Divided/HumanityDivided_Ch5_low.pdf.