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Factors that impact agricultural extension training programs for smallholder women farmers in Njombe District, Tanzania

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by

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ABSTRACT

Agriculture is and will remain a very important component of social and economic development of a country, particularly the developing countries. Agricultural training to the right people at the right time and in a right way will remain essential for the development of the agricultural sector. However, women have a large contribution in agricultural development at the household level, and the country at large. The need for women involvement in agricultural training programs is crucial to make sure that their full potential is utilized in agriculture. The purpose of this study was to identify major factors that impact smallholder women farmers training programs in Njombe district in Tanzania. This study was made possible by identifying the current training programs for smallholder women farmers and identifying aspects that influence women participation in agricultural training programs. Also, for describing strategies that could enhance food security training of women farmers. The target population of the study was all women smallholder farmers, particularly rural women from Njombe Rural District. The descriptive cross-sectional survey design was used to collect data from 100 smallholder women farmers. The results indicated that very few women farmers participated in agricultural extension training. Results showed that the following factors interfered their participation in agricultural training: women farmers have less access and possession of land, very few have membership in farmer groups / associations. Also, most farmers use hand held hoes to work on their farms, and most women grow food crops. Furthermore, results indicated that women farmers use agro inputs such as fertilizers, pesticides. Very few use improved seeds because they don't have enough information, it is very expensive to handle and also the seeds are incompatible to their environment. Based on the findings

of this study the government, NGOs, and other stakeholders should support women as an important component in agricultural sector. Factors that prevent women farmers from participating in the agricultural training programs should be considered when planning for any training activities.

CHAPTER 1. INTRODUCTION

Background information, situation, and the problem statement

Agriculture is widely accepted as the foundation stone of the economy of many countries in the world. It is the backbone of the economies of most of the developed and developing countries in terms of employment, and export earnings (Saito, Mekonnen, & Spurling, 1994). A sub-Saharan African study report shows that over 60 percent of the population of sub-Saharan Africa depends on agriculture for its livelihood and agriculture accounted for 29 percent of GDP and identified that women play a central role in agricultural production, growing mostly staple foods (McIntyre et al, 2009).

According to the Irish Aid Tanzania Fact Sheet on Agriculture of 2004, 85 percent of Tanzanians are engaged in smallholder agriculture. Saito et al. (1994) indicated that women dominate the smallholder farmer sector and account for more than three quarters of the food produced. Women make up the workforce in agricultural production. Das (1995) estimated that African women represent from 30 to 80 percent of the agricultural labor force. Van Crowder, Lindley, Bruening, & Doron (1998) added that in sub-Saharan Africa and the Caribbean, women produce 60-80 percent of basic foodstuffs.

Many studies indicate that many families, nations, regions, and the world at large are threatened by food insecurity due to the increased number of people on a fixed amount of land, urbanization, and climate change. Many strategies either have been carried out to fight against food insecurity such as supplying relief food to households with insufficient food, food security training, agricultural inputs subsidizations, and providing agricultural training programs (Nord, Coleman-Jensen, Andrews, & Carlson,

2010). In Tanzania, particularly, the government introduced strategies to fight against food insecurity by introducing agricultural input subsidies and Agricultural Loans Trust Fund (AGITF) as one of the mechanisms of implementing the Millennium Development Goals of the District Agricultural Development Plans (DADPS) (URT, 2008).

Investing in agricultural training among other strategies is an important long-term strategy to fight food insecurity. City & Guilds (2010) report investment in agricultural training is necessary to meet the food needs of a growing global population, improve food security in developing countries, and enable farmers to adapt to the changing climatic conditions. Moser (2014) in an essay on organic agriculture as a means to fight food insecurity in Tanzania highlands said farmers needed to form farmer associations to increase farmer's access to training and knowledge and agricultural inputs and financial services.

It is important for women to participate in training because training will help them utilize their full potential in agricultural production and increase their confidence on decisions on budgeting and healthy food management at household level. City & Guilds (2010) identified the reasons why smallholder rural women should participate in agricultural training. Training helps to improve their economic status, greater decision making role in both farm related and family related matters, improving productivity, training empowers, and gives women greater control over how household budgets are spent. The consequences of limiting agricultural training to women are many. Voegele, Villarreal, & Cook (2009) outlined these consequences "Limited agricultural education and training have been critical factors in limiting the opportunities for women to (1) gain new technological knowledge in their areas of production, (2) occupy positions as

agricultural researchers and extension professionals and (3) voice their demands for research, training, and other kinds of support, including technology, policy, and financing" (p. 262).

As with most Tanzanian smallholder women farmers and like in other developing countries, contact between men and women is restricted in some settings. The majority of extension workers are male. Women farmers are likely to have less access to public extension services. Moreover, extension services are often directed towards farmers who are wealthier, and who are likely to adopt modern innovations easily. In this case smallholder women farmers are less likely to have access to resources and may therefore be overlooked by extension service providers (FAO, 2010).

Women are involved in most agricultural activities, domestic, and children caring roles, yet they have many obstacles that hinder them from utilizing the opportunities available in agricultural training programs. Also it is possible that there are minimal opportunities for women to get agricultural knowledge and skills. So there is an expectation to see much effort being directed to women than current training that consider all farmers to have equal requirements. It seems the current system takes it for granted that all smallholder farmers have the same needs and conditions. The trend also shows that where a woman in a household is given enough information on the improved production, the family is likely to have food security. However, despite the importance of the women to fight against food insecurity as indicated in most studies carried out in Tanzania, many strategies and policies made to empower women, household food insecurity still is a problem in Tanzania. The question is, are there any working training programs for smallholder women farmers in Tanzania currently? What do smallholder

women farmers need from agricultural training in order to fight against food insecurity?

The need for the study

The literature review has shown that women are more responsible for food production especially in rural areas where three quarters of Tanzania's population lives. In an effort to address food insecurity, agricultural training program planners are expected to be aware and remove any factors that might prevent participation of this group of farmers. This study is important in order to understand those factors that impact smallholder women farmers to participate in agricultural extension training programs, so that whenever decisions related to agricultural extension training programs are made, these factors will be taken into consideration.

Moreover, the results of this study will help to find solutions that are relevant to a Tanzanian woman with respect to climatic conditions as well as help decision makers to think of the diverse smallholder farmers, particularly women, when they plan training programs. Jiggins, Samanta, & Olawoye (1998) said that there is no single extension model that works in all places, so a design should adapt to the condition or situation.

Purpose and objectives

The purpose of the study was to identify major factors that impact smallholder women farmers training in Njombe district in Tanzania.

The following were the specific objectives of the study

i) To identify related demographic characteristics of participants in this study.

ii) To identify the current training programs for smallholder women farmers.

iii) To identify aspects that influence women participation in agricultural training programs

iv) To describe strategies that could enhance food security training of women farmers.

Significance of the study

Understanding the factors that impact smallholder women farmers in agricultural extension training programs will help farmers to improve their attendance in the training programs. The change will therefore improve their traditional way of farming and consequently to reduce the risk of food insecurity and improve their living standards. Also the study will help program planners, trainers, or extension agents to improve their strategies of planning, delivering, and evaluating training programs for groups of smallholder farmers. Furthermore, the results of this study can help the government to adjust the extension training programs and related agricultural policies. The study process and results will help the researcher to gain more research skills, knowledge, and attitudes. Also the research results will serve as a resource reference for further studies in related themes.

Definition of the selected terms

Smallholder farmers, household food security, agricultural extension, training programs.

1. Smallholder farmers can be defined in several ways depending on the environment. RSA (2012) said “often the term ‘smallholder’ is interchangeably used with ‘small-scale’, ‘resource poor’, and sometimes ‘peasant farmer’. In general terms smallholder only refers to their limited resource endowment relative

to other farmers in the sector. Smallholder farmers are also defined as those farmers owning small-based plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labor" (p. 1).

2. Food security is the ability to access enough food for an active, healthy life by all people at all times (Nord et al. 2010). FAO (1996) defines food security as a state that " exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."
3. Household food security is the state whereby the household is assured of availability of food reserve, assets and government assistance programs so that at the time of want people will be able to sustain satisfactory nutritional consumption for physical wellbeing (Smith, Pointing & Maxwell, 1993)
4. Agricultural extension is a general term that describes the linkage between a farmer and agricultural research institutions (Seevers, Graham & Conklin, 2007) Extension agents help farmers to apply the knowledge or new technology using various techniques of teaching and learning of adults. Kyaruzi, Mlozi & Busindi (2010) added that, Agricultural Extension Agents (AEAs) have compulsory responsibility to transfer agricultural technology for farmers to explicitly use agricultural innovations to their potentials.
5. Training programs are the series of educational activities planned in order to achieve particular defined objectives. In agriculture, the training programs may be formal or informal educational activities, long-term or short-term programs and it

can be prepared for an individual or a group of farmers such as farmer's workshops, and seminars, individual farmer home or field visits etc.

CHAPTER 2: LITERATURE REVIEW

Introduction

Tanzania is one of the developing countries with more than 75 percent of its population living in rural areas that are employed by agriculture (URT, 2012). Women play a large part in agricultural activities especially to provide food to sustain the physical and nutritional wellbeing of their families. Agricultural skills and new technologies are inevitably important to this group of farmers. Several studies reveal that women participating in agricultural training is not satisfactory compared to their partner male farmers (City & Guilds, 2010; Das, 1995; Yahya et al, 2014)

This part of the study was organized to determine what other researchers have observed regarding factors that may impact participation of women in agricultural extension training. A review of the literature was conducted to identify the extent to which other studies support the need for the current study and to find the rationale for further study in the Njombe District of Tanzania.

Ongoing agricultural training programs in Tanzania

There are many ways in which information can be communicated to the required end users. Sanga, Mlozi, Tumbo, Mussa, Sheto, Mwamkinga, & Haug (2013) found that Tanzania currently has been benefiting with the 'Web-based Farmers' advisory information system that includes the Kissan Kerala Agriculture Information System adopted from India. This system provides several dynamic and useful information and advisory services for the farming community. "The basic requirement of this project is to provide Right Information to the Right Person(s) at the Right Time in the Right Place(s) and in the Right Context dynamically using a combination of advanced technology

portal"(P.45). Another system was the Agricultural Market Information Systems (AMIS) adopted from Bangladesh and India. This system involves collecting information through cellphones and computers. Farmers access information concerning production and prices of their product through text messages. Another system is the Tobacco-Agricultural Management Information System (Tobacco-AMIS), which was adopted in Tanzania. Tobacco-AMIS is the web-based information system that provides the tobacco industry with information by recording and reporting tobacco crop production activities throughout the crop cycle (Mlozi et al, 2013). This approach is useful to smallholder farmers because it enables a farmer to easily get advice from agricultural experts.

The local government extension office in Tanzania is responsible for the provision of extension services using approaches such as Training & Visit (T & V), Farmer Field School (FFS), home and field visits (Rutatora & Mattee 2001). Manfre (2013) identified the methods and techniques used in Extension Advisory Services (EAS) that include individual or group visits, organized meetings, use of model farmers, demonstration plots, information and communication technologies (ICTs), and Farmer Field Schools. Manfre found that both men and women have similar training programs and confirmed that the information and communication technologies (ICTs) works better for smallholder women farmers. However, T&V is very minimally used by NGOs (The Non Government Organizations) because the government disqualified due to challenges overwhelming the benefits. Mbo'o-Tchouawou et al (2014) highlighted some of the reasons that lead to the government not supporting the T&V system in the long run. They include too rigid, top down orientation, high operational costs, lack of recurrent funding, provided a passive

role to farmers, non-responsiveness to farmers' needs and failure to fit with the country-specific economic and social and institutional context.

Aspects that influence participation of women in agricultural training programs

In order for the smallholder women farmers to succeed in agricultural production, training should be given priority (City & Guilds 2010). Women have all the potential to participate in agricultural activities and that they are more concerned with taking care of the family than male farmers (Das, 1995). Yahya & Xiaohui, (2014) in their study, examined the constraints that prevent food security at the household level and found that 60% of smallholder farmers in the study area were women but the level of education, access to resources, and technology were neglected and marginalized for women. Also, large family size, and insufficient agro-inputs had negative effects on food security.

Moyo & Diop (2014) reported that although almost half of the agricultural workers across the continent are women, productivity on their farms is significantly lower per hectare due to lower access to inputs, land, extension services, technology, labor, and financial. Swanson (2005) identified several factors that may prevent rural women farmers from attending agricultural training. These factors include the focus of extension training, traditionally focusing on cash crops where men were more involved than women, the nature, and infrastructure of training centers were unsupportive of women with children that need to be accommodated. Another factor included women's daily domestic workload is a hindrance to attend training. If it happens that there is training involving women, emphasis was on home economics and crafts rather than technical agriculture.

Another factor is lower number of women extension staff; and religious and cultural barriers prevent individual contact to women farmers than only her relatives especially in Islamic Societies. Manfre (2013) added that ensuring equal opportunity for men and women in extension training and other services will help to increase food crop production for the family and extra to sell.

Most smallholder women farmers in Tanzania like in other developing countries, contact between men and women is restricted in some settings. The majority of extension workers are male. Women farmers are likely to have less access to public extension services. Moreover, extension services are often directed towards farmers who are wealthier and who are likely to adopt modern innovations easily. In this case smallholder women farmers are less likely to access resources and may therefore be overlooked by extension service providers (FAO, 2010). Action Aid reported that, "Women farmers are deprived of access to markets, key assets, and inputs, and are frequently excluded from decision-making. Women are even disproportionately impacted by poverty and hunger - including having less access to education and health care facilities" (Action Aid International, 2011:4).

Strategies that could enhance food security training of women farmers

Many scholars have agreed training smallholder women farmers as the best solution for many constraints that are related to food insufficient in the household. Gladwin, Thomson, Peterson, & Anderson (2001) suggested that both long and short term development interventions in policy and technology are required to tackle food security. Swanson (2005) shared some recommendations for more successful extension

systems for rural women farmers. They should build on the available potentials rather than bringing completely new innovation. Others are institution strengthening, integration of women in mainstream development efforts and training programs. On training programs, Swanson insisted that, training should fit with the needs and skills of women, the schedule to fit women timetables. Trainers should have passion and empathize with rural women, emphasizing practical approaches, training should also target the poor and less educated rural women. Similar to Swanson, Mbo'o-Tchouawou & Colverson (2014) said strategies to improve rural smallholder women farmers should be considered at the farmer level, program provider level, and institutional level. Where at the farmer level, identification of the gender-specific needs to be addressed by the program is important, provider is supposed to train according to the needs identified and the institution's role is to create an environment that enhances provision of the agricultural extension services effectively. Here both governmental and non-governmental organizations play a part to enable equal access to extension services for both male and female smallholder farmers.

The battle for food security is not an individual battle. Multi-stakeholders are needed to put forth their efforts. ActionAid (2011) suggested that there should be a collaborative intervention to acknowledge and support the longtime undermined and ignored potential roles played by women in agriculture to fight against food insecurity. In these efforts, the international community, governmental, and nongovernmental organizations are called to put their efforts to: "recognize women as farmers and support interventions which specifically focus on their unique circumstances. Set specific and measurable targets for actions on women farmers into policies and spending plans. They acted quickly to provide the material support for country-owned initiatives that prioritize

smallholders and women farmers which have already been promised by the G8 and the G20" (ActionAid, 2011: 2).

For the local efforts, equal opportunity should be emphasized for men and women in extension training and other services to help increase food crop production for the family consumption and extra to sell (Manfre, 2013).

Chapter summary

The literature has shown that there are various working agricultural extension-training programs that are working in Tanzania though there is no specific program for women farmers. Also, various factors have been identified that impact women participation in the training programs, and strategies that were used and suggested to be used to improve women participation in agricultural training. The literature reviews helped to reveal what is already known and identify some ideas about the studies that are related to this study.

Therefore, the research questions for the study were:

1. What is the demographic profile of women farmers in Njombe District?
2. What are the current training programs for women farmers in Njombe District?
3. What factors have an impact on women participating in agricultural training programs in Njombe District?
4. What strategies would enhance food security training of women farmers in Njombe District?

CHAPTER 3: METHODOLOGY

Introduction

This section presents the methods and procedures used while conducting this study, the research design of the study, the data gathering instrument development, the data collection procedures outline, data analysis procedures, and the assumptions made by the researcher. The purpose of this descriptive survey study was to identify the factors that impact agricultural extension training programs for smallholder women farmers as related to household food security in Tanzania. The following were the specific objectives of the study:

i) To identify related demographic characteristics of participants in this study.

ii) To identify the current training programs for smallholder women farmers.

iii) To identify factors that influence women participation in agricultural training programs

iv) To describe strategies that enhances food security training of women farmers.

Research Design

This study used a descriptive cross-sectional survey design. This design was useful in this study because it helped to describe the situation through asking questions about the nature of the situation. According to Ary, Jacobs, and Sorensen (2010), descriptive research involves describing the variables, not manipulating them. The cross-sectional survey helps to study a given population at a single point in time. So it is useful to save time and resources. The survey questionnaire was used as a measurement tool so internal validity threats were minimized in the process of data gathering. Threats such as the

subject effects in the sense that the respondents in this study were rural smallholder women farmers who in some cases were unable to read and write. The researcher or interviewers helped to read and write a response to the questionnaire. Another internal validity threat was the experimenter effects. Another threat was researcher and or assistants who conducted interviews were likely to influence/ bias answers to favor their needs. Training on research ethics and procedures were given to prevent this from happening. Winter (2000: 9) identified in his study that “descriptive validity" is that which is concerned with the initial stage of research, usually involving data gathering

Subjects or data source

The source of data in this study was both primary and secondary. One hundred women farmers included ten women in each of the ten villages in Njombe District were used to provide information as a primary source of data. The lists of women who were dealing with agricultural activities were obtained from the village extension offices in the villages that were selected for the study. A sample of women was used to represent other women farmers. From the list of all farmers in a village’s registry book, simple random sampling of women farmers was used to obtain a list of representative smallholder women farmers. With simple random sampling, a margin of error will be removed. According to Ary et al., (2010), simple random sampling gives an equal chance of the members of the population to be included in the sample, does not have a margin of error and a bias from the researcher is removed. They defined margin of error as “an estimate of the extent to which sample results are likely to deviate from the population value”(Ary et. al., 2010: 645). The selected women participated in providing answers to the

questionnaire about the factors that impact agricultural extension training programs for smallholder women farmers.

Secondary data was obtained from extension office progress reports, District profile, and various documents from the village, ward, and or district office. This included observation of the available training programs, the trend of women participation in agricultural training, and other supporting information for this study.

Instrumentation

Administered questionnaires were used in collecting data from the selected respondents in this study. The questionnaire was developed based on the objectives of the study, literature review, and researcher experience. The Iowa State University Institutional Review Board (IRB), two extension experts from the area of the study in the field and graduate committee members reviewed the instrument. The pilot data collection using the questionnaire was carried out two weeks before the actual administration of the questionnaire. Ten smallholder women farmers from one village that was not included in the actual study was involved in pilot data collection to serve the purpose of face and content validity. The results from the pilot-test helped to determine the reliability of the questionnaire.

The instrument was designed to determine the factors that impact agricultural extension training programs for smallholder women farmers. The questionnaire contained short and clear questions. The questionnaire was translated into the local language (Kiswahili) that is used by most of the population. For this case, the questionnaire was translated from English into Kiswahili, the national language. The rate of unanswered

questionnaires, incomplete data, and cheating was very minimal because data was collected through a direct administered questionnaire as the researcher helped to clarify unclear questions. Furthermore, the Iowa State University Institutional Review Board (IRB) reviewed the Exempt Study Review Form and approved it to allow the use of human subject in my study. The purpose of the review is to make sure that the instrument, and procedures involved in the study do not harm the participants physically, mentally and the overall wellbeing of the participants.

The questionnaire consisted of four sections: demographic information, current training programs in Tanzania, factors that impact agricultural extension training programs for women smallholder farmers and strategies that enhance food security training of women farmers.

Data collection

The instrument was directly administered to the smallholder women farmers. The instrument contained a cover letter as the top page to explain the nature of the study, assurance of anonymity, confidentiality, and that the participation is voluntary in a time of 20 minutes to finish the questionnaire. The research visited the farmer at her place during evening hours from 5:00 pm with the questionnaire. If the respondent was able to write, the farmer was allowed to fill the questionnaire, if not the interviewer read each question to the respondent and filled the questionnaire on her behalf. Also, clarification of any unclear questions was given to the respondents who were filling out the questionnaire on their own. Where potential respondents were not found, they were visited three times to improve the response rate.

Data analysis

Data analysis is the process where by researchers systematically give meaning to the data so that they can present what they have learned. It is a way to process both quantitative and qualitative data so that what has been learned can be communicated to others, the process that starts soon after the project starts and continues through to the submission of the final report (Ary et al., 2010; Savin-Baden et al., 2013).

Data was coded using the Statistical Package for Social Sciences (SPSS) version 16. With the help of SPSS and MS-Excel descriptive analysis was used to find out the frequencies, means, and minimum and maximum values for analyzing the demographic data and women opinions on the extension training programs and processes to determine factors that impact agricultural extension training programs for smallholder women farmers in the study area.

Assumptions

The following were the assumptions for this study

1. The smallholder women farmers will provide correct information, and not give what they perceive researchers' wanted;
2. The smallholder women farmers will not copy each other's answers while filling out the questionnaire;
3. The smallholder women farmers will be able to ask for clarification of questions in the questionnaire so that to understand the way the investigator intended; and
4. Documents to provide secondary data will be available in the village, ward, and district office.

CHAPTER 4: PRESENTATION OF DATA

Introduction

The purpose of the study was to identify major factors that impact smallholder women farmers training in the Njombe District, Tanzania. The following specific objectives were the focus of this study; to identify related demographic characteristics of the respondents, to identify the ongoing training programs for smallholder women farmers, to identify factors that influence women participation in agricultural training programs and to describe strategies that enhance food security training of women farmers in this study.

The results of this study are presented in the following sections: demographic information of the respondents, outcomes for each of the objectives, and any supplementary comments provided by the respondents for improving the research purpose.

Objective # 1-Demographic characteristics of participants

Demographic characteristics of participants have important value attributes to any society as they reflect their behavior in decision making and its probable expected responses to many stimuli exposed to them. The general characteristics of respondents examined in this study were: marital status, educational level, household size, and the age of the respondents.

Marital status

Sixty five percent of women were married, 16 percent widowed, 11 percent were single, and 8 percent were divorced as presented in Table 1. This table shows the majority of women involved in farming activities were married.

Table 1

The marital status of women smallholder farmer respondent in Njombe District, Tanzania (N=100)

Marital status	Frequency	Percent
Single	11	11.0
Married	65	65.0
Widow	16	16.0
Divorced	8	8.0
Total	**100**	**100.0**

Age of respondents

As presented in Table 2, the age of women farmers ranged from 19 years to above 45. Nearly half of the respondents were in this age range.

Table 2

The age of women smallholder farmer respondents in Njombe District Tanzania (N=100)

Age of the respondents	**Frequency**	**Percent**
19-25	11	11.0
26-35	45	45.0
36-45	22	22.0
>45	22	22.0
Total	**100**	**100.0**

Educational level

Eighty percent of smallholder farmers attended primary school, 9 percent had a secondary education, 8 percent never attended formal education, and only 3 percent attended college/university.

Table 3

Educational level of smallholder women farmer respondents in Njombe District Tanzania (N=100)

Level of Education	**Frequency**	**Percent**
No school attended	8	8.0
Primary school Education	80	80.0
Secondary school education	9	9.0
College/university education	3	3.0
Total	**100**	**100.0**

Household size

The number of members ranged from 1 to 10 family members. The results of this study indicated that 48 percent of the households had 4-6 family members and thirty two percent were families with 1-3 family members, and 20 percent of the families had 7-10 family members as indicated in Table 4.

Table 4

Showing the Household size (N=100)

Household size	Frequency	Percent
1-3 members	32	32.0
4-6 members	48	48.0
7-10 members	20	20.0
Total	**100**	**100.0**

Objective # 2-Current training programs for smallholder women farmers

In this part, the researcher wanted to know various training programs carried out in the study area (Njombe district). Twenty farmers attended Farmer Field School. However, more than half (51 percent) reported having never attended any agricultural training program. This result means that most women farmers in the study area do not participate in agricultural training and those who happened to participate in agricultural training had it through Farmer Field School, home/field visit, Training and Visit, visiting successful farmers and demonstration plots.

Table 5

Training programs attended by smallholder farmers (N=100)

Training programs	Frequency	Percent
Home/ Field visit	12	12.0
Famers Field School	20	20.0
Training and visit (T&V)	6	6.0
Visiting successful farmers	9	9.0
Visit demonstration plots	2	2.0
Never attended any	51	51.0
Total	**100**	**100.0**

Women farmers who never attended the training reported never hearing about training information, their husbands went instead, it involved fees, they had another responsibility that prevented them from attending and the training involved expenses and hence failed to pay. The results indicated nearly half of the women farmers do not attend training programs for a variety of reasons as indicated in Table 6.

Table 6

Distribution of respondents according to reasons for not attending agricultural training programs (N=100)

Reason for not attending	Frequency	Percent
The husband went instead	20	20.0
Never heard about training information	12	12.0
Failed to pay fees/coast	3	3.0
Had other responsibilities	16	16.0
Not applicable	49	49.0
Total	**100**	**100.0**

For those attending training programs, they indicated how often they have been attending training programs as presented in Table 7.

Table 7

Frequency of farmers receiving training from an agricultural educator (N=100)

Attendance	Frequency	Percent
Once a week	3	3.0
Once a season	20	20.0
Once a year	13	13.0
Thrice a year	1	1.0
Once in three years	6	6.0
Not applicable	57	57.0
Total	**100**	**100.0**

The following skills reported to be learned during training by the respondents that attended training. Respondents were told to check all that apply: Early planting (39 percent), the use of fertilizers (38 percent), how to apply pesticides (35 percent), importance of improved seeds (37 percent), accessibility of agricultural credits (30 percent) and food storage and food security (31 percent). Farmers also received training (percentage attending) related to food security as follows: New production techniques (50 percent), post-harvesting food handling (58 percent), farmers networking (34 percent) and food processing (4 percent). Table 8 below summarizes the results

Table 8

Skills learned during training by smallholder women farmers

Skills Learned	Percentage
Early planting	39
The use of fertilizer	38
Application of pesticides	35
Importance of improved seeds	37
Accessibility of agric. Credits	30
Food storage and security	31
Training related to food security	
New production techniques	50
Post-harvesting food handling	58
Farmers networking	34
Food processing	4

Off-farm economic activities

Together with agricultural activities, some women farmers do off farm economic activities. However, most of them are doing only agricultural activities as presented in Table 9 below.

Table 9

Off farm economic activities reported being done by smallholder women farmers (N=100).

Off farm economic activities	Frequency	Percent
Business	34	34.0
Self employed	4	4.0
Employed by the government	10	10.0
None	52	52.0
Total	**100**	**100.0**

Objective #3-Factors that influence women participation in agricultural training programs

This part of the study was intended to identify the factors that in one way helps or hinders women attendance and participation in training programs. Things such as land possession, working in groups, source of work force on the farm, uses and possession of farm implements, type of crops grown, access and affordability of agro inputs as presented in the tables of the following section.

Access to the land and means of acquiring land

Farmers in the study area depend on land as a major source of their livelihood. They need land for agricultural activities to produce both food and cash crops. The results show that 73 percent own between one acre and two acres acquired through inheriting from fore elders in the clan. These results indicate that most farmers are under the subsistence type of farming that they grow what is mostly sustaining their family yearly.

Table 10

Land size acquired by the smallholder farmers (N=100)

Land size	Frequency	Percent
< An acre	12	12.0
Between 1 and 2 acres	73	73.0
> 2 acres	15	15.0
Total	**100**	**100.0**

Women farmers use pieces of land that they acquired in different ways. As presented in Table 11, most women (54 percent) use land that belongs to the husbands' family, simply called an inherited farm. This means that, women and girls/ children don't have the right to possess the land, but they are allowed to use the land to produce food for the family in hand. The bought land is a husband who has a say on that land, and at the end boy children in the family will inherit it.

Table 11

Mechanism of land acquisition (N=100)

Means of acquiring the land	Frequency	Percent
Inherited	54	54.0
Bought	27	27.0
Rented	13	13.0
Allocated by village Government	6	6.0
Total	**100**	**100.0**

Working in groups

Women farmers were asked if they were members of any agricultural working groups; 37 percent reported to belong to these groups and 63 percent did not belong to any group. The results indicate that majority of the women (63 percent) work independently. Among the 37 percent, 9 percent report being in women only groups and 28 percent of members are in groups that are composed of both men and women as

presented in Table 12. This implies that women may not have the freedom to address their learning requirements as most of women focus on food crops, and men are interested in the commercial crops.

Table 12

Women farmers' group composition (N=100)

Group composition	Frequency	Percent
Women only	9	9.0
Men and women	28	28.0
Not applicable	63	63.0
Total	**100**	**100.0**

Source of power

Farming activities are carried out using the hand held hoe, machinery such as plough and tractor, or both by hand and machinery. Most farmers from Njombe used hand held hoe (manpower) as the results indicate that 61 percent of women farmers used manpower, the hand held hoe and 39 percent use both machinery and manpower and no one used only machinery. The result means that the majority (61 percent) of women farmers work manually in all activities such as field preparation, planting, weeding, harvesting, and the preparation for storage.

Table 13

Source of power in the farm (N=100)

Source of power	Frequency	Percent
Manpower only	61	61.0
Machinery only	0	0
Both manpower and machinery	39	39.0
Total	**100**	**100.0**

For those who use manpower only, 38 percent reported that all family members do the farm work, 9 percent women alone, 9 percent mother and children and 6 percent hired labor to do the farm work as presented in Table 14.

Table 14

Kind of manpower (N=100)

Kind of manpower	**Frequency**	**Percent**
Yourself	9	9.0
All family members	38	38.0
Mother and child	9	9.0
Hired labor	6	6.0
Not applicable	38	38.0
Total	**100**	**100.0**

The 39 women farmers who reported using machinery in Table 15, all were using plow/ animal drafts but no one was using a tractor or any other farm machinery. Thirty percent rented machinery and nine percent owned the machinery. This shows that farmers do not possess cows that eventually could help as an animal draft source of power, instead they rent machinery just for field preparation, then other activities will be carried out manually.

Table 15

Ownership of the agricultural implements (N=100)

Ownership of the machine	Frequency	Percent
Owning	9	9.0
Rented	30	30.0
Not applicable	61	61.0
Total	**100**	**100.0**

Type of crops

In the study area, farmers grow maize, beans, sweet potatoes and round potatoes, vegetables, tea, trees for timber and making charcoal, tomatoes, and coffee. Tea, coffee, and trees were regarded as commercial crops and the rest as food crops. Table 16 shows the distribution of women smallholder farmers into the respective crops they grow.

Table 16

Types of crops grown by women smallholder farmers in their fields (N=100)

Type of crops grown	Frequency	Percent
Food crops only	76	76.0
Commercial crops only	1	1.0
Both food and commercial crops	23	23.0
Total	**100**	**100.0**

Reasons for participating in agriculture

Farmers participate in agriculture for different purposes such as for business, for food and for both food and business. The smallholder women farmers in this study showed that the major purpose for their involvement in agriculture is as shown in Table 17.

Table 17

Purpose of being involved in agriculture (N=100)

Purpose of being involved in agriculture	Frequency	Percent
For business only	1	1.0
For food only	26	26.0
For both food and business	73	73.0
Total	**100**	**100.0**

Use of agro inputs

In Njombe, farmers apply fertilizers, improved seed varieties, and pesticides, because their land is not highly fertile and crops are very susceptible to pests (Njombe

District Profile, 2012). However, due to various reasons, some farmers use these inputs and some do not. Fifty two percent women farmers used improved seeds and 48 percent do not use improved seeds, 84 percent apply fertilizers in their fields, and 16 percent do not apply fertilizers. Seventy five percent women applied pesticides and 25 percent were not using pesticides in their fields. Table 18 summarizes the results

Table 18

Use of agro inputs by women smallholder farmers

Inputs used	Percent
Use of improved seeds	52
They don't use improved seeds	48
Total	**100**
Fertilizer application	84
They don't apply fertilizers	16
Total	**100**
Pesticides Application	75
They don't apply pesticides	25
Total	**100**

For those who do not use these inputs: fertilizer, pesticides, and improved seed, gave reasons as they are presented in Table19. It appears respondents were not well informed regarding the inputs.

Table 19

Reasons why farmers do not use inputs in their fields (N=100)

Reasons of not using inputs	Frequency	Percent
They are expensive	32	32.0
Don't know the importance	10	10.0
Not compatible with local weather	7	7.0
Not applicable	43	43.0
The land is fertile	7	7.0
They don't give better yields	1	1.0
Total	**100**	**100.0**

Access to Information

Women farmers reported the ways they acquire information concerning how to obtain and use the agricultural inputs. Many farmers acknowledged getting information from agricultural experts, village meetings, radio and friends and neighbors as presented in Table20. Agricultural experts represented the largest source of information

Table 20

Source of agricultural information concerning availability and how to use agro inputs (N=100)

Source of information	**Frequency**	**Percent**
Radio	13	13.0
Agricultural experts	53	53.0
Friends/ neighbors	13	13.0
Village meeting	21	21.0
Total	**100**	**100.0**

When they were asked about how they get in contact with the extension officer, they reported that extension contact is made through farm visits, village meetings and office visit when they need help as presented in Table 21.

Table 21

Mode of farmer extension contact with the extension officer (N=100)

Mode of contact	**Frequency**	**Percent**
Farm visit	13	13.0
Office visit	14	14.0
Village meetings	73	73.0
Total	**100**	**100.0**

Farmers were asked about the usefulness of the information and skills they get from the extension service in overcoming production challenges they have been facing, they responded that it is very useful by 55 percent, and 39 percent moderately useful and

only 6 percent said the information was not useful at all in overcoming production challenges they had been facing. Table 22 shows how the women farmers responded.

Table 22

Assessment of farmers on the usefulness of information they get from extension officers (N=100)

Usefulness of the information	Frequency	Percent
Very useful	55	55.0
Moderately useful	39	39.0
Not useful at all	6	6.0
Total	100	100.0

Extra skills women need

All respondents said they want extra skills in agricultural production. Table 23 shows the type of skills they outlined and the frequencies of choosing the same skills. This data indicates that women farmers want to be more educated about making money in producing commercial crops like men do.

Table 23

Skills women required (N=100)

Extra skills women need	Frequency	Percent
Education on how to produce commercial crops	49	49.0
Education concerning improved livestock	13	13.0
More training on fruits cultivation	9	9.0
Education on family planning	11	11.0
More education on entrepreneurship	18	18.0
Total	**100**	**100.0**

Women Farmers' opinions

Farmers gave their opinions on what the government should do to improve their agricultural production. Most of them suggested that there should be Farmer Field Schools, and more education on production and handling of the produce. Furthermore they said there should be training on how to work in groups, creating awareness for readiness of women to attend agriculture seminars, and training should be improved as Table 24 presents.

Table 24

Farmers' opinions on what should be done (N=100)

Opinion on what should be done	Frequency	Percent
There should be Farmer Field school	16	16.0
More education on production and handling of the produces	24	24.0
Training on how to work in groups	20	20.0
Readiness of women to attend agriculture seminar	23	23.0
Training should be more improved	17	17.0
Total	100	100.0

Objective #4-Strategies that could enhance training of women farmers

In finding ways to enhance agricultural training for women, 57 percent of smallholder women farmers reported that they produce enough food for the family throughout the year and 43 percent of farmers produce insufficient amount of food. Respondents also gave the productivity trends during the past five years. This result means that women who produce sustainable food for the family they have a training concerning how to produce, process and store for future use as presented in Table 25 and 26.

Table 25

Productivity trend on smallholder women's farm over the past 5 years (N=100)

Productivity trend	Frequency	Percent
Productivity increasing	55	55.0
Productivity declining	30	30.0
Productivity not changing	15	15.0
Total	**100**	**100.0**

The smallholder women farmers reported that training has played a significant role in the increased agricultural production by 46 percent. That is equivalent to 58 percent of farmers who have ever attended training.

Table 26

The contribution of the extension training on the performance of their farm (N=100)

Contribution of agricultural training in production	Frequency	Percent
Training has played a significant role	46	46.0
Training has made a small contribution	12	12.0
Training has made no contribution at all	1	1.0
Not applicable	41	41.0
Total	**100**	**100.0**

Farmers who said their farm productivity tends to decline and not changing gave their opinions on what should the agricultural educator do including changing the way he/ she teaches, change the training schedule and change the subject matter of training. The distributions of their opinions are presented in Table 27.

Table 27

Opinions on what should the agricultural educator do to increase the impacts of training to women farmers (N=100)

What to be done by the extension officer	Frequency	Percent
Change the way of teaching	32	32.0
Change the training schedule	13	13.0
Change what is to be taught	4	4.0
Not applicable	51	51.0
Total	**100**	**100.0**

CHAPTER 5: DISCUSSION

The purpose of the study was to identify major factors that impact smallholder women farmers training in Njombe District, Tanzania. The following specific objectives were the base of this study;

i) To identify related demographic characteristics of participants in this study.

ii) To identify the current training programs for smallholder women farmers.

iii) To identify factors that influence women participation in agricultural training programs

iv) To describe strategies that could enhance food security training of women farmers.

Data were analyzed by using the suitable statistical package as presented in chapter four. In the discussion chapter, the findings under each objective were compared with what was described and presented in chapter four above, to what was reported in other findings in literatures. The various sections for discussion were; (1) the demographic characteristics of participants in this study, (2) the ongoing training programs for smallholder women farmers, (3) aspects that influence women participation in agricultural training programs, and (4) strategies that could enhance food security training of women farmers.

The demographic characteristics of participants in the study

The target population for this research study was all women farmers in Njombe District. According to the national census of 2012, the district had a total population of 269,367 (Males=140,071 and Females= 129,296) (Njombe District Profile, 2012).

From that population of women, a sample of 100 women farmers was obtained.

In demographic characteristics of respondents, the following characteristics were observed; the marital status, educational level, household size, and the age of the respondents. Results showed that a majority (65 percent) of women farmers were married and nearly half of the respondents were in the age of 26-45 and above. These results are similar to the study by CARE TANZANIA (2010), who found 62.5 percent of women farmers were married in monogamous and polygamous situation. These studies grouped respondents into the following groups 15-35,36-55, and 56 and above. The results were 23.4,59.4, and 17.2, respectively. These results indicated, that women who participated in agriculture were those who are at economically active age. The variation between the young and senior adults may be due to insufficient agricultural education and a stereotype situation to engage in agricultural activities. Thus they conduct small businesses such as food venders. Some young girls tend to move to towns to look for alternative sources of income soon after completing primary education.

Calestous (2011) wrote that among factors that hinder agricultural development in African countries, human capacity building is a very crucial. He noted that the current focus of African education systems fails to teach students to maximize opportunities within their own communities. These consequently cause youth migration to the urban areas leaving behind practical agricultural knowledge, food production, and sustainability issues.

The educational status of most women farmers was primary school education (80 percent). In Tanzania, this is the lowest level of education one cannot be employed in a higher position by just having primary school qualification. This result is not surprising for Tanzania as CARE TANZANIA (2010) had similar results of 79.7 percent women

farmers having primary school education. The URT (2006) report shows that, it is common for a village population to have relatively lower education, but women's lower levels of education can be associated to low awareness on women rights, land rights, and poor agricultural practices. Irish Aid Tanzania, (2004) found that people in rural Tanzania have relatively lower education than in urban areas. As a consequence, rural farmers' capability to overcome crop or livestock diseases or to take up new innovations is relatively low, as they have only limited access to agricultural information from different sources of information, such as agricultural magazines, leaflets.

In the case of household size, the results indicated that, most families of respondents had 4-6 family members. This is similar to the district profile that stated the average family size in Njombe District where households in the district are 76,143 and a mean average household size of 4.8 (Njombe District Profile, 2012).

Current training programs for smallholder women farmers

In this category, the aim was to identify the current training programs. The training programs that were organized and conducted during the past three years included Farmer Field Schools (FFS) for various crops such as maize, beans, new varieties of Irish potatoes, and livestock. Other training programs included home/ field visits, visiting successful farmers, Training and Visit (T&V) procedures and visit demonstration plots. Results indicated that only 49 percent of women farmers had ever attended different training programs. Farmer Field Schools are the most applied programs followed by Home/field visits and visiting successful farmers. The results of this study are similar to Elifadhili (2013) who found that extension agents convey knowledge to farmers using a

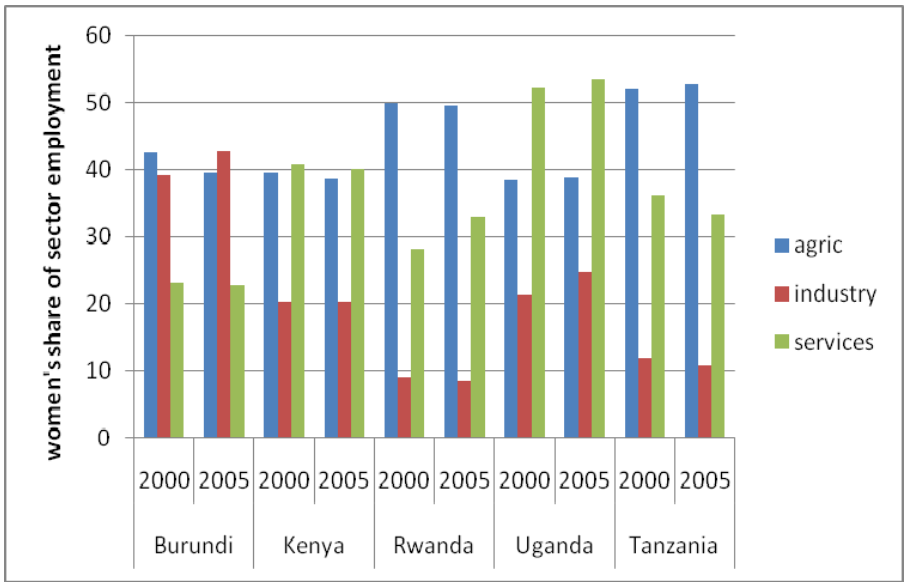
combination of approaches. These approaches included Farmer Field Schools, and Training and Visit (T&V) approach. Only 30 percent of extension officers used the Training and Visit (T&V) per se in all the study areas. The T&V approach has failed in the long run in rural African countries. Mbo'o-Tchouawou et al (2014) highlighted some of the reasons being too rigid, top down orientation, high operational costs, and lack of recurrent funding. Further, T&V included a passive role to farmers, these was non-responsiveness to farmers' needs and a failure to fit with the country-specific economic and social and institutional context. Mbo'o-Tchouawou also said that programs that ensure effective contact with all farmers are paramount to success. Therefore, the implementation of successful gender-equitable programs should involve three levels: to the farmer level, the provider level, and the institutional level.

Attendance of these training programs was very poor. Most farmers who have attended training only attended once in the season or once during the year. Most women farmers did not attend training programs at all in the past three years. Most women farmers (51 percent) didn't attend training programs because their husband went instead and they had other activities to do. ActionAid International Briefing (2011) said women farmers have less access to extension training services that in most cases are planned for men and commercial crops rather than for food crops. Swanson (2005) identified women do not attend training programs because traditionally extension training focused on cash crops where men were more involved than women, there was unsupportive infrastructure of training centers for women and children and because of women's daily domestic workload.

Off-farm economic activities

Together with agricultural activities, some women farmers do off farm economic activities. However, a majority of them are doing only farming activities.

The results of the current study was similar with the statistical information provided by the East Africa Community a high number of Tanzanian women were employed by the agricultural sector.



Source; East African Community (EAC) food security action plan (2011 – 2015)

In implementing the Action Plan for Food Security in the EAC, some of the following actions were identified: gender issues, develop training and technical support programs for women in agro-processing sector, promote specific programs on food security for vulnerable groups, households and individuals, and promote women and youth entrepreneurs in the food supply (EAC, 2011).

Factors that influence women participation in agricultural training programs

In this part, the discussion was based on the following factors: land possession, working in groups, source of the workforce on the farm, uses and possession of farm

implements, type of crops grown, and access and affordability of agro inputs. The discussion helped to find how the above factors influenced women participation in agricultural training programs.

Access to the land and means of acquiring land

A majority farmers possess a land size between 1to 2 acres fifty four percent of the farmers acquired the land through inheritance. This result was similar to Elifadhili, (2013) who found the same results in that a majority of farmers in the three districts of his study area acquired land through inheritance (Morogoro: 67.5%; Kyela: 52.5%; Songea: 50 %). Traditionally, men in Tanzania possess Land and women use it by the name of their husband and male children. The FAO, (2014), Manfre, (2010), and Leavens, & Anderson, (2011) found that women have less access to land. Gender inequalities in land ownership reduce women's access to extension services. They add that the reason for this is that customary practices that vary from culture to culture influence women's little access to land, though legislation has declared women's basic rights to own land. The study also found that when women own land, their plots will be very small and of poor quality.

Furthermore, Habtezion (2012) said "In many developing countries, land is predominantly owned by men and transferred intergenerational to males. Even when women are able to access land, lack of ownership creates a disincentive to invest time and resources into sustainable farming practices, which, in turn, lower s production and results in less income and food for the household". Leaves et al., (2011) concluded that women in Tanzania have less land access and traditional laws constrain women's land rights. Women lack empowerment as farmers even though the constitution bans bias.

Customary rules are deeply rooted, and women often do not know their rights to land nor their ability to protect these rights through village councils and the judicial process.

Working in groups

Very few women have professional group membership instead, working groups (Migowe) was observed in Njombe District. Migowe are working groups in Njombe District that are temporally created where people are collected for a one-time activity after that the group is dismantled. Only 37 percent of respondents reported belonging to professional groups. Sixty three percent do not belong to any group. This means that most women (63 percent) worked independently unless one calls for mgowe, which is expensive because the one who calls people to help, needs to prepare local drinks and food to provide to a group of people. Among many factors that interfere with women participation in Extension training was the lack of access to membership in rural organizations. These memberships often channel or provide training opportunities, identified in various studies (FAO 2014). There should be deliberate efforts to ensure that smallholder farmers join agricultural groups to enable women to take advantage of services such as training, credit, and share knowledge among themselves. Kyaruzi et al (2010) in their study found that in the area of the study, fewer farmers had membership in groups and gave their recommendation that the village governments should organize farmers in extension contact groups for the extension agents to easily contact them.

A farmer working through groups is one major mechanism through which the extension service can reduce the cost of delivering services to many individuals. Also it is helpful in making the outreach of programs more cost-effective. Working in groups for smallholder women farmers themselves can improve the position of women

(Quisumbing, & Meinzen-Dick 2001). Moser (2014) also said "The social organization, and farmers associations can further increase farmer's access to training and knowledge as well as to agricultural inputs and financial services"

It is very difficult for the agricultural extension agents to provide sufficient services to very diverse farmers with their complex farming systems unless they get organized into groups to simplify extension services (De Rosa, Bartoli, & La Rocca 2014). In line with this, a study by Yahya, et al (2014) found that only 14% of the interviewed women smallholder farmers were members of the rural cooperative group in the study area. And those who do not have groups had less probability to easily access training from extension agents and credit from financial institutions.

Source of power

Farming activities are carried out using hand hoe, machinery such as a plough and tractor, or both by hand and machinery. Most farmers from Njombe use hand held hoes. The study indicated that 61 percent of women farmers use, the hand held hoe and 39 percent use both machinery the farm implements particularly the plough and manpower known as the hand held hoe. No farmer used only machinery or farm implements. The results from the study mean that the majority of the women farmers worked manually in all activities such as field preparation, planting, weeding, harvesting, and the preparation for storage. Yahya et al, (2014) found that the majority of women smallholder farmers were doing farming activities manually, which is time-consuming. They added that the reason is that they can't afford to hire tractors/new technologies for food production.

Type of crops

In the study area, farmers grow maize, beans, sweet potatoes and round potatoes, vegetables, tea, trees for timber and charcoal, tomatoes, and coffee. Tea, coffee, and trees were regarded as commercial crops and the rest as food crops. Table 16 in the page 27, seventy six percent of women farmers are growing only food crops and 23 percent grow both commercial and food crops. Similar to Quisumbing, Brown, Feldstein, Haddad, & Pena (1995) & Yahya et al (2014) reported in Sub-Saharan Africa men and women do farming activities in separate plots where traditionally women are responsible for growing food crops. Because of this fact, women may be restricted in having access to extension training programs. Many studies have found that extension services are directed to cash crops that are more grown by men. This implies that women do not have the freedom to address their learning needs as most women were growing food crops, and men are interested with the commercial crops. Swanson (2005) reported that women do not attend training because traditionally extension training has focused on cash crops where men were more involved than women. ActionAid (2011) reported that, "women farmers have less access to these services, which tend to be tailored to men and commercial crops rather than the staple foods principally grown by women". Extension training activities should be provided to address specific constraints that face women smallholder rural farmers.

Access and use of agro inputs

Most of the land in Tanzania including Njombe is not very fertile (Njombe District Profile, 2012). To increase production, farmers need to apply fertilizer, and use improved seed varieties. Also, pesticides are highly important, because the land and crops

are very susceptible to pests. However, due to various reasons some farmers use these inputs and some do not. Fifty two percent of the respondent used improved seeds and forty eight percent do not use improved seeds, 84 percent apply fertilizers in their fields, and 16 percent do not apply fertilizers. Seventy five percent of women farmers applied pesticides. Twenty five percent of women farmers were not using pesticides in their fields table 18 in the page 28. For those who do not use these inputs, the fertilizer, pesticides, and improved seed, the reason given for not using these inputs were that the inputs are unaffordable or were unaware of its importance table 19 page 28. Anaglo, Boateng, & Boateng (2014) found that, smallholder farmers have good access to agro inputs but relative to men, women had little access to inputs. O'Sullivan, Rao, Banerjee, Gulati, & Vinez, (2014) found that women have unequal access to a range of productive inputs, including fertilizer and pesticides. Male farmers in these countries use lower-quality fertilizer or apply it incorrectly or at the wrong time

Access to information

In the study area, farmers get information concerning how to obtain and use of the agricultural inputs. Many farmers acknowledged getting information from agricultural experts and village meetings. Extension meets with farmers mostly in the village meeting Very few women farmers reported having access to information through visiting the office and the extension agents visiting their fields in Table 20 page 28. This result was similar to the report of the research carried out by the Word Bank and ONE campaign that found that women have less access to training information to meet their needs and tend to receive second hand information from their husband and friends. The report also

indicated that rural women are not free to interact with male extension agents that also constrain their participation in training activities (O'Sullivan, 2014).

Extra skills women need

In the study area, all respondents said they want to develop more skills in agricultural production. When asked what a women needs to learn, most of them said they want to learn about: education on how to produce commercial crops, education concerning improved livestock, fruit cultivation, education on family planning and more education on entrepreneurship. Women farmers gave their opinions on what the government should do to improve their agricultural production. Most of them suggested that Farmer Field Schools should be encouraged and expanded to many farmers, more education on production and handling of the produce as most of their perishable produces are lost before they get to the market. Furthermore, they said there should be training on how to organize and work in groups, creating awareness for readiness of women to attend agriculture seminars, and training should be improved.

Strategies that could enhance training of women farmers

In finding ways to enhance agricultural training for women, 57 percent of smallholder women farmers reported that they produce enough food for the family throughout the year and 43 percent of the farmers produce an insufficient amount of food. This finding means that women who produce a supply of sustainable food for the family have training concerning how to produce, process and store food for future use. Respondents indicated the productivity trends during the past five years showing productivity increased, and extension training has played a significant role to increase the production.

Despite the contribution of agricultural training programs, many farmers were not attending training. In order to increase production and ensure food security to the household, district, country, regional and worldwide, purposive strategies are required. Farmers in the study area gave their opinions on what should the agricultural educator do. One suggestion included changing the way the educator teaches, changing the training schedule and change the subject matter.

Many scholars have suggested that starting where women farmers are and what they are doing is important instead of coming with completely new technology. Swanson (2005) recommended that for more successful extension systems for rural women farmers, extension educators should build on the available resource potential rather than bringing completely new innovations. On training programs, Swanson insisted that training should fit the women needs and skills, and the schedule to women should fit to timetable. Trainers should have passion and empathize with rural women. Furthermore, emphasis on field practical training should also target the poor and less educated rural women. Similar to Swanson, Mbo'o-Tchouawou et al, (2014) said strategies to improve rural smallholder women farmers should be considered at the farmer level, program provider level, and institutional level.

Van Crowder (1998) said that the role of women in agriculture and need for them to have both formal and non-formal training has been recognized without a doubt. Agricultural extension agents, researchers, teachers in schools all need to be educated and informed about rural women's problems, potentials and aspirations to facilitate improvement of their situation. Calestous (2011) made a proposal that practical strategies for early school-based agricultural education, community-based experiential agricultural

education, and innovation in higher education with entrepreneurial skills should be revived to improve agricultural education.

More encouragement should be given to young girls in primary, secondary schools, and in colleges to take up agricultural studies. This can be through putting more attention in admission policies and the creation of special scholarships for women to study agriculture.

CHAPTER 6. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Agriculture is the core human activity in Tanzania where two thirds of the population depends on agricultural activities for its livelihood (URT, 2012). Women are the dominant participants in agricultural activities particularly of food crops. Saito et al. (1994) indicated that women dominate the smallholder farmer sector and account for more than three quarters of the food produced. Women represent a major workforce in agricultural production. Das (1995) estimated that African women represent from 30 to 80 percent of the agricultural labor force. Van Crowder, Lindley, Bruening, & Doron (1998) added that in sub-Saharan Africa and the Caribbean, women produce 60-80 percent of basic foodstuffs.

Knowledge about agriculture focused on women is very crucial. Women need to understand basic knowledge of what to produce, how to produce, at what time to produce, and where to produce. Farmer need skills focused on processing, storage, and marketing of the extra produce.

It is important for women to participate in training because training will help them utilize their full potential in agricultural production and increase their confidence for decisions on budgeting and healthy food management at the household level. City & Guilds (2010) identified the reasons why smallholder rural women should participate in agricultural training. Training helps to improve their economic status, a greater decision making role in both farm related and family related matters, improving productivity, training empowers, and gives women greater control over how household budgets are spent. The consequences of limiting agricultural training to women are many. Voegele,

Villarreal, & Cook (2009) outlined these consequences "Limited agricultural education and training have been critical factors in limiting the opportunities for women to (1) gain new technological knowledge in their areas of production, (2) occupy positions as agricultural researchers and extension professionals and (3) voice their demands for research, training, and other kinds of support, including technology, policy, and financing" (p. 262).

The literature supported the need for the current study and the finding of other researchers support the findings of this study. The study adds to the overall literature base on women in agriculture.

The purpose of the study was to identify major factors that impact smallholder women farmers training in Njombe district in Tanzania. The following were the specific objectives of the study

i) To identify related demographic characteristics of participants in this study.

ii) To identify the current training programs for smallholder women farmers.

iii) To identify factors that influence women participation in agricultural training programs

iv) To describe strategies that could enhance food security training of women farmers.

This study used a descriptive cross-sectional survey design. The survey questionnaire was used as a measurement tool in the process of data gathering. The questionnaire was directly administered to the smallholder women farmers.

The target population of the study was all women smallholder farmers, particularly rural women from the Njombe rural district. The sample of 100 women as representatives

of the smallholder women farmers was obtained by simple random sampling. The data was collected and obtained at a scheduled time. With the help of SPSS and MS-Excel descriptive analysis was used to determine the frequencies, means, and minimum and maximum values for analyzing the demographic data and women opinions on the extension training programs and processes to determine factors that impact on agricultural extension training programs for smallholder women farmers in the study area.

Demographic data indicated that 65 percent of the respondents were married, and 80 percent had a primary school education. Also most of the respondents had an average family size of 4-6 family members. The age of the respondents ranged from 19 to above 45 years and nearly half of them ranged between 26-45 years.

According to this study, the training programs that were organized and conducted in the past three years were Farmer Field Schools (FFS) on various crops such as maize, beans, new varieties of Irish potatoes, and livestock. Other training programs included home/ field visit, visiting successful farmers, Training and Visit (T&V) and visiting demonstration plots. Results revealed that only 49 percent of the women farmers had ever attended different training programs. Farmers Field Schools are the most applied programs

The following factors were assessed in the study: land possession, working in groups, source of workforce on the farm, uses and possession of farm implements, type of crops grown, access and affordability of agro inputs. Results showed that women farmers have less access and possession of land, very few have membership in farmer

groups / associations. Also the results showed that most farmers use hand hoes to work on their farms, and all family members are involved in doing farm activities. Most women grow food crops for the purpose of acquiring food for the family and sell the surplus to acquire other requirements in the household. Furthermore, results from this study indicated that women farmers use agro inputs such as fertilizers, pesticides. Very few use improved seeds because they don't have enough information, it is very expensive to handle and also the seeds are incompatible to their environment.

Women farmers suggested many strategies and input from other scholar was discussed. They include Extension agents to change their training strategies, and change the schedule of training. Others include empowering women participation in training extension educators should build on the available potential rather than bringing completely new innovations. In addition, training should fit the women needs and skills.

Conclusions

The following are the conclusions that were drawn based on the findings of the study:

- The women smallholder farmers participated in this study were rural women with primary school education. They also cultivate a very minimum piece of land with large number of family members.
- Very few farmers participate in agricultural extension trainings. The identified training programs in this study were the Farmer Field School (FFS), home/ field visit, visiting successful farmers, Training and Visit (T&V) and visit demonstration plots.
- Women farmers produce food crops than commercial crops, which seem to

suffice their family for food. Women also use more hand hoe in agricultural activities. Access to information is very minimal where Extension meets with farmers mostly in the village meeting.

Recommendations

Recommendations for action

This research recommends that:

1. The government, NGOs, and other stakeholders should support women as an important component in the agricultural sector.
2. Factors that prevent women from participating in training programs should be considered when planning for any training activities.
3. The needs of women and their skill levels should be considered when undertaking training.
4. Extension agents need to change the training strategies that will fits with the educational level of smallholder women farmers. Change of the schedule of training due to the fact that women have other responsibilities such as domestic responsibilities so the training schedule must consider such women responsibilities. Extension agents also should find a way of empowering women to participate in training.
5. Extension educators should build on the available potential rather than bringing completely new innovations.
6. Training should fit the women needs and skills.

These actions collectively will help women reach their potential in agricultural

production.

Recommendations for further research

This study found the following potential research areas that need to be addressed by further research:

1. Research to assess the impacts of training to women farmers who have attended the training. This will be helpful to assess exactly how useful the training is in the agricultural industry.
2. Research to assess how the current primary education system of Tanzania influences development of agriculture.

REFERENCES

Action Aid International Briefing (2011). Investing in Women Smallholder Farmers

Anaglo, J. N., Boateng, S. D & Boateng, C. A. (2014) Gender and Access to Agricultural Resources by Smallholder Farmers in the Upper West Region of Ghana. *Journal of Education and Practice*. ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)

Ary, D., Jacobs, L. C., & Sorensen, C. (2010). Introduction to research in education. (8th Ed.). Wadsworth Cengage Learning: Belmont, CA.

CARE TANZANIA (2010) Gender Analysis Report for CARE/TANZANIA. Women and Agriculture Project

City & Guilds Centre for Skills, (2010). Training for women smallholders. Positioning paper, Series paper 5

Collinson, E., Habeel, N., Jawaid, F., Jean, L., & Williams, K. (2013). Growing Potential: An Analysis of Legal and Policy Barriers Faced by Women in Horticulture in Guatemala, Nepal, Tanzania, & Zambia.

Das, D.M, (1995). Improving the relevance and effectiveness of agricultural extension activities for women farmers; FAO.

De Rosa, M., Bartoli, L. & La Rocca, G. (2014): Testing Extension Services through AKAP Models, The Journal of Agricultural Education and Extension, DOI: 10.1080/1389224X.2013.87204 http://dx.doi.org/10.1080/1389224X.2013.872044

EAC. (2011) East African Community food security action plan (2011 – 2015); EAC secretariat Arusha, Tanzania.

Elifadhili, D. (2013). Assessment of agricultural extension services in Tanzania. A case study of Kyela, Songea rural, and Morogoro rural district. Internship Report in Plant Sciences.

FAO. (2011). Gender and food security, synthesis report of Regional documents: Africa region, Asia. Rome.

FAO. (2010). The state of food insecurity in the world 2010. Addressing food security in protracted crisis. Rome: FAO

George, D., & Mallery, P. (2003). *SPSS for windows step by step. A simple guide and reference. 11.0 update* (4th ed.). Pearson Education, Inc. New York, USA.

Gladwin, C. H., Thomson, A. M., Peterson, J. S., & Anderson, A. S. (2001). Addressing food security in Africa via multiple livelihood strategies of women farmers. *Food Policy*, *26*(2), 177-207

Habtezion, S. (2012) Gender, agriculture, and food security. Gender and Climate Change *Capacity development series, Training Module 4.*

Irish Aid Tanzania, (2004). Fact Sheet on Agriculture. Giteeeormnoran Nvelhiirteaasnarann

Juma, C. (2011). The New Harvest*: Agricultural Innovation In Africa*. Oxford University, Press, p.267 (US)

Kyaruzi A.A.M., Mlozi M.R.S., & Busindi I.M. (2010); "Gender Based Effectiveness of Agricultural Extension Agents' Contacts with Smallholder Farmers in Extension Services Delivery: A Case of Kilosa District, Tanzania",

Leavens, M. K. & Anderson, C. L., (2011) Gender and Agriculture in Tanzania. Evans School Policy Analysis and Research (EPAR). University of Washington, *Prepared for the Policy & Statistics Team of the Bill & Melinda Gates Foundation*

Nord, M., Coleman-Jensen, A., Andrews, M., & Carlson, S. (2010). Household Food Security in the United States, 2009. Washington, DC: USDA. *Economic Research Service*.

Manfre, C., Rubin, D., Allen, A., Summerfield, G., Colverson, K., & Akeredolu, M. (2013). Reducing the gender gap in agricultural extension and advisory services; How to find the best fit for men and women farmers. *MEAS Discussion Paper*. Washington, DC: Cultural Practice

Mbo'o-Tchouawou, M., & Colverson, K. E. (2014). Increasing access to agricultural extension and advisory services: How effective are new approaches in reaching women farmers in rural areas? Nairobi, Kenya: International Livestock Research Institute (ILRI).

Moser, M., (2014). Organic Agriculture - a powerful Approach to enhance Household Food Security in the Highlands of Tanzania? Essay on Development Policy.

Moyo, S. & Diop, M. (2014). Leveling the field: improving opportunities for Women farmers In Africa. The World Bank one.

McIntyre, B. D. et al (2009). International assessment of agricultural knowledge, science, and technology for development (IAASTD): Sub-Saharan Africa (SSA) report. Island Press

O'Sullivan, M., Rao, A., Banerjee, R., Gulati, K. & Vinez, M. (2014) leveling the field:

Improving opportunities for women farmers in Africa. The report of World Bank and ONE Campaign.

Quisumbing, A. R. & Meinzen-Dick, R. S. (2001) Empowering Women to achieve food security

Republic of South Africa (2012). A framework for the development of smallholder farmers through cooperative development. Department: Agriculture, Forestry and Fisheries. Accessed on July 15, 2014 from www.nda.agric.za/.../FRAMEWORK-%20OF%20SMALL%20FARMER.

Rutatora, D.F. & Mattee, A.Z. (2001). Major agricultural extension providers in Tanzania. *African Study Monographs,* 22(4): 155-17

Saito, K. A., Mekonnen, H., & Spurling, D. (1994). *Raising the productivity of women farmers in Sub-Saharan Africa* (Vol. 230). World Bank Publications.

Sanga, C, Mlozi, M.R.S., Tumbo, S., Mussa, M., Sheto, M.C.R., Mwamkinga, G.H. & Haug, R. (2013) On Search for Strategies to Increase the Coverage of Agricultural Extension Service: Web-based Farmers' Advisory Information System. *International Journal of Computing and ICT Research*, Vol. 7 Issue 1, pp. 42-55.

Seevers, B., Graham, D. & Conklin, N. (2007). Education through cooperative extension (2nd ed.). Columbus, OH: The Ohio State University. Curriculum development material

Smith, M., Pointing, J., & Maxwell, S. (1993). *Household food security: concepts and definitions: an annotated bibliography* (Vol. 8). Institute of Development Studies. Retrieved on 7/15/2014 from http://web.ifad.org/gender/tools/hfs/hfspub/hfs_3.pdf

Swanson, B. (Ed.). (2005). *Improving agricultural extension*. Daya Books.

United Republic of Tanzania (2008). Poverty reduction strategies in Tanzania. Retrieved on August 13, 2014 from http://webapps01.un.org/nvp/indpolicy.action? Id=463

Van Crowder, L., Lindley, W. I., Bruening, T. H., & Doron, N. (1998). Agricultural education for sustainable rural development: Challenges for developing countries in the 21st century. *The Journal of Agricultural Education and Extension*, *5*(2), 71-84. DOI: 10.1080/13892249885300201 http://dx.doi.org/10.1080/13892249885300201

Voegele, J., Villarreal, M., & Cook, R. (2009). Gender in agriculture; source book. The International Bank for Reconstruction and Development. Retrieved on 7/28/2014 from the link; ftp://ftp.fao.org/docrep/fao/011/aj288e/aj288e.pdf

Winter, G. (2000). A comparative discussion of the notion of validity in qualitative and quantitative research. *The qualitative report*, *4*(3), 4.

Yahya, H. P., & Xiaohui, Z. (2014). Constraints to Women Smallholder Farmers' Efforts in Ensuring Food Security at Household Level: A Case of Msowero Ward of Morogoro Region Tanzania. *International Journal of Economics and Finance*, *6*(5), p47.

APPENDIX A; INSTITUTIONAL REVIEW BOARD APPROVAL FORM

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
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515 294-4566
FAX 515 294-4267

Date: 7/25/2014

To: Furaha Aydan Gwivaha
2709 Laurel St - c/o Ebby Luvaga
Ames, IA 50010

CC: Dr. Robert Martin
201 Curtiss Hall

From: Office for Responsible Research

Title: Assessment of Factors that Impact Agricultural Extension Training Programs for Smallholder Women Farmers Related to Household Food Security in Tanzania

IRB ID: 14-333

Study Review Date: 7/25/2014

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

  Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

  Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that**

APPENDIX B; APPROVED QUESTIONNAIRE IN ENGLISH

Assessment of factors that impact agricultural extension training programs for smallholder women farmers related to household food security in Tanzania

Questionnaire for smallholder women farmers in Njombe Districts
Interviewer's name: _____
Code of the woman farmer: _____
Name of the Village _____
Date_____

A. Demographic information

1. Marital status
    a) Single ()
    b) Married ()
    c) Divorced ()
    d) Widow ()

2. Age _____Years

3. Highest level of education
    a) No school attended ()
    b) Primary school education ()
    c) Secondary School education ()
    d) College/University education ()

4. Number of children/ family members _____

5. What other economic activities are you doing?
    a) Business ()
    b) Employed ()
    c) Other. Please specify _____,
    _____, _____

B. Current Training programs in Tanzania

6. Training programs (Check those you have attended or participated in.)
    a) Field/home visit ()
    b) Farmer Field School ()
    c) Training and visit ()
    d) Visit other successful farmers ()
    e) Visit demonstration plots ()

f) Mention others _____,
_____

C. Factors that impact agricultural extension training programs for women smallholder farmers

7.What is the size of your field/land?

a) Less than an acre ()
b) Between 1 and 2 acres ()
c) More than 2 acres ()

8.How did you acquire your farm?

a) Inherited it ()
b) Bought it ()
c) Rent it ()
d) Allocated by the village government ()

9.Do you have membership in any farming group?

a) Yes ()
b) No ()

10.If yes, the group is composed of

a) Women only ()
b) Men and women ()

11.What is the major source of power on your farm?

a) Man power ()
b) Machinery only ()
c) Both man power and machinery ()

12.If the answer in 11 above is A, who does it?

a) Yourself ()
b) Family (father, mother and children) ()
c) Mother and children ()
d) Hired labor ()

13.If the answer in 11 above is B or C, what type of the machinery do you use?

a) Tractor ()
b) Plough/ animal drafts ()
c) Others. (Mention) _____, _____

14.In the question 13 above, the implement/ machine used

a) Owned by you ()
b) Rent it ()

15. What crops do you produce? Start with a most important crop to you

1) _____
2) _____
3) _____
4) _____
5) _____

16. What is the major purpose for your involvement in agriculture?
    a) Business ()
    b) Food ()
    c) Both food and business ()

17. Do you use improved seed varieties on your farm?
    A) Yes ()
    b) No ()

18. Do you use fertilizers on your farm?
    A) Yes ()
    b) No ()

19. Do you use pesticides on your farm?
    A) Yes ()
    b) No ()

20.If the answer is no in 17 or 18 or 19 above, why?
    a) It is expensive ()
    b) It is not accessible in the area ()
    c) I don't know the importance ()

21. How do you acquire information concerning how to obtain and use the technologies?
    a) Radio ()
    b) Agricultural experts ()
    c) Friend/ neighbors ()
    d) Others. (Mention)_____,
    _____,
    _____

22. Have you received agricultural training during the past three years?
    a) Yes ()
    b) No ()

23. If no in 22 above, why?
    a) I have never heard about training information ()
    b) My husband went instead ()
    c) It involved fees, and expenses so failed to pay ()
    d) Any other reasons. Mention_____, _____

24. If yes in 22 above, how often do you receive training from an agricultural educator?
    a) Once a week ()
    b) Once a season ()
    c) Once a year ()
    d) Once in a three years ()
    e) Others. Mention _____,
       _____

25.What information did you learn from the training? (Rank all that apply by putting numbers according to the most learned ones)
    a) Early planting ()
    b) The use of fertilizers ()
    c) How to apply pesticides ()
    d) Importance of improved seeds ()
    e) Accessibility of agricultural credits ()
    f) Food storage and food security ()
    g) Any other? (Mention) _____,
       _____

26. How do you get in contact with the extension officer?
    a) When he/she visits my farm ()
    b) I drop by his /her house to ask for advice ()
    c) In village meetings ()
    D) I drop by his/her office when I need help ()

27. Did you find the information received from the extension officer useful in overcoming production challenges you have been facing?
    a) Very useful ()
    b) Moderately useful ()
    c) Not useful, I am learning nothing new ()

28. What other sources of information (apart from the extension officer) do you use to learn about agriculture issues and information? (Check all that apply)
    A) Radio ()
    b) Television ()
    c) Internet ()
    d) Newspapers ()
    e) Journals ()
    f) Any other. List _____, _____

29. Do you feel like you need extra skills and knowledge in agricultural production?
    a) Yes ()
    b) No ()

30. In your opinion, what should the government do for women farmers to improve

production?

a) _____
b) _____
c) _____
d) _____
e) _____

31. What additional skills do women farmers need?

a) _____
b) _____
c) _____
d) _____
e) _____

32. Comments/ Concerns in general

_____
_____
_____
_____
_____
_____

D. Strategies that could enhance food security training of women farmers

33. Do you produce enough food to sustain the family in a year?

a) Yes ()
b) No ()

34. What is the productivity trend on your farm over the past 5 years?

a) Increasing ()

b) Declining ()

c) Not changed ()

35. If the answer is (a) in 34 above, how do you rate the contribution of the extension training on the performance of your farm particularly on ensuring food security?

a) Has played a significant role ()

b) Has made a small contribution ()

c) Has made no contribution at all ()

36. If the answer to question 35 is (b or c) what should the agricultural educator do?

a) Change the way he/ she teaches ()
b) Change the training schedule ()
c) Change what is to be taught ()
d) Other (Please list)_____,
_____

37. What training have you received regarding food security? (Check all that apply)
a) New production techniques ()
b) Post-harvesting food handling ()
c) Farmers networking ()
d) Food processing ()
e) List any other training
I. _____
_____
II. _____
_____
III. _____
_____

38. Do you have any further comments you would like to make regarding the survey?
_____
_____
_____
_____
_____

APPENDIX C; QUESTIONNAIRE IN KI SWAHILI

Tathimini ya mambo ambayo huathiri mipango ya mafunzo ya kilimo Kwa Wakulima wadogo wanawake kuhusiana na usalama wa chakula kwa kaya nchini Tanzania.

Dodoso Kwa Wakulima wadogo wanawake katika wilaya ya Njombe vijijini Nchini Tanzania.

Jina la mdodosaji_____
Namba ya kumbukumbu ya mkulima mwanamke _____
Jina la Kijiji_____
Tarehe_____

A. Habari ya mtu binafsi

1. Hali ya ndoa
   a) Sijaolewa ()
   b) Nimeolewa ()
   c) Mtalaka ()
   d) Mjane ()

2. Umri miaka _____

3.Ngazi ya juu ya elimu
   a) Sikusoma ()
   b) Elimu ya msingi ()
   c) Elimu ya sekondari ()
   d) Elimu ya chuo/ chuo kikuu ()

4. Idadi ya watoto/ Wanafamilia _____

5. Ni shughuli gani nyingine za kiuchumi unazozifanya
   a) Biashara ()
   b) Umeajiriwa ()
   c) Nyinginezo. Tafadhari taja _____,
      _____,
      _____,
      _____

B. Mipango inayoendelea ya Mafunzo nchini Tanzania

6. Mipango ya mafunzo (chagua yote uliyowahi kushiriki/ kuhudhuria)
   a) Kutembelewa nyumbani/ shambani
   b) Shambadarasa (FFS)

c) Mafunzo na kutembelea (T&V)
d) Kutembelea Wakulima wengine waliofanyikia
e) Kutembelea mashamba ya mfano
f) Taja nyingine kama ipo _____, _____, _____

C. Tathimini ya mambo ambayo huathiri mipango ya mafunzo ya kilimo kwa mkuma mdogo mwanamke.

7. Shamba lako linaukubwa gani?
a) Chini ya ekari 1 ()
b) Kati ya ekari 1 na 2 ()
c) Zaidi ya ekari 2 ()

8. Ni jinsi gani ulipata shamba lako?
a) Urithi ()
b) Ulinunua ()
c) Ulikodi ()
d) Ulitengewa/ gawiwa na serikali ya kijiji ()

9.Ni mwanachama wa kikundi chochote cha kilimo/ Wakulima?
a) Ndiyo ()
b) Hapana ()

10. Kama ndiyo (Swali la 9), kikundi ni cha
a) Wanawake tu ()
b) Wanawake na wanaume ()

11. Chanzo cha nguvukazi katika shamba lako
a) Watu ()
b) Mashine tu ()
c) Vyote, watu na mashine ()

12. Kama jibu la swali la 11 hapo juu ni 'A', nani hufanya kazi hiyo
a) Wewe mwenyewe ()
b) Familia (baba, mama na watoto) ()
c) Wewe na watoto ()
d) Vibarua ()

13. Kama jibu la swali namba 11 hapo juu ni 'B' au 'C',
a) Trekta ()
b) Jembe la kukokotwa na wanyama ()
c) Nyinginezo; taja _____, _____

14. Katika Swali la 13 hapo juu zana za/mashine hiyo
    a) Unaimiliki mwenyewe ()
    b) Unakodi ()
15. Ni mazao yapi unayazalisha? Orodhesha yote ukianza na lililomuhimu zaidi kwako
    I. _____
    II. _____
    III. _____
    IV. _____
    V. _____

16. Ni nini kusudio lako kubwa la kujihusisha na kilimo?
    a) Biashara ()
    b) Kupata chakula ()
    c) Kupata chakula na biashara ()

17.Je wewe hutumia mbegu bora katika shamba lako?
    a) Ndiyo ()
    b) Hapana ()

18. Je wewe hutumia mbolea katika shamba lako?
    a) Ndiyo ()
    b) Hapana ()

19. Je wewe hutumia madawa ya kuulia wadudu katika shamba lako?
    a) Ndiyo ()
    b) Hapana ()

20. Kama jibu ni HAPANA katika swali la 17, 18 na19 hapao juu; ni kwa nini?
    a) Aghali ()
    b) Havipatikani katika eneo lako ()
    c) Sijui umuhimu wake ()

21. Ni jinsi gani unapata taarifa za upatikanaji na utumiaji wa teknolojia mpya za kilimo (Pembejeo na namna ya kuboresha kilimo)?
    a) Redio ()
    b) Wataalamu wa kilimo ()
    c) Rafiki/ Majirani ()
    d) Nyinginezo (Zitaje tafadhali) _____,
       _____,
       _____.

22. Umeshawahi kupata mafunzo yoyote ya kilimo kwa kipindi cha miaka mitatu iliyopita?
    a) Ndiyo ()
    b) Hapana ()

23. Kama jibu ni HAPANA katika swali la 22 hapo juu; ni kwanini?
    a) Sijawahi kusikia habari za mafunzo ya kilimo ()
    b) Mume wangu alienda badala yangu ()
    c) Ilikuwa na ada ya mafunzo, nikashindwa kulipa ()
    d) Sababu yoyote ile nyingine.
       Taja _____,
       _____
       __.

24. Kama jibu ni NDIYO katika swali namba 22, Ni mara nyingi kiasi gani umepata mafunzo ya kilimo kutoka kwa mwelimishaji/ mtaalamu wa kilimo?
    a) Mara moja kwa juma ()
    b) Mara moja kwa msimu ()
    c) Mara moja mwaka ()
    d) Mara moja kwa miaka mitatu ()
    e) Nyinginezo. Taja _____,
       _____.

25. Ni kitu gani ulijifunza kutokana na mafunzo hayo? (Panga kwa kuyapa namba kutokana na ulivyojifunza zaidi)

    a) Kupanda mapema ()
    b) Matumizi ya mbolea ()
    c) Matumizi ya madawa ya kuulia wadudu ()
    d) Umuhimu wa mbegu bora ()
    e) Upatikanaji wa mikopo ya kilimo ()
    f) Utunzaji na usalama wa chakula ()
    g) Somo jingine lolote;
       taja_____,_____
       _____

26. Ni jinsi gani unapata/ unakutana na afisa kilimo?
    a) Anapotembelea nyumbani au shambani ()
    b) Huwa nakwenda nyumbani kwake kupata ushauri ()
    c) Katika mikutano ya kijiji ()
    d) Huwa nakwenda ofisini kwake ninapohitaji msaada wa kilimo ()

27. Je uliona taarifa ulizopata toka kwa ofisa kilimo zinafaa kutatua changamoto za uzalishaji zilizokuwa zinakukabili?
    a) Zinafaa sana ()
    b) Zinafaa kiasi ()
    c) Hazifai, sijifunzi chochote kipya ()

28. Ni vyanzo vipi vingine vinakuwezesha kujifunza mambo ya kilimo nje ya ofisa

kilimo? (Weka alama ya vema mbele ya kila linalohusika)

a) Redio ()
b) Mtandao (Internet) ()
c) Magazeti ()
d) Majarida ()
e) Kingine chochote. Orodhesha _____, _____,

29. Je unahitaji ujuzi na ufahamu zaidi katika uzalishaji wa kilimo?

a) Ndiyo ()
b) Hapana ()

30. Kwa maoni yako; Serikali iwafanyie nini wanawake Wakulima ili kuboresha uzalishaji?

I. _____
II. _____
III. _____
IV. _____
V. _____

31. Ni ujuzi gani wa nyongeza ambao wakulima wanawake wanahitaji?

I. _____
II. _____
III. _____
IV. _____
V. _____

32. Maoni kwa ujumla kuhusu mafunzo ya kilimo kwa wanawake

_____
_____
_____
_____
___

D: Mikakati ambayo inaweza kuongeza mafunzo ya usalama wa chakula kwa wanawake Wakulima

33. Je wewe huzalisha chakula cha kutosha familia kwa mwaka mzima?

a) Ndiyo ()

b) Hapana ()

34. Nini tija na mwenendo wa uzalishaji katika shamba lako kwa miaka mitano iliyopita?
a) Unaongezeka ()
b) Unapungua ()
c) Haubadiliki ()

35. Kama jibu ni 'A' katika swali la 34 hapo juu, ni kwa kiwango gani mafunzo ya kilimo yamechangia uzalishaji na usalama wa chakula?
a) Yamesaidia sana ()
b) Yametoa mchango kidogo ()
c) Hayajawa na mchango wowote ()

36. Kama jibu la swali la 35 ni B au C, mkufunzi wa kilimo afanye nini?
a) Abadili njia za kufundishia ()
b) Abadili ratiba ya mafunzo ()
c) Abadili anachokwenda kufundisha ()
d) Mengineyo (Tafadhali orodhesha)

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37. Ni mafunzo yapi umepata kuhusiana na usalama wa chakula (Weka alama ya vema yote yanayohusika)
I. Mbinu mpya za uzalishaji
II. Utunzaji na uhifadhi wa chakula baada ya mavuno
III. Kutengeneza Mtandao wa Wakulima
IV. Usindikaji wa chakula
V. Orodhesha mafunzo mengine kama yapo_____
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38. Je una maoni yoyote zaidi ungependa kuyajua kuhusiana na utafiti huu?
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