

2014

# Extension program needs by farmers in Tanzania: a descriptive study

Kabura James Philip  
*Iowa State University*

Follow this and additional works at: <http://lib.dr.iastate.edu/etd>

 Part of the [Agricultural Education Commons](#), [Liberal Studies Commons](#), and the [Other Education Commons](#)

---

## Recommended Citation

Philip, Kabura James, "Extension program needs by farmers in Tanzania: a descriptive study" (2014). *Graduate Theses and Dissertations*. 14207.  
<http://lib.dr.iastate.edu/etd/14207>

This Thesis is brought to you for free and open access by the Graduate College at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact [digirep@iastate.edu](mailto:digirep@iastate.edu).

**Extension program needs by farmers in Tanzania: A descriptive study**

by

**Kabura James Philip**

A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of

Master of Science

Major: Agricultural Education

(Agricultural Extension Education)

Program Study Committee:

Robert A Martin, (Co-Major professor)

Awoke Dollisso (Co-Major professor)

David Acker

Iowa State University

Ames, Iowa

2014

Copyright © 2014, Kabura James Philip, ALL rights are reserved

**DEDICATION**

Achievement of a Masters degree in Agricultural Education at Iowa State University is not an easy task. It is like a dream, but this is the reality; I have eventually made it. This work is foremost dedicated to the American people whose taxes, morals and energy have made my aspiration a reality. To mention few of them: my major professor, Dr. Robert Martin; member of graduate committee, Dr. Awoke Dollisso and Dr. David Acker; Director of iAGRI, Dr. David Kryabil and Iowa State University Staff. This work is also dedicated to my family: my wife, Getrude Sukumus; my son Kevin and my daughters Sophia, Elizabeth and Angela. GLORY BE TO GOD.

## TABLE OF CONTENTS

DEDICATION.....	ii
LIST OF FIGURES.....	v
LIST OF TABLES .....	vi
ACKNOWLEDGEMENTS .....	vii
ABSTRACT .....	viii
ABBREVIATIONS.....	x
CHAPTER I: INTRODUCTION .....	1
1.1. General background of Tanzania.....	2
1.2. General background of Ngorongoro District.....	5
1.3. Situation .....	6
1.4. Problem.....	8
1.5. Need for the study.....	9
1.6. Purpose and Objectives.....	11
1.7. Significance of the study .....	11
1.8. Definition of selected terms.....	12
1.9. Chapter summary .....	14
CHAPTER II: LITERATURE REVIEW .....	15
2.1. Introduction.....	15
2.2.2. Role of rural extension staffs in addressing farmers' needs.....	17
2.2.3. Attitude of farmers toward extension services .....	19
2.3. Basis for the research.....	21
2.4. Conceptual framework .....	22
2.5. Chapter Summary .....	24
CHAPTER III: METHODS AND PROCEDURES.....	25
3.1. Introduction.....	25
3.2. Methods and Procedures.....	25
3.3. Research design .....	26
3.4. Internal validity.....	27
3.5. External validity .....	28
3.6. Data collection instrument.....	29
3.7. Data Collection Procedure .....	29
3.8. Data Analysis.....	31
3.9. Assumptions.....	32
3.10. Limitation of the study.....	32
3.11. Chapter Summary.....	33
CHAPTER IV: FINDINGS .....	34
CHAPTER V: DISCUSSIONS.....	46
CHAPTER VI: SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS .....	53
6.1. Summary .....	53
6.2. Conclusions.....	55
6.3. Implications.....	57

6.4. Recommendation and further research ..... 59

6.5. Further research ..... 60

REFERENCES ..... 61

APPENDICES ..... 69

APPENDIX 1: QUESTIONNAIRE ..... 69

APPENDIX 2: TRANSLATED QUESTIONNAIRE (SWAHILI)..... 78

APPENDIX 4: INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL ..... 86

APPENDIX 5: LETTER OF INTRODUCTION..... 106

APPENDIX 6: INFORMED CONSENT ..... 107

LIST OF FIGURES

Figure 1: An agricultural knowledge system model ..... 22

Figure 2: Education level of research participants .....44

## LIST OF TABLES

Table 1: Comparison between pastoralists and agro-pastoralists on perception of farmers regarding extension program needs .....	35
Table 2: Farmers perception on whether Extension Programs are not participative in planning, implementation and evaluation .....	37
Table 3: Farmers' preference for extension programs .....	37
Table 4: Comparison between pastoralists and agro-pastoralists on priority farmers place on selected extension programs .....	38
Table 5: Preference for livestock extension programs .....	38
Table 6: Crop preference by respondents .....	39
Table 7: Non-crop/livestock preference by respondents .....	40
Table 8: Preference for extension services .....	41
Table 9: Comparison between pastoralists and agro-pastoralists on recommended extension improved practices .....	42
Table 10: Age of research participants .....	44
Table 11: Access of extension services by gender .....	45
Table 12: Demographic comparison between pastoralists and agro-pastoralists .....	45

## ACKNOWLEDGEMENTS

To reach the stage of completion of this thesis was possible by contribution and support from a number of people. Firstly, I would like to thank iAGRI team for their work they did that granted my studies at Iowa State University. The hard work by Prof. David Kryabil in Tanzania and Anne Rose in the US made this possible.

How wonderful was Prof. Robert A. Martin (Dr.) to my studies. His fatherly advices and professionalism contributed to what I'm proud of today when I was in the USA and throughout the research period in Tanzania. Dr. Denise Bjelland, Dr. David Acker and Dr. Awoke Dolliso worked tirelessly in ensuring that my academic success became possible. The guidance of Prof. M.R.S. Mulozi polished my professionalism. The academic staffs of the Iowa State University are more than worth to be mentioned for their commitment toward my educational, professional and emotional endeavors during my study period in the USA.

I wish to express my sincere thanks to my co-Tanzania graduate students at Iowa State University (Dr. Rashid Suleiman and Miss Alunas Mwamakimbula) for their contribution that remedied homesickness in the foreign country of USA. My co-graduate students at Iowa State University provided valuable discussion, advice and mentoring throughout our course work that makes this university among the best institution for lucky students to embark on for advanced studies in agriculture.



**ABSTRACT**

The agricultural sector in Tanzania is the backbone of economic and social development of her citizens who's livelihood depends on this sector for more than seventy five percent of the economy. Until significant efforts are undertaken to make the agricultural sector move forward, Tanzania will lag behind in food security and abject poverty alleviation. Strengthening agricultural extension services is paramount for attainment of genuine economic growth in the country and sub-Saharan Africa as a whole.

This descriptive study explored the extent to which Extension Programs meet farmer needs in the Ngorongoro district of Tanzania. The main objectives of this study were to: (1) identify the perceptions of farmers regarding extension program needs, (2) identify the priorities farmers place on selected extension programs, (3) identify types of recommended extension improved practices that have been implemented by district farmers during the past 10 years, (4) identify the factors that affect implementation of Extension program recommended practices that address farmer priorities and (5) identify selected demographic data and analyze comparisons among variables.

A descriptive survey research design was used in collecting and analyzing the data. A questionnaire was designed and administered using a direct interview. Information was collected from randomly selected 139 respondents from two clusters (one cluster for pure pastoralists and another cluster for agro-pastoralists) from Ngorongoro district, Arusha region in Tanzania. Collected information was coded and analyzed using the Statistical Package for Social Science (SPSS). Descriptive statistical parameters such as frequencies, percentages, and chi-squares were used to report findings.

The study revealed that about 71.9% of the study population had not received agricultural extension services in the year 2013/14. The number of farmers who did not receive agricultural extension services is lower among pastoralists than the agro-pastoralists but this difference is not statistically significant. Farmers believe that extension programs have not addressed their needs. Provisions of agricultural extension services were male biased. Farmers believe that agricultural extension services can contribute a lot in an attempt to reduce poverty among farmers. There is no synergy among the main development actors in Ngorongoro division.

It was found that livestock extension programs were highly valued by Ngorongoro district farmers, followed by extension programs related to crops, environmental conservation and the least being non crop/livestock extension programs. Further, this study shows there is a lack of agricultural extension staff, available extension staffs are not motivated to working with farmers, frequency occurrence of disasters in the district and unsatisfactory farmer involvement in planning, implementation and evaluation of extension programs.

Demographically, big numbers of farmers in the Ngorongoro district are in the age levels of 21-35 years and 36-55 years. Almost half of the farmers have no formal education while about 10.1% has above primary education. Literate farmers are more positive toward the extension service compared to illiterate farmers. More males received extension services as compared to females in the year 2013/2014 in the study population.

Due to lack of extension personnel in the district there is a need to strengthen the farmer-to-farmer agricultural extension system. Introduction of the 4-H program in the district is important because youth will be prepared to be future farmers.

## ABBREVIATIONS

1. ASDP: - Agricultural Sector Development Program
2. ASDS: - Agricultural Sector Development Strategy
3. DADPs: - District Agriculture Development Programs
4. EAC: - East Africa Community
5. FAO: - Food and Agriculture Organization
6. GDP: - Gross Domestic Product
7. IRB: - Institution Review Board
8. MDGs: - Millennium Development Goals
9. MSC: - Most Significant Change
10. NALERP: - National Agriculture and Livestock Extension Rehabilitation  
Program
11. NCA: - Ngorongoro Conservation Area
12. NCAA: - Ngorongoro Conservation Area Authority
13. NDC: - Ngorongoro District Council
14. LGA: -Local Government Authority
15. NSGR: - National Strategy for Growth and Reduction of Poverty
16. O & OD: - Opportunity and Obstacle for Development
17. PADEP: - Participatory Agriculture Development Extension Program
18. PTD: - Participatory Technology Development
19. R&D: - Rural and Development
20. SPSS: - Statistical Package for Social Science
21. TNRF: - Tanzania National Resource Forum

- 22. UNESCO: - United States Educational Scientific and Cultural Organization
- 23. URT: - United Republic of Tanzania
- 24. VADPs: - Village Agriculture Development Programs
- 25. WADPs: - Ward Agriculture Development Programs
- 26. WHO: - World Health Organization

## CHAPTER I: INTRODUCTION

“Until it learns to grow its agriculture, Tanzania is unlikely to register significant developmental advances” (World Bank 2007, p 1). Agriculture is the leading industrial sector in Tanzania, providing a livelihood to 82% of its population, (URT, June, 2005). About 80% of its population depends on subsistence agriculture (Oreku, Mtenzi, and Ali, 2013) and 87% of the rural population live below the poverty level, marking the country 162 out of 177 countries in a 2004 United Nations Human Development report (ASDP, 2007, pg. 3). Since independence subsistence farming has characterized agriculture in Tanzania (Zegge, 1972). Several studies have indicated that the agriculture sector plays an important role in the Tanzanian economy and possesses the potential to advance the country’s objectives of growth and poverty reduction (ASDP, 2007; Rweyemamu, 2003; Asfaw, Kassie, Simtowe, & Lipper, 2011).

In Tanzania, in order to meet the recent National Strategy for Growth and Reduction of Poverty (NSGRP) as well as the Millennium Development Goals (MDGs) of reducing poverty by fifty percent by 2015, agriculture should be given the highest priority by the Tanzania government in its plans (ASDP, 2007). Unfortunately, efforts to improve extension services together with increased investment in rural development projects and programs have brought no significant agricultural improvement (Douglah and Sicilima, spring, 1997, p 38). Extension services have been shown to be an important source of knowledge for farmer advancement, (Kaliba, Verkuijl and Mwangi, 2000; Abdulai And Huffman, 2005; Hartstone Knight and Riley, spring, 2006; Simpson and Owens, summer, 2002). The extension system in Tanzania has to be given priority as in developed countries in Europe and America where agricultural development was

achieved through a well-developed agricultural extension system, (Thomas, Lucas, and Hangula, 2010). According to Douglah and Sicilima (Spring, 1997), “extension projects and programs in Tanzania have been criticized for being top-down or lacking genuine farmers' participation” (p 38).

In this chapter, the main focus will be on background information about Tanzania, a country where this study was conducted; specifically, the Ngorongoro district. There is an elaboration about the situation, problems, need for the study as well as the purpose and objectives. This chapter also outlines the significance of this study, and definitions of selected terms.

### **1.1. General background of Tanzania**

This research was conducted in the United Republic of Tanzania; which is an African country found in the Africa continent. Tanzania is among the five East African Community (EAC) of countries (i.e. Kenya, Uganda, Tanzania, Rwanda and Burundi), and has an area of 945,000 square kilometers (km<sup>2</sup>) of land that lies along the east coast of the Indian Ocean. The country has a vast reservoir of land resources that is only minimally tapped for agricultural production at present URT-(NALERP report, July, 2004, p 1). According to this report, “It is estimated that of the 44 million hectares (ha) classified as arable land only about 10 million ha (23%) are cultivated, and of 50 million ha classified as pasture land only about 26 million ha (52%) are utilized for livestock production and that much of the rest of the land is infested with tsetse fly which thrives over most of the north-central and western areas” (p 1).

The Tanzania national website, at <http://www.tanzania.go.tz/agriculture.html> accessed on Jan, 20<sup>th</sup>, 2013, documents that “Agriculture in Tanzania is dominated by

rain fed agriculture by smallholder farmers (peasants) cultivating an average farm size of between 0.9 hectares and 3.0 hectares each. About 70 percent of Tanzania's crop area is cultivated by hand hoe, 20 percent by ox plough and 10 percent by tractor. Food crop production dominates the agriculture economy with 5.1 million hectares cultivated annually, of which 85 percent is under food crops and women constituting the main part of agricultural labor force." It has been shown that, "Available irrigatable land is at 1.0 million hectares but currently only 150,000 hectares are cultivated under irrigation." "Agriculture contributes about 25.8% of GDP, 34% of exports and 74% of employment providing raw materials to industries and market for the industrial products" Tanzania Trends Report, (May, 2011, p 1).

The Tanzania national website (<http://www.tanzania.go.tz/agriculture.html> accessed on Jan, 20<sup>th</sup>, 2013), indicates that "Tanzania has 10 farming systems which includes: (i) Banana/Coffee/Horticulture system, found in Kagera, Kilimanjaro, Arusha, Kigoma and Mbeya regions with tree crops, high intensive land use, volcanic soils with high fertility; (ii) Maize/Legume system: found in Rukwa, Ruvuma, Arusha, Kagera, Shinyanga, Iringa, Mbeya, Kigoma, Tabora, Tanga, Morogoro, Kahama, Biharamulo; with shifting cultivation, there is cultivation of maize & legumes, beans and groundnuts intercropped as well as Arabic coffee are grown; (iii) Cashew/Coconut/Cassava System: found in coast region; eastern Lindi and Mtwara: experience low rainfall, low soil fertility, crops grown are cassava, coconut and cashew with shifting cultivation, (iv) Rice/Sugar cane system: found in alluvial river valleys, there is cultivation of rice and sugarcanes; (v) Sorghum/Bulrush millet/Livestock system: found in Sukumaland, Shinyanga and rural Mwanza, there is cultivation of sorghum, millet, maize and cotton,

oilseeds and rice, it also has intense population pressure with declining soil fertility, (vi) Tea/Maize/Pyrethrum system: found in Njombe and Mufindi districts in Iringa region, grows tea, Maize, Irish potatoes, beans, wheat, pyrethrum, wattle trees and sunflower, (vii) Cotton/Maize system: found in Mwanza, Shinyanga Kagera, Mara, Singida, Tabora and Kigoma, Morogoro, Coast, Mbeya, Tanga, Kilimanjaro and Arusha, grows cotton, sweet potatoes, maize, sorghum and groundnuts with intensive cultivation and keeping of livestock, (viii) Horticulture based system: found in Lushoto district; Tanga region, Morogoro rural; Morogoro region and Iringa rural in Iringa region, there is cultivation of vegetables, (cabbages, tomatoes, sweet pepper, cauliflower lettuce and indigenous vegetables) and fruits, (pears, apples, plums, passion fruits and avocado, also maize, coffee, Irish potatoes, tea and beans are grown, (ix) Wet – rice and irrigated system: Occupies river valleys and alluvial plains, Kilombero, Wami Valleys, Kilosa, Lower Kilimanjaro, Ulanga, Kyela, Usangu and Rufiji, and (x) Pastoralists and Agropastoralist System; found in semi-arid areas i.e. Dodoma, Singida, parts of Mara and Arusha; Chunya districts, Mbeya and Igunga district in Tabora, where by there is a deep attachment to livestock and a simple cropping system.”

According to Leyaro and Morrissey (April, 2013), “For the major crop, maize, Zanzibar, Mbeya and Dodoma have the highest median production. Arusha, Morogoro and Dodoma have highest mean production. Whereas for paddy, Mbeya, Arusha, Kigoma and Morogoro have the highest median values. Zanzibar, Dar and Mbeya have the highest values for cassava; Dar is also high for Irish potatoes (with Mwanza and Mbeya) and beans (with Mbeya and Zanzibar). Cashew nuts are mainly grown in Morogoro, Dar and Kigoma, sugarcane in Dodoma, Arusha, Morogoro, Dar, Mbeya and Kigoma, and



banana is grown mostly in the same regions including Mwanza. Fruits are mostly grown in Arusha, Morogoro, Dar and Zanzibar, and vegetables in every region except for Mwanza” (p.15).

## **1.2. General background of Ngorongoro District**

The research study was conducted specifically in the Ngorongoro district, which is found in the Arusha region in northeastern Tanzania. The district borders the republic of Kenya in the north, Karatu district in the south, Meatu and Serengeti districts in west and Monduli district in the east. It is divided into three divisions, namely: Ngorongoro, Loliondo and Sale divisions. According to NBS, (March, 2013), “the district has a population of 174,278 in 14,036 square kilometers with 59% of the district's landmass falling under Ngorongoro conservation area in Ngorongoro division which was established by the Ngorongoro conservation area Ordinance of 1959” (p 31).

In the Ngorongoro division there is the Ngorongoro Crater, an area declared by UNESCO as a world heritage site. Agricultural activities are prohibited by law; allowing livestock keeping, tourism activities and issues of conservation. Forty-one percent of the district constitutes Loliondo and Sale divisions and is recognized as an area where human activities such as agricultural activities and livestock keeping are allowed, (Village land Act Number 5 of 1999). There are overlapping laws in these two divisions, while the Village land Act of 1999 empowered villagers to plan and utilize the land under their jurisdiction. The wildlife Conservation Act of 1974 considered the areas under these two divisions to be under a game controlled area. Initially human activities were allowed but the Wildlife Conservation Act of 2009 prohibited human activities including agriculture, (Tanzania Natural Resource Forum (TNRF) Report February, 2011)

According to the TNRF Report (2011), “Although pastoralism is the main form of land use and key to livelihoods in the Ngorongoro district, particularly Loliondo and Sale divisions, agriculture has been present in the area since at least the 1950s but mostly concentrated in Sale divisions whereby mixed farming is practiced” (p 8). Frequent drought has dramatically affected pastoralists as it has caused death of their livestock forcing them to be transformed into an agro-pastoralist mode of living. “However, agricultural cultivation has been limited because farming destroys the grazing areas that more profitable livestock depend on, and as a result only a small amount (less than 5%) of Loliondo’s land area is farmed” (TNRF Report 2011, p 9).

### **1.3. Situation**

“Following three years of a high rate of economic growth, Tanzania’s economy was forecasted to grow by approximately six percent in 2012” (World Bank 2012, p 2). According to the NALERP report (July, 2004, p 2), “Agriculture is one of the five leading sectors that are identified by the Government of Tanzania to spearhead economic growth. The report emphasized that “the Government of Tanzania has therefore undertaken several reforms in this sector aimed at creating an enabling and conducive environment for improving its productivity and profitability” (p 2). It elaborated that “The basis of the reforms is provided by the Agricultural Sector Development Strategy (ASDS) which was formulated in 2000 and 2001; built on and is supported by several policies and programs designed to enhance agricultural production and productivity” (p 2). The report highlighted the involved policies including: “Agricultural Sector Development Program (ASDP, 2003), Livestock Sector Development Strategy (2001), the Cooperative Development Policy (2002), Local Government Reform Program (1998),

Land Policy (1995) and the Land and Village Acts of 1999, Rural Development Strategy (2001), Micro-finance Policy (2000), and Small and Medium Enterprise Policy (2002)” (p 2).

The ASDS (2001) and ASDP (2003) provide a framework for planning, execution and evaluation of agricultural extension programs from national, regional, and local governments and to the intended clientele at the community level. Among the key features of the agricultural development policy as used in formulation and implementation of ASDS is a “focus on participatory planning and implementation, using the framework of the District Agricultural Development Plans (DADPs), which are part of the District Development Plans (DDPs)” (ASDP, 2005, p 12). In this document, it is further explained that, “the ASDS stresses the importance of increasing the voice of farmers in local planning processes and in increasing their control in the design and implementation of investments and over the kinds of services that they need and that support programs aimed at empowering farmers through placing greater control of resource allocations in the hands of groups and communities to improve the relevance and responsiveness of services” (p 12).

It has been indicated in the Tanzania Trends Report, (May, 2011, p 8) that “Farmers in Tanzania receive government support in terms of farm inputs (industrial fertilizer, improved seeds, agro-chemicals and seedlings) through a voucher system supported jointly by the Government and the World Bank since 2008. According to this report, “Livestock keepers get support in terms of acaricides and livestock drugs, while farm input subsidies primarily involves six crops: maize, paddy, tea, coffee, cotton and cashew nut.” There are vouchers for maize and paddy as “farmers support in terms of

fertilizer and improved seeds and the rest of the crops are supported through agro-chemicals and seedlings” (Tanzania Trends Report, May, 2011, p 8). According to the report, “Most rural small scale farmers in Tanzania use low purchased-input technologies, leading to low yields and food insecurity at certain times of the year” (p 8). The author explained that “the identified small scale farmers countrywide are targeted with a voucher, complemented with cash to buy the type of farm input required” (p.8).

#### **1.4. Problem**

According to the ASDP (2005), “While recent progress has been made in increasing land productivity, progress has been hampered by the relative under-investment in research” (p. 6). The report indicated that “Current expenditures on agricultural research as a proportion of agricultural GDP (a measure of research intensity) is 0.3 percent which is less than half the Africa region average of about 0.75 percent, and one third of other developing countries” (p 6). The authors explained that, “limited access to technology, demand and delivery channels, 60-75 percent of households estimated to have no contact with research and extension services” (p 6). Lack of research in agriculture poses a threat of working in the dark, which can negatively affect the transfer of technology from research to farmers through extension services.

Research, which was done by Douglah and Sicilima (1997, p 45), noted that, “Farmers in the focus group discussions mentioned that while medical doctors have made good progress in promoting indigenous practices, agricultural researchers and extension workers lag far behind.” The author urged that, “While medical doctors were able to utilize indigenous practices, trapping and building on indigenous knowledge of farmers may have good impact in addressing farmers needs toward reducing poverty” (p 45).

Among the key lessons learned from the NALERP's implementation (a program preceded ASDP implementation), is that extension service methodologies and delivery mechanisms have little impact by themselves unless linked with farmers' production programs (NALERP, July, 2004). However, it has been noted by Mwaseba (2005, p 4), "Low use of research-based technologies is one of the reasons for low agricultural productivity, which raises concerns regarding the conduct of both agricultural research and extension in Tanzania."

Planning under current agricultural extension programs (ASDP) is expected to be based on a decentralized policy, empowering local people in planning activities in order to meet farmers' needs and making use of available resources (URT, 2006). However, different studies show that in most agricultural planning there is more theoretical farmer participation than practical (Lema and Kapange, 2006; Cook and Kothali, 2001; Oakley, 1991). Different programs have been implemented to combat poverty and ensure food security with little impact due to inappropriate identification of priority needs after ignoring farmer participation in the planning process (FAO, November 1996).

### **1.5. Need for the study**

Until farmer participation in program planning and implementation is prioritized, no significant development of the poor farmers in Tanzania will be realized, (Lele, Jan., 1976; Kaliba, 2002). Agricultural programs before the ASDP "focused on the transfer of technology assuming that extension workers had knowledge and farmers were ignorant (Rutatora and Matte, 2001 p. 159). These authors urged that, "There was inefficient communication, lack of leadership and participatory problem solving skills, and ignorant of participatory experiential approaches" (p. 159).

It was observed by Klerkx et al, (2012, p 477), that “The collective system analysis has been shown to support system thinking in innovation networks and have the potential to enhance reflexivity if carried out collectively.” However, “regular patterns of thinking and acting within projects have been found to interfere in subtle ways with the new knowledge generated and to limit the transformation of the reflective feedback and insights into action” (Klerkx et al, 2012, p 477). Operating together within discipline areas allows numerous problems to be tackled more systematically and meet the wider needs of clientele being served, (Seevers et al., 2007).

According to the World Bank (2012), “The experience of successful emerging countries like Tanzania suggests that the cost-effective management of public resources and productivity will continue to drive economic growth” (p. 12). A number of projects that had been implemented at the farmer’s level produced less impact mostly on food security issues due to inefficient farmer participation in the planning process (FAO, November, 1996). Based on Mwaseba (2005, p 4), “Lack of research-based technologies and information has contributed to low agricultural productivity.” The World Bank (2007, p. 10) argues that, “Expenditures for research are regarded as investments in knowledge capital.” Currently, little has been documented on how Extension Programs under the ASDP meet farmer needs in Tanzania. Therefore, this study focused on Ngorongoro District found in the Arusha region, and will be used to explore the extent to which Extension Programs meet farmer needs.

## **1.6. Purpose and Objectives**

The purpose of this study was to explore the extension program needs of farmers in the Ngorongoro district of Tanzania.

The main objectives of this study were to:

- 1) Identify the perceptions of farmers regarding extension program needs.
- 2) Identify the priorities farmers place on selected extension programs.
- 3) Identify types of recommended extension improved practices that have been implemented by district farmers during the past 10 years
- 4) Identify the factors that affect implementation of Extension program recommended practices that address farmer priorities.
- 5) Identify selected demographic data and analyze comparisons among variables.

## **1.7. Significance of the study**

The significance of this study is five-fold:

- 1) By identifying the perceptions of farmers regarding extension program needs will help Extension to properly serve farmers.
- 2) By identifying the priority farmers place on selected Extension programs, it will help Extension and those who are working with farmers to prioritize extension programs based on farmers' preferences. This will help in properly targeting programs that have impact on the intended clientele.
- 3) By identifying types of recommended Extension improved practices that have been implemented by district farmers during the past 10 years, will help Extension in educational planning to fill the gap between what improved practices

are already known (used) by farmers and what they ought to know if they are to advance in agricultural production.

- 4) By identifying the factors that affect implementation of Extension program recommended practices that address farmer priorities, the findings will help us in planning for how to improve extension services. Policy makers will find the findings to be useful and may be interested in renovating agricultural extension policy.
- 5) By identifying selected demographic data and analyzing comparisons among variables, the findings will provide important information with regard to demography and agriculture. Information from this study will help to decide which group to deal with, which group is active or vice-versa in agricultural activities.

### **1.8. Definition of selected terms**

1.8.1. Agricultural extension refers to “a service or system which assists farmers and farming families, through educational procedures, in improving farming methods and techniques to increase production efficiency and income so as to better their levels of living, and lift the social and educational standards of rural life” (Zakaria, 2011, p. 5)

1.8.2. Farming systems are defined as a complex interrelated matrix of soils, plants, animals, power, labor, capital, and other inputs, controlled-in part-by farming families and influenced to varying degrees by political, economics, institutional and social factors that operate at many levels, (Dixon, Gulliver and Gibbon, 2001).

1.8.3. Indigenous knowledge is the local knowledge – knowledge that is unique to a given culture or society, Warren (1991). The author argues that, “Indigenous knowledge



is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities” (p. 1).

1.8.4. Transfer of technology refers to “a logical procedure that controls the transfer of any process together with its documentation and professional expertise between development and manufacture or between manufacture sites” (WHO 2011, p. 287).

1.8.5. A need refers to the difference between the present condition of the individual farmer (learner) or group of farmers and a social norm that can be identified,” (Tyler, 1971 as cited by Boone 1985, p. 12).

1.8.6. Peasant is “a person who owns or rents a small piece of land and grows crops, keep animals etc. on it, especially one who has a low income, very little education and a low special position,” Cambridge Dictionaries Online.

1.8.7. Pastoralist is “a person who herds livestock, often as a nomadic wanderer without a set farm area,” according to website at <http://www.yourdictionary.com/pastoralist>

1.8.8. Agro-pastoralist is a “set of practices that combine pastoral livelihoods with production of crops” according to website at <http://www.caadp.net/pdf>

1.8.9. Aquaculture refers to “farming of aquatic animals such as fish,” according to Wikipedia at <http://en.wikipedia.org/wiki/Aquaculture>

1.8.10. Apiculture refers to “the art and science of beekeeping” according to free dictionary at <http://www.thefreedictionary.com/apiculture>

1.8.16. Program planning is the process of making decisions about the direction and intensity of extension-education efforts of extension-service to bring about social, economic and technological changes.

## **1.9. Chapter summary**

Until it learns to grow its agriculture, Tanzania is unlikely to register significant developmental advances. Agriculture is the leading sector in Tanzania, providing a livelihood to 82% of its population. About 80% of its population depends on subsistence agriculture and 87% of the rural population lives below the poverty level, making the country 162 out of 177 countries in this situation (ASDP, 2007). Several studies have indicated that the agriculture sector plays an important role in the Tanzanian economy and possesses the potential to advance the country's objectives of growth and poverty reduction. Extension service methodologies and delivery mechanisms have had little impact by themselves unless linked with farmer production programs, addressing needs of farmers in an attempt to reduce poverty. Until farmer participation in program planning and implementation is prioritized, there will be no significant development of the poor farmers in Tanzania. Lack of research-based technologies and information has contributed to low agricultural productivity. In addition, the World Bank (2007, p. 10) argued that expenditures for research are regarded as investments in knowledge capital.

## CHAPTER II: LITERATURE REVIEW

### 2.1. Introduction

This chapter focused mainly on the review of literature. It gives information from scholars in the field regarding implementation of extension programs in addressing farmers' needs. This study addresses the theoretical framework of this study and the rationale for the study.

“Tanzania's average population density is relatively low at about 32 people per square kilometer and therefore population pressure on scarce land resources is not a major problem theoretically, but it is important in some localities, particularly semi-arid areas” (PADEP, Feb., 2003, p 1). According to Greeley, et al., (October, 2006, p 9), “Tanzania’s Agricultural Sector Development Strategy (ASDS) emphasizes her agricultural potential based on: comparative advantages in export and food commodities, the large human capital resource, the underused natural resource base and the political commitment to provide a policy environment conducive to sector growth, trade opportunities and private sector partnership.”

Tanzania’s agricultural R&D system has traditionally been highly dependent on donor funding and development bank loans, which has fluctuated considerably (Beintema, June, 2011). According to a World Bank report on ASDP, “In April 2003, the government of Tanzania appointed three stakeholder Task Forces to oversee the detailed formulation of the ASDP priority intervention areas, which included a focus on the policy, regulatory, and institutional framework; agricultural services (including research, extension, training, information and communication, and technical services); and investments at district and field level” (p 2). Planning under ASDP was expected to be

based on a decentralized policy, empowering local people in planning activities so as to meet the needs of farmers and make use of available resources in an attempt to reduce poverty, (URT, 2006). According to ASDP the (2005), “ In the implementation of ASDP, there has been investments planned at the village, ward and district levels through participatory planning methods and steps, including: improved O & OD; participatory feasibility screening; detailed design and cost-sharing agreements; district level budgeting and approval; participatory implementation and participatory evaluation” (p 15).

“Processes of change have been underway for some time, but in Tanzania as in other developing countries, these processes have been accelerated by structural adjustment reforms aimed at reducing public sector spending, (Chapman and Tripp, July, 2003).” According to ASDP (2005), “International and Tanzanian evidence shows that public agricultural service provision reforms built around demand-based approaches can lead to increased productivity and substantial poverty reduction returns; the reforms stress the changing role of extension agents from advisor to facilitator; increasing control of services by farmers while increasing use of contracted services and a focus on knowledge provision as well as technical advices with institutional reform and greater emphasis on community level investment programs” (p. 10).

Rutatora and Mattee (2001, p 159) revealed that, “ there has been a very weak link between extension and other service departments such as research, cooperation and training at the ministry level, while at regional level, coordination with other stakeholders in most cases is virtually non-existent.” Bringing development to the community requires the community to be viewed in a holistic manner (Seevers and Graham, 2012).

In Tanzania, “Government officials and rural development experts support the idea of participation in principle, but in practice there is no common agreement on what participation entails” (Douglah and Sicilima, 1997, p. 39). It was anticipated that “once arrangements for the transfer of staff and reform exercises have been completed extension programs will be based on local opportunities and constraints while encouraging community involvement” (Rutatora and Matte, 2001, p.163).

### **2.2.2. Role of rural extension staffs in addressing farmers’ needs**

Under the ASDP, as part of empowering farmers, there has been the introduction of the Ward Agricultural Development Plans (WADPs), Village Agricultural Development Plans (VADPs), and the formation of agricultural program development facilitation teams at district, ward and village levels. Rural extension staffs are key persons in addressing farmers’ needs. This is possible through the use WADPs and VADPs, which operate and work at the grassroots level. As noted by Matte (1994, p. 181), “The general practice is that field extension workers are not directly involved as a result of which planning becomes a ritualized activity undertaken by senior staff who set unrealistic targets and who do not address farmer priorities, but rather reflect government priorities. When field extension staff are not fully engaged in the planning process, they may fail to properly implement extension programs efficiently (Rivera and Qamar, 2003). They become less motivated and as a result the teaching process is hampered leading into poor learning by farmers (Swanson, Bentz and Sonfronko, 1997). Learning has been a process by which individuals, through their own action, become changed in behavior after learner processes the subject matter being studied in a meaningful and understandable manner (Newcomb, et al 2004, 2<sup>nd</sup> ed).

Research done by different observers, (BACAS, 1997; MAC, 1999; MAC, 2000; Isinika, 2000), as cited by Rutatora and Mattee (2001, p.159), indicates that “in the implementation of extension programs, necessary authorities were conducting meetings sporadically and in some cases, reports were not submitted to relevant authorities with exception of areas where the District Commissioner, as a core leader in the district, was committed and took keen interest in agriculture development.” This description indicates that although the rural extension staff is a part of extension, authorities lag behind in fulfilling their duties and responsibilities when their superiors are not committed to rural agricultural development.

“The Performance Evaluation Report of the Tanzania National Agricultural and Livestock Extension Rehabilitation Project points out that while the private sector is likely to play a stronger role in commodity oriented extension services in the future, extension delivery for smallholders and resource poor farmers would have to remain the main function of the government, with the other providers supplementing these efforts,” (ASDP, 2007, p.7). The report noted that “the majority of Tanzanians depend on agriculture for income and subsistence with 87% of the poor living in rural areas and 75% of rural income being earned from agricultural activities. While improvements in agricultural performance can have a direct impact on the incomes of the poor, there is limited access to technical extension advice, with an estimate of 75% of the households not having access to extension services. It should be noted that poorer households are usually more dependent on agriculture for their livelihoods, and spend a larger portion of their earnings on food” (World Bank, 2012).

Leyaro, and Morrissey (April, 2013, p 3) urge that, “after 50 years of independence, despite apparent commitment to policies and strategies to transform the

agriculture sector, performance in agricultural output and productivity has been disappointing.” It should be noted that about 60-75 percent of the households in Tanzania, have no contact with research and extension services (ASDP, 2005).

The Millennium Development Goals (MDGs) of reducing poverty by 50% in 2015 is a long way to being achieved, (Sachs, 2005; Gwatkin, December, 2002). According to Karugia, (2011, p 32), “there is still a high proportion of Tanzanian households who live below the basic need poverty line (poverty incidence was 33.6% in 2007).” “Agriculture stimulates economic growth indirectly through larger consumption linkages with the rest of the economy than other sectors” (ASDP, 2006, p. 6). “Meeting the country’s food security needs in both rural and expanding urban areas requires higher agricultural growth contributing to higher incomes and lowering food prices” (ASDP, 2007, p. 2).

### **2.2.3. Attitude of farmers toward extension services**

Agricultural Extension’s goal is to support farmers in their overall farm management, which covers several more specific topics, such as soil management, pest management and financial management (Klerkx and Jansen, 2010). It has been customary for agricultural extension field officers, to use a variety of means of sharing information with farmers, including face-to-face, at the office and farm visits, (Renwick, 2009). Farmers have multi-enterprises that are interdependent serving as insurance following the fluctuating climatic conditions, (Aillery, Gollehon, Ribaud, Breneman, and Agapoff, (2003). Like other farmers in sub-Sahara Africa, farmers in Tanzania suffer from the lack of extension services qualitatively as well as quantitatively, (Kimaro, Mukandiwa and Mario, 2010). In some cases under-trained extension personnel meet many challenges in responding to farmers’ questions, during farm and office visits (Engle and Stone, 1989).

No matter how the best extension professional is committed to serve farmers, when farmers negatively perceive these extension professionals as a result of inability to respond to farmers' questions, extension efforts become useless (Ferroni and Zhou, 2011).

Most farmers in developing countries have below average education relying on traditional agriculture, (Scialabba and Hattam, 2002). Innovators and early majority farmers tend to benefit from extension services; they recognize their potential, unlike the majority of farmers who have no formal education, are not cosmopolitan and are technologically marginalized, they tend to ignore the extension-based system (Lapping, 2005). "The Participatory Technology Development (PTD) approach recognizes the importance of both local and external knowledge; farmers actively seek information to suit their needs, whatever the source" (Kibwana et al, 2001, p.135).

In agricultural extension planning, the involvement of farmers in planning plays a great role in bringing about the most significant changes as postulated by Davies and Dart in their guide, "The 'Most Significant Change' (MSC) Technique" where they said:

"A social change program has numerous practitioners (fish) swimming in slightly different directions, each with individual values but a common goal, MSC helps the individual fish to communicate with each other: 'Where do we really want to go? Should we swim away from the sharks and towards a safe place to lay our eggs or first head for food?' MSC help all the fish swim in roughly the same direction, away from what is not good and towards what is good and there fore it helps them swim as a school towards a commonly valued destination" (Davies and Dart, April, 2004, p 16).

An ultimately enriched agricultural productivity depends on key features relating to the access and improvement is dependent on the extension process used, (Kimaro, Mukandiwa and Mario, 2010) "It is also dependent on the governance capacity and management structures of the extension approach" (Glendenning, Babu and Asenso-



Okyere, 2010, p. 5). It is also dependent on the underlying contextual factors such as the policy environment, market access, characteristics of beneficiary communities and weather conditions, (FAO, 2013). Exploring the need for agricultural extension programs for farmers is very complex (Muyanga and Jayne, 2006; Swanson, Bentz, and Sonfronko, 1997). This complexity is brought about because of a wide range of farmers' preferences, the varying agro-ecological climate, availability and prices of inputs, market access, and farm- and farmer-specific variables, (Waddington, Snilstveit, White and Anderson, 2010, p.2).

### **2.3. Basis for the research**

This study is based on the basic philosophy of agricultural extension. This philosophy supports the idea that people in the rural areas are intelligent, capable and have a desire to learn and improve their way of life in advantage of their family and community as whole. Zakaria (2011) described the philosophy of agricultural extension. He said:

“Agricultural extension is based on the philosophy that rural people are intelligent, capable and desirous of acquiring new information and making use of it for their family and community improvement. Agricultural extension philosophy is based on the premise that if farm people fully understand their relationship to the natural resources and other factors they deal with, it is possible for them to attain personal satisfaction in their way of life. Extension education is democratic in its approach. It is based on the principle of helping people to help themselves. Extension education is also based on the belief that the aims and objectives of extension are not static. These must be modified on the basis of individual and social needs. It is the duty of extension program to determine people's need, and to help them to acquire knowledge that either spurs or inspires them to action” (p.16).

## 2.4. Conceptual framework

According to EU SCAR (2012), an agricultural knowledge system model has four sets of actors that act upon the knowledge of farmers and generate innovations in response to problems and opportunities, desired outcomes, system drivers and regulative policies and institutions.

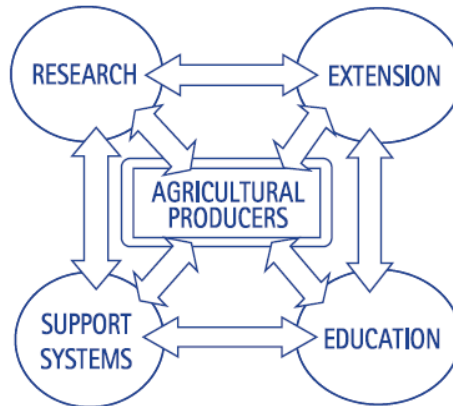


Figure 1: An agricultural knowledge system model (from: Rivera et al., 2005)

EU SCAR (2012), suggests that “problems are not simply given by the context, rather, they are framed in different ways by specific paradigms.” The report pointed, “People think this model is important in framing research priorities, societal choices and public accountability,” (p.26).

The agricultural knowledge system model provides theoretical means of addressing farmers’ needs in an attempt to alleviate poverty. Farmers as agricultural producers have been placed at the center of agricultural knowledge system model as central point of interaction among service provider in extension delivery system. Interactions among extension service providers are paramount in addressing farmers’ needs. Lindsay and Douglas (Spring, 1997) urge, “Coordination is necessary among research, teaching and extension, and among organizations,” (p 12).

FAO (2010-11), indicated, “Participatory approaches that encourage communication between farmers and researchers can lead to positive feedback loops that allow researchers to adjust innovations to local needs,” (p 32). However, as noted earlier, Rutatora and Mattee (2001) revealed that, “ there has been a very weak link between extension and other service departments such as research, cooperation and training at the ministry level, while at regional level, coordination with other stakeholders in most cases is virtually non-existent,” (p 159). Extension personnel serve as liaisons in transmitting research findings to clientele. But according to World Bank, (2007) “Agriculture in Sub-Saharan Africa still loses scientists and teachers especially the most productive and experienced,” (p 33).

Waddington, Snilstveit, White, and Anderson (2010) noted that “The effectiveness of the extension system in fostering capacity building, technological adoption and ultimately improved agricultural outcomes depends on key factors relating to the advisory methods used, the governance, capacity and management structures of the extension system, as well as underlying contextual factors such as the policy environment, market access, characteristics of beneficiary communities and weather conditions,” (p 5). However, the World Bank (2007) noted, “At a time when different profiles of graduates are needed to lead agricultural development in Africa, neglect has eroded the relevance and quality of agricultural extension and training outputs (graduates, research, technical advice) in numerous countries,” (p 21). They should be adequate qualified and experienced scientists who are agricultural professionals to lead efforts of ensuring farmers needs are met.

Waddington, et al., (2010) noted “Characteristics of local communities, such as heterogeneity in terms of land and asset holdings, ethnicity, education, gender roles and

the degree of social exclusion, will determine the ability of the extension services to penetrate communities and reach the disadvantaged, and the degree of farmer-to-farmer diffusion,” (p 6). These authors further explain that, “market access and weather conditions also will determine the degree of adoption of techniques and final outcomes,” (p. 6).

## **2.5. Chapter Summary**

As it had been cited earlier, “Tanzania's average population density is relatively low at about 32 people per square kilometer,” (PADEP, Feb., 2003, p 1. Its agricultural R&D system has traditionally been highly dependent on donor funding and development bank loans, (Beintema, June, 2011). Little impact has been observed from implementing various agricultural projects due to ineffective farmer participation in training programs. The current agricultural programs (ASDP) are expected to be based on a decentralized policy, empowering local people in planning activities so as to meet the needs of farmers and make use of available resources in attempt to reduce poverty, (URT, 2006). Exploring the agricultural extension programs and needs of farmers is a very important issue. According to Zakaria (2011) “If extension personnel believe that rural people are intelligent and capable of making use of educational opportunities, an extension agent is likely to provide such opportunities and assist the people in benefiting from them. But on the other hand, if the extension agent down-grades the capabilities of rural people, he/she is likely to assume the attitude of a snub that eventually will encounter negative reactions from the people and hence become difficult to address farmers’ needs,” (p 16).

## **CHAPTER III: METHODS AND PROCEDURES**

### **3.1. Introduction**

This study was developed and conducted to address the following research questions:

- 1) What are the perceptions of farmers regarding extension program needs?
- 2) What are the priority farmers place on selected Extension programs?
- 3) What are the types of recommended Extension improved practices that have been implemented by district farmers during the past 10 years?
- 4) What are the factors that affect implementation of Extension programs recommended practices that address farmer priorities?
- 5) What are the characteristics of demographic data of the study population?

This chapter presents information related to methods and procedures that was used in the course of the study. The research design of this study is clearly described as well as how issues of validity and reliability were handled during this study. Methods of data collection have been covered under this section. This chapter also addressed issues of how data were analyzed, assumptions and limitations of this study.

### **3.2. Methods and Procedures**

This study used a direct researcher developed administered questionnaire to collect data so as to obtain a high response rate (Ary, Jacob and Razavieh, 2002). The questions were reviewed by a panel of experts in agricultural extension education and selected graduate students familiar with the topic were asked to review the questionnaire. The questionnaire was amended based on advice from the panel of experts in the department of agricultural education and studies at Iowa State University.

After the questionnaire was reviewed, the questionnaire and the research proposal were sent to Iowa State University (ISU) Institution Review Board (IRB) to seek permission to conduct the study. IRB allowed the study to be conducted as planned (appendix 4). This study was conducted by interviewing respondents in their natural setting. A list of head of households in the Sale and Loliondo divisions was obtained from the district council. A list of head of households from the Ngorongoro division was obtained from the Ngorongoro Conservation Area Authority headquarters. The Loliondo and Sale divisions formed one cluster and the Ngorongoro division formed the second sampling cluster for this study.

Using random tables, nine villages were selected, five villages were randomly selected from villages in the Loliondo and Sale division and four villages were randomly selected from villages in the Ngorongoro division. Using Excel, fifteen respondents were selected randomly from each of the randomly selected villages in the Sale and Loliondo divisions. Sixteen respondents were selected from each of the four randomly selected villages in the Ngorongoro division. Letters of consent were submitted to respondents so as to seek their consent for participation in the study. All selected respondents agreed to participate in the study.

### **3.3. Research design**

The purpose of this descriptive survey was to explore the extension program needs of farmers in the Ngorongoro district of Tanzania. The objectives of this study were:

- 1) To identify the perception of farmers regarding extension program needs.
- 2) To identify the priority farmers place on selected Extension programs.

- 3) To identify types of recommended Extension improved practices that have been implemented by district farmers during the past 10 years.
- 4) To identify the factors that affect implementation of Extension program recommended practices that address farmer priorities.
- 5) To identify selected demographic data and analyze comparisons among variables.

This study was conducted using a descriptive survey research design in collecting and analyzing data. Questionnaires formed a tool for gathering information. A questionnaire was designed and administered using a direct interview. The descriptive questionnaire comprised of four main sections and a demographic section. The first five sections included (a) perceptions of farmers regarding extension program needs (b) priority farmers place on selected Extension programs (c) types of recommended Extension improved practices that have been implemented by district farmers during the past 10 years and (d) the factors that affect implementation of Extension program recommended practices that address farmer priorities. The fifth portion of the questionnaire aimed to explore the demographic of the study population. Before actual use of the tool, questionnaire preview and pretesting was done to determine its validity and reliability.

#### **3.4. Internal validity**

Questions in the questionnaire were designed and structured to ensure that content validity was established. In order to establish face validity the questionnaire was given to experts who were familiar with the purpose of this study so to assess the validity of this instrument, (Radhakrishn, 2007). Direct observation of behaviors of respondents was used in dealing with criterion-related validity.

### 3.5. External validity

According to Reis and Judd (2000), “A research study should be conducted using a random sample of participants from a broadly defined population in a random sampling setting,” (p.10). In this study, random sampling from a study population was used so that the findings from this study applied to the study population. The sample size was crucial for generalization of the findings of this study. Based on Ary, Jacob, & Sorensen (2010), determining the size of sample size is one of the first considerations of a researcher. These authors pointed out that, the researcher decides on an acceptable margin of error and then computes a sample size (p. 289). Therefore, the sample had been calculated using the following formula:

$$n = \left( \frac{1/E}{\sqrt{pq}} \right)^2 (Z)^2$$

where n=sample size needed

E=desired margin of error

pq=variance of hypothesized proportions

Z= z score of confidence level

The 5% error of margin was expected to be exhibited by respondents and 90% of the sample participants were expected to agree to participate in the survey, therefore a .95-confidence level was used to calculate the sample size for this study.

$$n = \left( \frac{1/0.05}{\sqrt{0.9 \times 0.1}} \right)^2 (1.96)^2$$

$$n = 139$$



### **3.6. Data collection instrument**

An instrument was designed after a thorough related literature review had been conducted. A questionnaire was the instrument to be used in this study. A questionnaire was prepared with five sections. In order to establish face validity, the questionnaire was given to experts who are familiar with the purpose of this study to assess the accuracy of the questionnaire in collecting required data for this research (Martin, et al., 2007). Internal consistency of the questionnaire was checked by rephrasing some questions; asking the same subjects to assess the consistency of the responses.

A field test was conducted to assess the appropriateness of the instrument for the survey (Bolton, 1993; Bolton, and Bronkhorst, 1995; Radhakrishn, 2007). The questionnaire was administered personally to a small group of survey subjects drawn from the same study population. Cronbach alpha was used to assess the consistency of responses, (Ary, et al. 2010, p. 247). Results from the field test helped in finalizing the instrument for the study.

### **3.7. Data Collection Procedure**

Farmers in Ngorongoro district formed the study population for this research. A sample was chosen from the entire district. These farmers are not homogeneous; therefore multistage sampling was used in grouping them into pure pastoralists, and agro-pastoralists. Using random tables, nine villages were selected, five villages randomly selected from villages in Loliondo and Sale division and four villages were randomly selected from villages Ngorongoro division. Using Excel, fifteen respondents were selected randomly from each of the randomly selected villages in Sale and Loliondo divisions. Sixteen respondents were selected from each of the four randomly selected

villages in Ngorongoro division. Respondents from villages found in the Ngorongoro division formed the pure pastoralists group, those in Loliondo and divisions formed agro-pastoralists group. From each group, three villages were randomly selected to form the research participants. As explained under external validity, this survey used a five percent margin. It was expected that 90% of the sample participants would agree to participate in the survey and a .95-confidence level was used to calculate the sample size for this study.

Data was collected from November 2013 to December 2013, from 139 randomly selected participants in the Ngorongoro district. A letter seeking permission to conduct research in the district was presented to the District Commissioner. Information about the need to conduct this research was conveyed to Division Administrative Officers, Ward and Village Executive officers informing them about this research study. Letters asking for informed consent was presented to respondents of the randomly selected 139 participants. It was planned that if one of the selected respondents decided not to participate, other potential respondents were to randomly selected from the sampling frame and a letter seeking consent presented to him/her and arrangements for an interview. If a large number of respondent for example about 20% withdrawal from the survey, it was planned to try to compare the respondents to the characteristics of the population and if the data showed that respondents resemble the population of interest, it would then be assumed that the non-respondents also resemble the parent population, (Ary, et al. 2010, p 408) and in some cases it might be required to interview a sample of non-respondents (double dipped sample) and determine whether there is a significant difference when compared with those who participated in the survey, (Ary, et al. 2010, p 409). Some of people in the district had not only had not gone to school but also they didn't know the national formal languages. A translator was required, even though he/she

might have influenced or altered a respondent's responses. In order to minimize response error of this type, probing was used so as to cross check the correctness of translation. Questionnaires were in English language but translations into Kiswahili were done to ensure that questions were well understood.

Interviewers' were used in collecting data. They were trained on how to collect data from selected respondents. We collected data from one village after another as a team of researchers and I was in charge of the research team. Before ending each day, interviewers were required to ensure all questionnaires were properly filled and every day I tried to check for the consistency of data collection by the interviewers.

### **3.8. Data Analysis**

After data collection, the data was coded and made ready for analysis, (Burns and Burns, 2008). Data was analyzed using the Statistical Package for Social Sciences (SPSS), a computer program to obtain frequencies and percentages. In calculating chi-squares, EpiInfo7 statistical software was used. Since respondents in the study population are not homogeneous, data from cluster sampling, questions that were found not to apply to the whole population were analyzed separately; questions related to crop production was coded, analyzed and findings applied to respondents in Loliondo and Sale divisions, who are agro-pastoralists, (n=75). With exception to questions related to crop production, all questions were analyzed based on the whole study population (N=139) first, then based on first cluster for agro-pastoralist (sample from Sale and Loliondo divisions, n=75) and then second cluster pure pastoralist (sample from Ngorongoro division, n=64).

Analysis based on these two clusters helped to compare findings between pure pastoralists found in Ngorongoro Conservation Area Authority (NCAA), who are legally not allowed to grow crops, in a World heritage site, compared to findings from agro-pastoralists in Sale and Loliondo divisions. Descriptive statistics such chi-square, frequencies and percentages was used to describe the population.

### **3.9. Assumptions**

It was anticipated that the research would be carried out as planned. It was anticipated that there would be no adverse weather conditions that may force more of the respondents (pastoralists) to migrate in search for water and pasture for their livestock. It was assumed that respondents would provide correct information after agreeing to participate in this survey. My sponsor was expected to disburse research funds timely and adequately. I expected that my US advisor will be readily available at least through Internet connection, for assistance whenever due. The Tanzanian supervisor was expected to act as synergy in my research study.

### **3.10. Limitation of the study**

The nature of pastoralists not only migrate from one place to another in search for water and pasture for their livestock but also they are scattered in a wide geographical area, and in some cases, they may be in inaccessible places with a van. Few respondents fell under this category; in this case, other respondents were selected randomly from the sampling frame to replace the missing respondents.

### **3.11. Chapter Summary**

This descriptive survey research was conducted in the Ngorongoro district. A sample of 139 respondents was randomly selected and used from pastoralist and agro-pastoralists. A questionnaire and checklist was used to form the instrument in collecting data about the perception of farmers regarding extension program needs, the priority farmers place on selected Extension programs, types of recommended Extension improved practices that has been implemented by district farmers during the past 10 years, factors that affect implementation of Extension program recommended practices that address farmer priorities and selected demographic data of the study population. Reliability and validity of findings have been addressed. After data collection, it was coded ready for analysis. Data were analyzed using the Statistical Package for Social Sciences (SPSS) computer program. Descriptive statistics such as percentages and frequencies were used to describe the population.

## CHAPTER IV: FINDINGS

The purpose of this descriptive study was to explore how best agricultural extension programs in Tanzania can address farmers' needs. The main objectives of this descriptive study was to identify the perceptions of farmers regarding extension program needs, priority farmers place on selected extension programs, identify types of recommended extension improved practices that has been implemented by district farmers during the past 10 years, identify the factors that affect implementation of extension program recommended practices that address farmer priorities, and identify selected demographic data and analyze comparisons among variables.

### **Objective one: Perception of farmers regarding extension program needs**

During the study, in addressing the first objective that required identification of perceptions of farmers regarding extension program needs, a number of responses was given by respondents. When respondents were asked about whether they were aware of the presence of agricultural extension services in their area, it was found that, about 70.5% (N=139) of farmers in Ngorongoro district were aware of how they could access extension services. Awareness of where farmers can access extension services is higher with pastoralists (79.6%, n=64), than with agro-pastoralists (62.67%, n=75). The difference of the degree of awareness between pastoralist and agro-pastoralist is statistically significant ( $\chi^2=6.455$ ,  $pv=0.011$ ), (see Table 1). The government is the main extension service provider in the district, but it was revealed that about 71.9% (N=139) of the study population had not received agricultural extension services in the year 2013/14. Likewise, when farmers were asked about how often they had received extension services during the year 2013/14, about 7.9% of the study population received extension services once in two to three weeks while 20.1% received extension services once in a month or

more. The number of farmers who did not receive agricultural extension services was lower for pastoralists (68.8%, N=64) than the agro-pastoralists (74.7%, N=75). However these differences were not statistically significant, ( $\chi^2=1.332$ , p-value=0.249), (see Table 1).

Table 1: Comparison between pastoralists and agro-pastoralists on perception of farmers regarding extension program needs

Description	Pastoralist		Agro-pastoralist		Chi-square	
	n	Total	n	Total	$\chi^2$	p-value
Awareness of extension services	51	64	47	75	6.55	0.011
Farmers received ext. services	44	64	56	75	1.332	0.249
Extension addressed farmers' need (those who agree)	23	64	13	75	0.908	0.340
Extension program impact-long/short (those don't know)	18	64	36	75	1.352	0.245
Extension program is livestock biased (those who agree)	60	64	27	75	26.169	0.001
Extension program can reduce poverty (those who agree)	42	64	55	75	0.936	0.333

Respondents were asked to give their opinion from strongly agree to strongly disagree using a Likert-type scale 1-5 respectively to see whether extension programs in their area has addressed their needs and found that, generally, most farmers believe that extension programs have not addressed farmer's needs (74.8%, N=139). Dissatisfaction with the extension services in addressing their needs were relatively lower for pastoralists (65.6%, N=64) as compared to the agro-pastoralists (82.7%, N=75), but this differences is not statistically significant, ( $\chi^2=0.908$ , p-value=0.340), (see Table 1).

The question on whether farmers had an understanding about the nature of effect of agricultural extension programs, it was found that 38.8% of the study population don't know whether extension programs have short or long term impact. About 33.1% believed that the extension service had a short-term impact. Almost half of the agro-pastoralists

(48%, N=75) didn't know if extension programs have short or long-term impact as compared to the pastoralists (28.1% N=64), but this difference is not statistically significant, ( $\chi^2=1.352$ , p-value=0.245), (see table 1).

It was found that provisions of agricultural extension services were male biased (58.3%, N=139). Farmers in the study population believe that more extension effort has been exerted in livestock and related programs in pastoralists areas (93.8%, n=64), than in agro-pastoralists areas (36%, n=75), and this bias is statistically significant, ( $\chi^2=26.169$ , p-value=0.001), (see Table 1)

Farmers' opinions on the question asked using a Likert-type scale of 1-5 from strongly agree (5) to strongly disagree (1) revealed that farmers in the study population believe that agricultural extension services can contribute a lot in an attempt to reduce poverty among farmers (62.6%, N=139). Farmers in Ngorongoro Conservation Area Authority (NCAA) who are purely pastoralists claim that there is no synergy in the main development of the District Council (NDC). One respondent said that:

“In most cases NCAA devotes little effort in addressing farmers' problems because they think that NDC will take care of those farmers' problems. The vice-versa is exhibited by NDC and eventually most farmers' problems remain unsolved.”

Farmers believe that there is more farmer involvement in planning agricultural extension programs (32.4%, N=139, Table 2) than the level of farmer participation in evaluating agricultural extension programs (15.1%, N=139).



Table 2: Farmers perception on whether Extension Programs are not participative in planning, implementation and evaluation

		Strongly agree	Agree	Disagree	Strongly disagree	Don't know	Total
(a)	Planning	11.5	36.7	32.4	0.0	19.4	100
(b)	Implementation	8.7	45.7	25.4	0.7	19.6	100
(c)	Evaluation	18.0	43.2	15.1	0.0	23.7	100

### Objective Two: Priority farmers place on selected extension programs

Farmers' were asked to rate selected agricultural extension activities using a four point Likert-type scale (1-4) to indicate their preferences and found that, among four major categories of agricultural extension services (crops, livestock, non-crop/livestock and environmental agricultural extension programs), farmers in the study indicated that, livestock extension programs were their first option (61.2%, N=139), crop extension programs were their second preference (43.2%, N=139), environmental conservation extension programs was the third preference (49.6%, N=139) and the fourth preference was non crop/livestock extension programs (61.9%, N=139), (Table 3).

Table 3: Farmers' preference for extension programs

		Ranking in percentages				
		1	2	3	4	Total
(a)	Crops and related extension programs	30.9	43.2	14.4	11.5	100
(b)	Livestock and related extension programs	61.2	26.6	11.5	0.7	100
(c)	Environmental control extension programs	4.3	20.1	49.6	25.9	100
(d)	Non-farm/livestock extension programs	4.3	9.4	24.5	61.9	100

The current study indicated that livestock extension program is highly valued in agro-pastoralists (61.3%, n=75) compared to pastoralists (60.9%, n=64) but this difference is not statistically significant, ( $\chi^2=0.001$ , p-value=0.993), (see Table 4).

Table 4: Comparison between pastoralists and agro-pastoralists on priority farmers place on selected extension programs

Description	Pastoralist		Agro-pastoralist		Chi-square	
	n	Total	n	Total	$\chi^2$	p-value
Vaccination program is 1 <sup>st</sup> preferred in livestock programs	29	64	41	75	0.388	0.533
Least preference "Aquaculture"	63	64	54	75	13.31	0.001

Under livestock extension, farmers were asked to rate selected activities using a ranking 1-6, 1<sup>st</sup> preference to 6<sup>th</sup> preference consecutively, and found that activities related to vaccination of livestock was highly valued by farmers (50.4%, n=139), followed by activities related to dipping animals (32.2%, n=139). The third preference included activities related to deworming (38.1%, n=139). Farmers in the study population indicated that livestock marketing and proper livestock feeding activities are the fourth and fifth preferred program (36.0% & 51.0%, n=139) respectively, (Table 5).

Table 5: Preference for livestock extension programs

		Ranking in percentages					
		1	2	3	4	Total	
(a)	Vaccination against diseases	50.4	33.1	13.7	1.4	1.4	100
(b)	Deworming	4.3	22.3	38.1	25.9	9.4	100
(c)	Dipping	26.6	30.2	23.7	11.5	7.9	100
(d)	Proper feeding	5.0	7.9	11.5	24.5	51.1	100
(e)	Livestock marketing	11.5	8.6	15.8	36.0	28.1	100

Preference for vaccinating livestock has been observed to be highly valued in agro-pastoralists (54%, n=75) compared to pastoralists (45%, n=64) but this difference is not statistically significant ( $\chi^2=0.388$ , p-value=0.533), (see Table 4).

Since crops are grown by agro-pastoralists in the Sale and Loliondo divisions (n=75 out of the 139 respondents surveyed in the district), analysis for extension program preference for extension programs related to crops, the farmers' first preference was extension programs related to cereals production (88.0%, n=75). The second preference was legume production (80.0%, n=75). The third preference was vegetable production, (48.0%, n=75). The fourth was fruits (54.7%, n=75). The fifth and least preferred program according to these selected crop areas were extension programs related to root crop production, (70.7%, n=75, Table 6).

Table 6: Crop preference by respondents

		Ranking in percentages					
		1	2	3	4	5	Total
(a)	Cereals	88.0	6.7	4.0	1.3	0.0	100
(b)	Legumes	9.3	80.0	9.3	1.3	0.0	100
(c)	Vegetables	2.7	12.0	48.0	28.0	9.3	100
(d)	Fruits	1.3	1.3	26.7	54.7	16.0	100
(e)	Root crops	1.3	1.3	13.3	13.3	70.7	100

The current study went further to analyze preferences of farmers under non-crop/livestock extension programs. Bee-keeping was the farmers first preference (66.2%, n=139) under non-crop/livestock extension program category. The second preference was extension programs related to traditional crafts (42.4%, n=139). The third preference was extension programs related to entrepreneurship (41.0%, n=139). The least preferred

program area under these selected non-crop/livestock areas was aquaculture (83.5%, n=139), (see Table 7).

Table 7: Non-crop/livestock preference by respondents

		Ranking in percentages				
		1	2	3	4	Total
(a)	Aquaculture	2.9	5.8	7.9	83.5	100
(b)	Bee keeping	66.2	23.0	7.9	2.9	100
(c)	Traditional crafts	10.1	37.4	42.4	10.1	100
(d)	Entrepreneurship	19.4	36.7	41.0	2.9	100

Both pastoralists and agro-pastoralists placed aquaculture the least preferred, however, the difference in placing aquaculture the least preferred by pastoralists (98%, n=64) is relatively larger compared to agro-pastoralists (72%, n=75) and this difference is statistically significant, ( $\chi^2=13.313$ , p-value=0.001), (see Table 3).

When categorizing agricultural extension services, for agro-pastoralist farmers; who constituted 75 respondents out of the 139 surveyed, the first prefers extension services related to building livestock infrastructures (21.3%, n=75), (see Table 8). The second preference was providing farmers with agriculture inputs subsidies (22.7%, n=75). The third preference was building agricultural infrastructure (17.3%, n=75). The fourth was providing farmer improved production facilities, (20.0%, n=75). The fifth was providing farmers with loan (32.0%, n=75). The sixth preference was providing farmers with education on good husbandry (22.7%, n=75). The seventh was providing loans to livestock producers in groups. The least preferred category extension services by the agro-pastoralists was providing livestock input subsidies (22.7%, n=75), (Table 8).

Table 8: Preference for extension services

	Ranking in percentages								
	1	2	3	4	5	6	7	8	Total
(a) Educational	16.0	8.0	10.7	16.0	22.7	12.0	5.3	9.3	100
(b) Building agric. infrastructure	13.3	17.3	17.3	17.3	8.0	14.7	4.0	8.0	100
(c) Provide loan to farmers	4.0	8.0	6.7	8.0	32.0	24.0	14.7	2.7	100
(d) Provide agric. Input subsidies	5.3	22.7	21.3	12.0	5.3	6.7	10.7	16.0	100
(e) Building infstr. for livestock	21.3	17.3	16.0	6.7	5.3	13.3	14.7	5.3	100
(f) Provide loan to livestock keeper	16.0	9.3	8.0	9.3	6.7	12.0	22.7	16.0	100
(g) Provide livestock input subsidies	13.3	10.7	9.3	20.0	12.0	4.0	12.0	18.7	100
(h) Provide farmers better facilities	12.0	6.7	9.3	10.7	8.0	14.7	16.0	22.7	100

**Objective three: Recommended extension improved practices that have been implemented by district farmers during the past 10 years**

This study indicated that 52% of the study population were agro-pastoralists while 46.8% were pure pastoralists and less than 1% produce crops only. Almost all pastoralists and agro-pastoralists produced cattle (97.1%), while 99.3% produced goats, 87.1% produced sheep and only 38.8% of the study population produced poultry.

During the past ten years farmers have been good in timely vaccination of livestock (96.4%, n=139) and routine deworming (90.4%, n=139). However, few farmers have been practicing proper animal breeding (12.2%, n=139) and commercial livestock production practices (19.4%, n=139).

Table 9: Comparison between pastoralists and agro-pastoralists on Recommended extension improved practices.

Description	Pastoralist		Agro-pastoralist		Chi-square	
	n	Total	n	Total	$\chi^2$	p-value
Practicing controlled breeding	59	64	12	75	30.58	0.001
Practicing proper feeding	63	64	75	75	0.981	0.322
Practicing timely vaccination	60	64	74	75	2.122	0.145
Practicing deworming	55	64	71	75	2.487	0.115
Not practicing commercial livestock keeping	58	64	54	75	4.989	0.026
Practicing poultry keeping	23	64	31	75	0.091	0.763

Feeding animals is purely dependent on natural pasture with only 0.7% of farmers who have been practicing proper livestock feeding. Proper housing of livestock was not being used, (0.0%, n=139). Although responses on activities that had been practiced by farmers in the district differs between pastoralists and agro-pastoralists, their differences are not statistically significant except for practicing controlled breeding ( $\chi^2=30.58$ ,  $p=0.001$ ) and none commercial livestock keeping ( $\chi^2=4.989$ ,  $p=0.026$ ) (see Table 9).

Farmers have been practicing good farm preparation (66.7%, n=75). A small number of farmers have practiced planting using recommended plant spacing (20%, n=75). The use of improved seeds has been highly adopted by farmers in the study (90.7%, n=75). There was a low use of organic manure (5.3%). The use of inorganic fertilizers was poorly adopted by farmers in the study (1.3%, n=75). District farmers have conducted pest control during pest outbreaks in horticultural crops (41.3%, n=75). Few farmers have been conducting disease control (24%, n=75).

**Objective four: Factors that affect implementation of extension program recommended practices that address farmer priorities**

A number of factors have been pointed out as factors that affect extension program recommended practices that address farmers' priorities. These factors include lack of agricultural extension staff in most areas of the study population (77.7%, n=139), lack of means of transport to extension staffs (87.1%, n=139), available extension staffs are not motivated to working with farmers (69.1%, n=139) and frequency occurrence of disasters in the district (96.4%, n=139). Other factors are lack of participatory planning, (48.2%, n=139), lack of participatory implementation (54.7%, n=139) as well as poor involvement of farmers in carrying out evaluation of extension programs (61.2%, n=139). There was an unavailability of agricultural inputs (87.8%, n=139) and high prices of agricultural inputs in rural areas (96.4%, n=139). The presence of poor infrastructure such as roads, were among the negative factors in implementation of agricultural extension programs. Poor leadership has also been mentioned. One respondent said:

“Our village leaders have no time to discuss with farmers so that they can submit farmers problems to responsible authorities. Also leaders at ward, district up to national level devote no time for visiting farmers in attempts to identify and help farmers solve their problems.”

**Objective five: Demographic information**

Most heads of households in the study population were males (65.5%, n=139) and married (97.8%, n=139). Farmers were in the age between 21-35 years (34.5%, n=139) and 36-55 years (38.8%, n=139), (Table 10). A large number of farmers (head of households) in the study population had no formal education (43.9%, n=139) and those with only primary education comprised 46% of the total respondents. Farmers with secondary education and above comprised 10.1% (n=139) of the study population.

Table 10: Age of research participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 15 years	1	.7	.7	.7
15-20 years	6	4.3	4.3	5.0
21-35 years	48	34.5	34.5	39.6
36-55 years	54	38.8	38.8	78.4
Above 55 years	30	21.6	21.6	100.0
Total	139	100.0	100.0	

In general, illiterate farmers don't know where to access extension services followed by those with primary education, (Figure 1). However, almost all-secondary education completers and above had an awareness of where to access extension services.

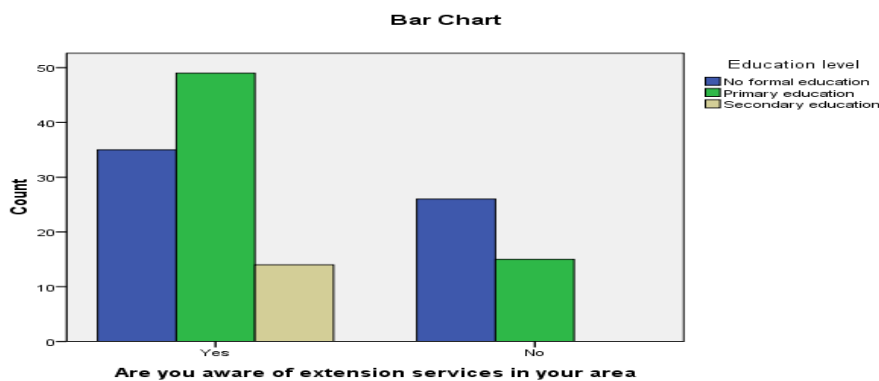


Figure 2: Awareness of extension services

Almost 71.9% of the study population had not received extension services in the year 2013/14. It was also found that of those farmers who received extension services, a large number were males rather than females (Table 11). Out of 139 respondents interviewed, 39 (28.1%) respondents received extension services. Of these 39 respondents, married respondents dominated the number of farmers who received extension services (98%, n=39) rather than singles (2%, n=39).



Table 11: Access of extension services by gender

		Gender		
		Male	Female	Total
How often have you received extension service during this year's cropping season?	Once in two to three weeks	9	2	11
	Once in every month or more	21	7	28
	None in this cropping season	61	39	100
Total		91	48	139

More farmers with an education level above primary education were satisfied with agricultural extension services (35.7%, n=14) than farmers with primary education and below (23.4%, n=64). Also large proportion of farmers with an education level above primary education believed that agricultural extension services have the ability to reduce poverty among farmers (85.7%, n=14) as compared to farmers with an education below primary education (52.5%, n=61). Demographically, the current study found that the differences that were observed between pastoralists and agro-pastoralists on percent of farmers who had no formal education ( $\chi^2=0.045$ ,  $p=0.831$ ), those with primary education ( $\chi^2=0.403$ ,  $p=0.526$ ) and farmers with secondary education and above ( $\chi^2=0.054$ ,  $p=0.816$ ) are not statistically significant (see Table 12).

Table 12: Demographic comparison between pastoralists and agro-pastoralists

Description	Pastoralist		Agro-pastoralist		Chi-square	
	Frequency	Total	Frequency	Total	$\chi^2$	p-value
Farmers with no formal education	29	64	32	75	0.045	0.831
Farmers with primary education	26	64	37	75	0.403	0.526
Have secondary education	9	64	6	75	0.054	0.816

## CHAPTER V: DISCUSSIONS

The purpose of this descriptive study explored how extension programs in Tanzania address farmers' needs. Objectives of this study were to identify the perception of farmers regarding extension program needs, identify priority farmers place on selected extension programs, identify types of recommended extension improved practices that has been implemented by district farmers during the past 10 years, identify the factors that affect implementation of extension program recommended practices that address farmer priorities, and identify selected demographic data and analyze comparisons among variables.

### **Perception of farmers regarding extension program needs**

It has been indicated by the current study that, "71.9% of the farmers in the study had not received extension services in study in the year 2013/14." This is consistent with the ASDP (2005) report that indicated, "60-75 percent of households in Tanzania were estimated to have had no contact with research and extension services" (p. 6). The number of farmers in the district that have not received extension services (71.9%) is toward the upper extreme of 60-75%, which is a Tanzania estimate. It has been observed by Sule (2008) that Ngorongoro district council is among the poorest in Tanzania in service delivery to its clientele. A lack of extension services for farmers indicates low use of research-based technology. Hence, as has been documented by Mwaseba (2005, p. 4), "Low use of research-based technologies is one of the reasons for low agricultural productivity." This means that the government has to increase the number of extension personnel, not only motivating them to work with farmers but also to ensure that these personnel are equipped with current extension skills and knowledge.

Extension programs needed by farmers will not be realized if there is a lack of good extension services. This may be the reason why most farmers in the study population (74.8%, n=139) believe that extension programs have not addressed their needs. It has been documented by Zakaria (2011) that, “It is the duty of the extension program to determine people’s needs and to help them to acquire knowledge that spurs or inspires them to action” (p 16). This means that all the efforts by the government and international donors to reduce poverty by 50% by 2015 will not easily be realized if necessary steps are not taken to ensure that extension services are improved and farmers’ needs are addressed, (ASDP, 2007).

There are two key development partners (NCAA & NDC) in Ngorongoro division. This is consistent with a TNF report that noted that in addition to NDC, NCAA has been given responsibilities basically to address farmers’ problems in the NCA (Ngorongoro division only), (TNRf Report, February, 2011). Where as the NDC has an obligation to address farmers’ problems in both divisions under their jurisdiction including Ngorongoro division, according to the Tanzania Local Government Act No. 6 of 1999, the current research revealed that NDC provides extension services below farmers’ satisfaction. This finding supports the finding reported by Sule (2008) as well as Snyder & Sulle (2011) who noted that “The district is among the poorest in Tanzania in the provision of social services,” (p 942).

The current study found that farmers in the study population believed that the agricultural extension services can contribute a lot in an attempt to reduce poverty among farmers (62.6%, N=139). This is coherent with different reports such as ASDP, (2007); Rweyemamu, (2003); Asfaw, Kassie, Simtowe, & Lipper, (2011), indicating that, the agriculture sector has a vital role in the Tanzanian farmers development. However, the

Ngorongoro people depending on pastoralism had received many challenges in the recent years. Snyder and Sule (2011) noted “Cultivation, which has been essentially for Maasai subsistence in the NCA, has been banned more than once throughout the NCA history, threatening Maasai livelihood security in the Ngorongoro division,” (p. 941). The current debate on the cause of climate change might be not far from the reason behind the shift of pastoralists to agro-pastoralists in Sale and Loliondo division. No matter what category of agriculture are currently suited to Ngorongoro farmers, agriculture will, for a long period of time be a crucial sector for the well being of district people. According to the ASDP (2005), reforms in public agricultural service that were built around demand-based agricultural technology had significance not only for productivity but also have positive poverty reduction output. How to ensure that extension programs have been developed to suit farmers’ demands is a challenge when farmers are not fully engaged in program planning, execution and evaluation. Planning under the ASDP theoretically aims at empowering local people (URT, 2006). This is different to the current finding from Ngorongoro division. Farmers in this division claim to have been marginalized particularly in development activities. This finding supports the finding by Snyder & Sulle (2011) who noted that “Masai in NCA get very few of the jobs at the lodges and other tourist attractions in the NCA and that most employees come from more distant areas,” (p. 942).

Although ASDS “stresses the importance of increasing the voice of farmers in local planning processes and in increasing their control in the design and implementation of investments” (ASDP, 2005, p.12) it was found that there was low farmer participation in the planning process (32.4%, n=139) and worse in evaluating extension programs (15.1%, n=139). This information supports reports by different scholars who found that,

“in most agricultural planning there is more theoretical farmer participation than practical” (Lema and Kapange, 2006; Cook and Kothali, 2001; Oakley, 1991). Walter (2008) found that “in dealing with agricultural extension programs the evidence suggests that the involvement of stakeholders in the development and implementation of DADPs is limited,” (p 25). This will lead to low ownership of extension programs by farmers and might be the cause of low understanding by farmers on whether extension programs had long or short term impact on farmers where by almost half of the agro-pastoralists (48%, N=75) don't know if extension programs have short or long term impacts as compared to the pastoralists (28.1% N=64).

#### **Priority farmers place on selected extension programs**

There is no written directive in the district regarding the ratio of investment among livestock, crops and other major economic activities. The current study shows that livestock extension programs are the first farmer preference (61.2%, n=139) and crops and related extension programs being the second preference (43.2%, n=139). This study supports research by Snyder and Sulle (2011), who indicated farming for Maasai has been undertaken as subsistence activities. Hogan (June, 2011) described further that “The Maasai are commonly identified for their livelihoods dependent on cattle, and, the Maasai belief system stipulates that God sent all cattle to the Maasai and that all of the world's cattle belong to the Maasai, and the Maasai live their semi-nomadic lifestyle,” (p. 3). It has been indicated in TNRF (2011) that, “Although pastoralism is the main form of land use and key to livelihoods in Loliondo, agriculture has been present in the area since at least the 1950s and that maize production was done on small plots was key to pastoralist food security as it complements diets based mainly on milk and butter,” (p. 9) For this case, although in the recent years, these pastoralists are being forced to modify their

mode of living, their accustomed living style of valuing livestock still exists. However, precautions should be taken so that development efforts for livestock are not in other ways benefiting wild animals more than domestic animals.

**Recommended extension improved practices that have been implemented by district farmers during the past 10 years**

The current study found the situation similar to what has been documented in the Tanzania Trends Report, (May, 2011, p 8). In this report it was indicated that, “Farmers in Tanzania receive government support in terms of farm inputs (industrial fertilizer, improved seeds, agro-chemicals and seedlings) through a voucher system.” The current study found that adoption of innovation has succeeded in the aspect of use of improved seeds for planting (90.7%, n=75) and good farm preparations (66.7%, n=75) and there is poor adoption of innovation in other agronomic practices including use of organic manure (5.3%, n=75) and inorganic fertilizers (1.3%, n=75) despite the provision of government agricultural input subsidies as written in the Tanzania Trends Report, (May, 2011, p.8). This raises an important question on why farmers had adopted the use of improved seeds but neglected the use of fertilizers. Ngorongoro farmers as good livestock keepers and have plenty of animal manure. The presence of high illiteracy has influenced the low use of these manures. It was noted that, most farmers in developing countries have below average educational levels relying on traditional agriculture, (Scialabba and Hattam, 2002). Development agents need to find how best these farmers make use of the available animal manure in the study population.

It was indicated in this study that, in the past ten years farmers were good in giving timely vaccinations of livestock (96.4%, n=139) and routine deworming (90.4%, n=139). Few farmers have been practicing proper animal breeding (12.2%, n=139) and

commercial livestock production (19.4%, n=139). Efforts need to be increased in assisting these farmers in adopting commercial livestock keeping.

### **Factors that affect implementation of extension programs**

The current study has found that farmer involvement in extension program planning, execution and evaluation is not appealing. This is consistent with Walter (2008) who found that “The conventional top-down approach still dominates, in which the public LGAs construct facilities, supply materials and show the farmers what to do,” (p 25). He noted that, “At the local level, districts do not have the necessary capacity to develop, plan and implement DADPs,” (p 25).

The challenges on the factors that affect agricultural extension such as a lack of agricultural extension staffs in most areas of the study population (77.7%, n=139), lack the means of transport to extension staffs (87.1%, n=139). Available extension staffs are not motivated to working with farmers (69.1%, n=139) and frequency occurrence of disasters in the district (96.4%, n=139) as revealed in this study need common effort in solving them.

According to Seevers and Graham (2012, 3<sup>rd</sup> eds), bringing development in the community requires the community to be viewed in a holistic manner. This means that there is a need to carefully incorporate multidisciplinary actions in addressing farmers’ problems. Seevers et al., (2007) urged that operating together within discipline areas allows numerous problems to be tackled more systematically and meet the wider needs of clientele being served. Increasing farmers’ participation in execution of agricultural extension programs while involving all other stakeholders in the development process can help to minimize the effect of problems that affect negatively on the implementation of extension programs in the district.

### **Demographic information**

Educated farmers form most of the innovators and early majority who are good adopters of innovations. Lapping (2005) pointed out that uneducated farmers tend to ignore the extension-based system. Demographically, in the study population, a large proportion of farmers with an education level above primary education believe that agricultural extension services had the ability to reduce poverty among farmers (85.7%, n=14) as compared to farmers with education below primary education (52.5%, n=61).

It was determined that heads of household in the study were males (65.5%, n=139). This finding is consistent with the FAO report (2010-11) which documents that “Women comprise 43 percent of the agricultural labor force in developing countries to almost 50 percent in Eastern and Southeastern Asia and sub-Saharan Africa” (p.22). At the same time, the current study found that provision of agricultural extension services were male biased (58.3%, N=139). This is consistent to what FAO (2011) reported on women in agriculture and documented that “females are likely to have less access extension services,” (p.8). But women form the main workforce in agricultural production in developing countries such as Tanzania as supported by URT (May, 2001). This report documents that “the agricultural labor supply with women contributes about 70 per cent” (p.9). A high numbers of farmers are in the age group between 21-35 years (34.5%, n=139) and 36-55 years (38.8%, n=139). This finding is consistent with the URT (May, 2001) report which documented that “The most active age group is that between 15 and 59 years accounting for about 89 per cent of the agricultural labor supply” (p.9).



## CHAPTER VI: SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

### 6.1. Summary

Agriculture is the leading industrial sector in Tanzania, providing a livelihood to 82% of its population, (URT, June, 2005). About 80% of its population depends on subsistence agriculture (Oreku, Mtenzi, and Ali, 2013) and 87% of the rural population live below the poverty level, marking the country 162 out of 177 countries in a 2004 United Nations Human Development report (ASDP, 2007, pg. 3). Several studies have indicated that the agriculture sector plays an important role in the Tanzanian economy and possesses the potential to advance the country's objectives of growth and poverty reduction (ASDP, 2007; Rweyemamu, 2003; Asfaw, Kassie, Simtowe, & Lipper, 2011). "Until it learns to grow its agriculture, Tanzania is unlikely to register significant developmental advances" (World Bank 2007, p 1). Extension services have been shown to be an important source of knowledge for farmer advancement, (Kaliba, Verkuijl and Mwangi, 2000; Abdulai And Huffman, 2005; Hartstone Knight and Riley, spring, 2006; Simpson and Owens, summer, 2002). Extension service methodologies and delivery mechanisms have little impact by themselves unless linked with farmers' production programs (NALERP, July, 2004).

The purpose of this descriptive survey was to explore the extension program needs of farmers in the Ngorongoro district of Tanzania. The objectives of this study were:

- 1) To identify the perception of farmers regarding extension program needs.
- 2) To identify the priority farmers place on selected Extension programs.

- 3) To identify types of recommended Extension improved practices that have been implemented by district farmers during the past 10 years.
- 4) To identify the factors that affect implementation of Extension program recommended practices that address farmer priorities.
- 5) To identify selected demographic data and analyze comparisons among variables.

This study was conducted using a descriptive survey research design in collecting and analyzing data. Questionnaires formed a tool for gathering information from 139 research participants randomly selected from Ngorongoro district under cluster sampling. Questionnaire preview and pretesting was done to determine its validity and reliability. Interviewers were used in direct data collection from research participants. Data collected was coded and analyzed using the Statistical Package for Social Sciences (SPSS), a computer program version 16.0.

In exploring perceptions of farmers regarding extension program needs, this study revealed that about 71.9% of the study population had not received agricultural extension services in the year 2013/14. The number of farmers who did not receive agricultural extension services is lower among pastoralists than the agro-pastoralists. Farmers believe that extension programs have not addressed their needs. Provisions of agricultural extension services were male biased. Farmers believe that agricultural extension services can contribute a lot in attempt to reduce poverty among farmers. There is no synergy among the main development actors in Ngorongoro division. Farmers believe that there is more farmer involvement in planning agricultural extension programs than in evaluating agricultural extension programs.

Under the priority farmers place on selected extension programs, this study found that livestock extension programs were highly valued by Ngorongoro district farmers,

followed by extension programs related to crops, environmental conservation and the least being non crop/livestock extension programs such as apiculture and aquaculture.

Further, this study shows there is lack of agricultural extension staff in most areas of the study population, lack of means of transport to extension staffs, available extension staffs are not motivated to working with farmers, frequency occurrence of disasters in the district and lack of farmer involvement in planning, implementation and evaluation of extension programs.

Demographically, farmers in Ngorongoro district are in the age between 21-35 years and 36-55 years. Almost half of farmers had no formal education while about 10.1% had above primary education. A large proportion of farmers with education level above primary education believed that agricultural extension services have ability to reduce poverty among farmers as compared to farmers with education below primary education. More males received extension services as compared to females in the year 2013/14 in Ngorongoro district.

## **6.2. Conclusions**

There has been little effort in conducting research related to the effectiveness of agricultural extension services toward addressing farmers' needs in the Ngorongoro district. Until there is genuine involvement of farmers in all stages of program planning, execution and evaluation, farmers' priority problems will not be addressed. In order to fulfill farmers' needs, there is a need to consider their priorities as revealed in this study. It is difficult to eliminate factors that negatively affect implementation of agricultural extension programs but there is a need to find how to minimize their effect.

The confidence farmers have toward the ability of agricultural extension programs in addressing their needs has to be maintained if extension personnel are committed in helping farmers move forward economically, socially and politically. The government as well as other development actors ought to strengthen their efforts in areas deemed to increase effort after thorough analysis of related scientific and current reports. The current procedure of ensuring farmers are involved in the implementation of agricultural extension programs are theoretically effective but it seems practically have minimal degree of ensuring farmers' needs are really addressed in the Ngorongoro district.

A number of concerns have been raised by Ngorongoro division farmers with regard to degree of collaboration between NCAA and NDC in serving them. There is a need for NDC and NCAA to have synergy in addressing their clientele. The claims by farmers in the Ngorongoro division that their mode of life (pastoralism) has disadvantaged natives in the employment market in the Ngorongoro division, NCAA in particular, has to be taken into account if we are to help these people help themselves through effective use of available resources.

The current national effort in improving agriculture in Tanzania under the slogan of KILIMO KWANZA and Big Result Now (BRN) still has many challenges such as lack of extension personnel, and their related effort that requires practical implementation if we are to achieve MDGs and Tanzania Vision 2025. The extension system in Tanzania has to be given priority as in developed countries in Europe and America where agricultural development was achieved through a well-developed agricultural extension system, (Thomas, Lucas, and Hangula, 2010). The results of this study are consistent with Leyaro, and Morrissey, (April, 2013, p.3) who urge "after 50 years of independence, despite apparent commitment to policies and strategies to transform the agriculture

sector, performance in agricultural output and productivity has been disappointing.” There is no way we can advance in agriculture if farmers’ needs are not well explored and addressed in agricultural extension programs in the Ngorongoro district.

### **6.3. Implications**

The main purpose of this study was to explore how extension programs in Tanzania addresses farmers’ needs. This study addressed five objectives namely, perception of farmers regarding extension program needs, priority farmers place on selected extension programs, types of recommended extension improved practices that has been implemented by district farmers during the past 10 years, factors that affect implementation of extension program recommended practices that address farmer priorities, and demographic information of the study population.

Based on the findings of this research, the first implication is that, farmers have awareness of where they can access extension services. Although few farmers contacted extension personnel in the year 2013/14, a large number of them believe that extension programs are tools for poverty alleviation. This implies that the government and development agency have room to assist these farmers in dealing with of Millennium Development Challenges.

The second implication is that, farmers in Ngorongoro district had not been adequately involved in implementation of agricultural programs. This may result into poor ownership of implemented extension programs by farmers leading into poor attainment of desired impact. This study shows degree of farmers participation in execution of extension programs decreases from planning to evaluation. Development actors need to address this fort fall for better serving farmers in the Ngorongoro district.

The third implication is that, the pastoralists and agro-pastoralists in the district provide more value in livestock programs among others. This reinforces the accustomed behavior of implementing more livestock project than crops. Development actors in the district should strengthen investment of livestock programs but taking into consideration challenges that are currently affecting livestock subsector in the district. Several farmers' program preferences have been revealed in this study. Interesting findings among others is that farmers express more value in bee keeping but aquaculture is not preferred among non-crop/livestock agricultural programs. This implies that bee keeping can substitute cereal projects in addressing environment issues but efforts have to be exerted in developing interests by district farmers for fish keeping projects which are a good source of protein and environment friendly when compared to production of legumes and livestock such as cattle.

With regard to recommended extension improved practices that have been implemented by district farmers during the past 10 years, this study shows that the government efforts of increasing farming productivity through the use of inorganic fertilizer among others has not been adopted by Ngorongoro district farmers. Neither inorganic fertilizer available in the district under agri-input government subsidies nor the cheaply available livestock manures had been in use by district farmers. The adoption of the use of improved seeds is encouraging but development actors in the district need to help district farmers adopt the use of manures in production. If adult farmers are reluctant in adopting these innovations, different approaches to extensions have to be adopted including introduction of 4-H in the district.

Farmers in the district as part of overwhelming increasing world's population have not been served well by agricultural extension program. Lack of extension

personnel, lack of infrastructures and poor synergy between NDC and NCAA among other factors that affect implementation of extension program in the district as revealed in this study are worth considering. Geographically, this district is marginalized, relatively not considered seriously by qualified extension. This implies that the district has to be viewed using magnifying lenses.

Demographically, findings from this study imply presence of a high percentage of male farming households than female farming households. It should be noted that FAO report (2010-11) indicates, “Women comprise 43 percent of the agricultural labor force in developing countries to almost 50 percent in Eastern and Southeastern Asia and sub-Saharan Africa” (p.22) but they are the main agricultural producers. These females have relative less advantage in achieving education opportunities and economically disadvantaged. This means development actors in the district have to put in mind gender issues in addressing district development programs.

#### **6.4. Recommendation and further research**

Due to lack of extension personnel in the district as well as a shortage of means of transport and related shortages, the government and development actors in the Ngorongoro district should strengthen the farmer-to-farmer agricultural extension system. Introduction of the 4-H (Head, Heart, Hands, and Health) program in the district by Tanzania government is important because youth will be prepared to be future farmers and have ability to influence their parents in their way of farming. The Tanzanian government and development partners have to find how this idea of 4-H can best be accommodated in our current extension programs. Based on the US experience, we can refer to National 4-H Headquarters (2012) where by ‘The vision of 4-H is to have a world

in which youth and adults, learn, grow and work together as a catalysts for positive change; with a mission of empowering youth to reach their full potential, working and learning in partnership with caring adults; the motto of 4-H is to make the best better with the slogan of “learn by doing.”

### **6.5. Further research**

This study revealed a number of areas that require more research. These include:

1. Farmers in the study population particularly in Ngorongoro division claim that there is less collaboration between NCAA and NDC in addressing farmers’ problem. Research needs to be done by a development agency in the district to see the validity of this claim.
2. Farmers claim that they are being marginalized in participating in employment opportunities in the NCAA and that this contributes significantly to a lack of development in the area. Research needs to be conducted by extension professionals to determine what can be done about this situation.
3. This study revealed that farmers in the district, particularly pastoralists, have the least interest in extension programs related to fish keeping to the extent that some showed that such programs should not be introduced in their area. Further research should be done by extension professionals to explore information about fish keeping by pastoralists in the Ngorongoro district.
4. There is a need to explore the effect of transformation of pastoralists to agro-pastoralists on gender issues in the district.



## REFERENCES

- Abdulai, A., And Huffman, W.E., (2005). The Diffusion Of New Agricultural Technologies: The Case Of Crossbred-Cow Technology In Tanzania, *American Agricultural Economics Association Amer. J. Agr. Econ.* 87(3) (August 2005): 645–659
- Agricultural Sector Development Program (ASDP) (June, 2007), Appraisal Report - Phase I - (Sector Development Budget Support), Agriculture And Agro-Industry Department OSAN, United Republic Of Tanzania
- Agricultural Sector Development Program (ASDP), (June, 2007) Appraisal Report - Phase I - (Sector Development Budget Support), Agriculture And Agro-Industry Department OSAN, United Republic Of Tanzania
- Agricultural Sector Development Programme (ASDP), (2005) *Support Through Basket Fund* Government Programme Document, Dar es Salaam, Tanzania
- Agricultural Sector Development Programme (ASDP), (May 2006), *Support Through Basket Fund*, Government Programme Document, Dar es Salaam, Tanzania
- Aillery, M., Gollehon, N., Ribaud, M., Breneman, V., and Agapoff, J., (2003), *Modeling Multi-Farm Spatial Interdependence using National Data Coverages: A Regional Application to Manure Management*, Paper presented at 2003 Western Agricultural Economics Association annual meeting, Denver, Colorado, July 13-16, 2003.
- Aman H. K. R., (2005). Making Agriculture Impact On Poverty In Tanzania: The Case On Non-Traditional Export Crops, *Paper Presented at a Policy Dialogue for Accelerating Growth and Poverty Reduction in Tanzania, Held at ESRF, Dar es Salaam, 12th May 2005.*
- Ary D., Jacobs, L.C., and Razavieh, A., (2002). *Introduction to Research in Education* (6<sup>th</sup> ed), Belmont, C: A Wadsworth.
- Ary, D., Jacobs L. C., & Sorensen C., (2010). *Introduction to research in education*, (8th edition); Wadsworth Cengage Learning: Belmont, CA.
- Asfaw S., Kassie M., Simtowe F., & Lipper L., (2011). Poverty Reduction Effects of Agricultural Technology Adoption: A Micro-evidence from Rural Tanzania, *Journal of Development Studies*, Vol. 48, No. 9, 1288–1305, September 2012
- Beintema N., (June 2011), *A Benchmark Of Agricultural Research Investment And Capacity Trends Across Asareca Countries*, ASTI Background Note. Washington, DC: International Food Policy Research Institute.
- Bolton, R. N., (1993). "Pretesting Questionnaires: Content Analyses of Respondents' Concurrent Verbal Protocols," *Marketing Science*, 12 (3), 1993, 280-303.

- Bolton, R.N., and Bronkhorst, T.M., (1995). "Questionnaire Pretesting: Computer Assisted Coding of Concurrent Protocols," in *Answering Questions*, Norbert Schwarz and Seymour Sudman (eds.), San Francisco: Jossey-Bass Publishers, 37-64.
- Boone J.E., (1985). *Developing Programs in Adult Education*, Prentice hall, Inc., Englewood Cliffs, N.J. 07632, p 12.
- Burns, R., and Burns, R., (2008). *Business Research methods and Statistics using SPSS*; SAGE Publications Ltd 1 Oliver's Yard 55 City road London EC1Y 1SP
- Cambridge Dictionaries Online at  
<http://dictionary.cambridge.org/dictionary/british/peasant> accessed on 08/07/2014
- Chapman, R., and Tripp, R., (July, 2003). Changing Incentives For Agricultural Extension A Review of Privatised Extension In Practice: *Agricultural Research and Extension Network Paper No. 132*, The Overseas Development Institute, 111 Westminster Bridge Road, London SE1 7JD, UK.
- Cook, B., and Kothali, U., (editor, 2001). *Participation: the New Tyranny?* Zed Book Ltd, Cynthia Street, London NI 9JF, and Room 400, 175 Fifth avenue, New York, NY10010, USA.
- Davies, R., and Dart, J., (April, 2004). *The 'Most Significant Change' (MSC) Technique A Guide to Its Use*: 82 Bishops Rd, Trumpington, Cambridge CB2 2NH United Kingdom
- Dixon, J., Gulliver, A., and Gibbon, D., (eds.) (2001). *Farming System and Poverty*, Food and Agriculture, Rome
- Douglass M., and Sicilima N., (1997). A Comparative Study Of Farmers' Participation In Two Agricultural Extension Approaches In Tanzania, *Journal of International Agricultural and Extension Education* Spring, 1997
- Engle C.R., and Stone, N.M., (1989). *Aquaculture Development And Coordination Programme, A Review Of Extension Methodologies In Aquaculture*, United Nations Development Programme, Food And Agriculture Organization Of The United Nations, Rome, 1989
- EU SCAR (2012). *Agricultural knowledge and innovation systems in transition – a reflection paper*, Brussels.
- FAO, (2010-11), *The state of food and Agriculture; Women In Agriculture Closing the gender gap for development*, Rome, Italy
- FAO, (2013). *Underpinning Investments in African Agriculture and trade-related Capacities for improved Market Access: A Continental Vision*, Comprehensive

Africa Agriculture Development Programme, FAO corporate Document Repository

FAO, (November, 1996). *World Declaration on Food Security*, World Food Summit, 13-17, November 1996, Rome Italy.

Ferroni M., and Zhou Z., (June, 2011). *Review Of Agricultural Extension In India*, Syngenta Foundation For Sustainable Agriculture, India

Glendenning, J.C., Babu, S., and Asenso-Okyere, K., (2010). *Are Farmers' Information Needs Being Met? Review of Agricultural Extension in India*, IFPRI Discussion Paper 01048 December 2010, Eastern and Southern Africa Regional Office

Greeley M. Brown, M., Amani H.K.R., and Mashindano O., (October 2006), *Global Donor Platform on Rural Development on sector-wide approaches for agriculture and rural development: The Agriculture Sector Development Program (ASDP)-Tanzania*

Gwatkin, R. D., (December, 2002). *Who Would Gain Most From Efforts To Reach The Millennium Development Goals For Health? An Inquiry Into The Possibility Of Progress That Fails To Reach The Poor* The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington, DC 20433

Hartstone, L.C., Knight, J., and Riley, J.J., (spring, 2006). Water in Tanzania: A Role for Extension1, *Journal of International Agricultural and Extension Education*, 13(1)

Hogan K., (June 2011) *The Expansion of Ecotourism in Tanzania and its Implications for the Maasai* Presented in partial fulfillment of the requirements for graduation with honors research distinction in International Studies in the undergraduate colleges of the Ohio State University, Honors Research Thesis, The Ohio State University

Kaliba, A.R.M., (2002). *Participatory Evaluation Of Community-Based Water And Sanitation Programs: The Case Of Central Tanzania* A Dissertation Submitted In Partial Fulfillment Of The Requirements For The Degree Doctor Of Philosophy Department Of Agricultural Economics College Of Agriculture Kansas State University Manhattan, Kansas 2002

Kaliba, A.R.M., Verkuijl, H., and Mwangi, W., (2000). Factors Affecting Adoption of Improved Maize Seeds and Use of Inorganic Fertilizer for Maize Production in the Intermediate and Lowland Zones of Tanzania, *Journal of Agricultural and Applied Economics*, 32,1 (April 2000):35-47 @ 2000 Southern Agricultural Economics Association

- Karugia J., (Coordinator), (May, 2011), *Trends and outlook report on key agriculture and rural development indicators in Tanzania*, Regional Strategic Analysis and Knowledge Support System, East and Central Africa (ReSAKSS-ECA) P.O. Box 30709-00100 Nairobi KENYA
- Kibwana, O.T., Mitiku H., vanVeldhuizen L., & Waters-Bayer A., (2001), Clapping with two hands: Bringing together local and outside knowledge for innovation in land husbandry in Tanzania and Ethiopia - a comparative case study, *The Journal of Agricultural Education and Extension*, 7:3, 133-142
- Kimaro, W.H., Mukandiwa, L., and Mario E.Z.J., (2010, eds). *Towards Improving Agricultural Extension Service Delivery in the SADC Region*, Proceedings of the Workshop on Information Sharing among Extension Players in the SADC Region, 26-28 July 2010, Dar es Salaam, Tanzania.
- Klerkx, L., and Jansen, J., (2010). Building knowledge systems for sustainable agriculture: supporting private advisors to adequately address sustainable farm management in regular service contacts: Communication and Innovation Studies, *International Journal Of Agricultural Sustainability*: 8(3) 2010 PAGES 148–163, doi: 10.3763/ijas.2009.0457 # 2010 Earthscan. ISSN: 1473-5903 (print), 1747-762X, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands
- Klerkx, L., van Mierlo B., and Leeuwis C., (2012). *Evolution of systems approaches to agricultural innovation: concepts, analysis and interventions*: Communication and Innovation Studies, Wageningen University, Wageningen, The Netherlands e in books written by I. Darnhofer, D. Gibbon, and B. Dedieu (eds.), *Farming Systems Research 457 into the 21st Century: The New Dynamic*, DOI 10.1007/978-94-007-4503-2\_20, © Springer Science+Business Media Dordrecht 2012
- Lapping, M.B., (2005). *Contributing to the well-being of small towns and rural communities*, The Northeast Regional Center for Rural Development Located at: The Pennsylvania State University 7 Armsby Building, University Park, PA 16802-5602 Phone: 814-863-4656 FAX: 814-863-0586 E-mail: nerocrd@psu.edu URL: <http://www.cas.nerocrd.psu.edu>
- Lele, U., (Jan., 1976). Designing Rural Development Programs: Lessons from past Experience in Africa, *Chicago Journal*, The University of Chicago Press, at <http://www.jstor.org/stable/1153115>. Accessed: 22/03/2013 21:34

- Lema, M.N., and Kapange, B. W., (2006). *Farmers' organizations and agricultural innovation in Tanzania; The sector policy for real farmer empowerment* Bull374 17-05-2006 10:30 Pagina 72 at [http://www.kit.nl/net/KIT\\_Publicaties\\_output/ShowFile2.aspx?e=912](http://www.kit.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=912) accessed on 3 Oreku, G.S., Mtenzi, F.J and Ali, A (2013). *A Viewpoint of Tanzania E-Commerce and Implementation Barriers*, ComSIS, 10(1); Doi: 2298/CSIS1107250020
- Leyaro, V., and Morrissey, O., (April, 2013), *Expanding Agricultural Production In Tanzania: Scoping Study For IGC Tanzania On The National Panel Surveys*, University of Dar-es-Salaam and University of Nottingham
- Lindsay F. and Douglas F. (Spring, 1997) *Institutional Arrangements In Agricultural Education, Extension, And Research: Lessons For International Development*, *Journal of International Agricultural and Extension Education* Vol. 4(1)
- Martin, E., Childs, J.H., DeMaio, T., Hill J., Reiser, C., Gerber, E., Styles, K., and Dillman, D., (2007). *Guidelines for Designing Questionnaires for Administration in Different Modes* U.S. Census Bureau, Washington, DC 20233
- Muyanga, M., and Jayne, T.S., (2006), *Agricultural Extension In Kenya: Practice And Policy Lessons: Tegemeo Working paper 26/2006*, Tegemeo Institute of Agricultural Policy and Development, Egerton University, Nairobi, Kenya
- Mwaseba, D.L., (2005). *Impact of Agricultural Research: A Study of On-Farm Development Effects of Agricultural Research in Southern Highlands and Eastern Zones of Tanzania*, *Doctoral Thesis Development Studies*, Department of International Environment and Development Studies (Noragric) P.O. Box 5003, N-1432, Ås, Norway
- National 4-H Headquarter (2012), *4-H Professional Research, Knowledge and Competencies*, Study retrieved from [www.national4-Hheadquarters.gov/library/document](http://www.national4-Hheadquarters.gov/library/document)
- NBS, (March, 2013). *Tanzania 2012 Population And Housing Census Population Distribution by Administrative Areas*, National Bureau of Statistics Ministry of Finance, Dar es Salaam
- Oakley, P., (1991), *Projects With People: The Practice of Participation*, ILO, CH-1211, Geneva, Switzerland.
- Participatory Agricultural Development and Empowerment Project (PADEP), (February, 2003). *Resettlement Policy Framework* World-bank/Government Of Tanzania PADEP

- Radhakrishn, R.B., (2007). Tips for Developing and Testing Questionnaires/Instruments; *Extension Journal*, Inc. February 2007 / Volume 45/Number 1 // Tools of the Trade // 1TOT2 ISSN 1077-5315.
- Reis, H.T., and Judd, C.M., (editor, 2000), *Handbook of Research Methods in Social and Personality Psychology*, Press Syndicate of University of Cambridge, The Pitt Building, Trumpington Street, Cambridge, UK
- Renwick, S., (April 21, 2009). *Potential for Use of Information and Communication Technologies (ICTs) in Agricultural Extension*: Paper submitted for AGEX 6003 – Trends and Emerging Issues in Extension, Department of Agricultural Economics and Extension Faculty of Science and Agriculture The University of the West Indies St. Augustine, Trinidad and Tobago
- Rivera, W., and Qamar K., (2003), *Agricultural Extension, Rural Development And The Food Security Challenge*, Food And Agriculture Organization Of The United Nations Rome,
- Rutatora, D.F., and Mattee, A.Z., (2001). Major Agricultural Extension Providers In Tanzania, *African Study Monographs*, 22(4): 155-173, December 2001 155
- Rweyemamu, D., (2003), *Reforms In The Agricultural Sector: The Tanzanian Experience*, Research Report Submitted To GDN Under The “Global Development Award Competition 2003” Theme – Agricultural Reforms And Rural Development In Lics Economic And Social Research Foundation 51 Uporoto Street P.O.Box 31226 Dar Es Salaam Tanzania
- Sachs, J.D., (2005). *The Millennium Project: a plan for meeting the Millennium Development Goals*, The UN Millennium Project, 314 Low Library, 535 West 116th Street, New York, NY 10027, USA jeffrey.sachs@unmillenniumproject.org
- Scialabba, N.E., and Hattam, C., (2002, eds). *Organic agriculture, environment and food security*, Environment and Natural Resources Service Sustainable Development Department, Food And Agriculture Organization Of The United Nations, Rome.
- Seevers, B., and Graham D., (2012, 3<sup>rd</sup> eds), *Education Through cooperative Education*, Fayetteville, AR: University of Arkansas.
- Simpson, M.B., and Owens, M., (summer, 2002). Schools and the Future of Agricultural Extension in Africa, *Journal of International Agricultural and Extension Education* Volume 9, Number 2 Farmer Field
- Snyder K.A., & Sulle E.B., (2011): Tourism in Maasai communities: a chance to improve livelihoods? *Journal of Sustainable Tourism*, 19:8, 935-951

- Sule E., (2008), Wildlife-based revenue transparency performance in Longido and Simanjiro districts, HAKIKAZI CATALYST REPORT accessed at <http://www.hakikazi.org/papers/wildlife-base-revenue.pdf> on May, 14<sup>th</sup> 2014.
- Swanson, B.E., Bentz, R.P., and Sonfronko, A.J., (1997, editor). *Improving agricultural extension: a reference manual*, Information Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00100 Rome, Italy.
- Tanzania national website, at <http://www.tanzania.go.tz/agriculture.html> accessed on Jan, 20<sup>th</sup> 2013.
- Thomas, B., Lucas, L.M., and Hangula, M.M., (2010). Government Intervention Programmes Through Extension to Improve Agricultural Research and Extension services in Communal Areas of Namibia: A Review in Edited by: Kimaro W.H, Mukandiwa L and Mario E.Z.J, editors, (26 – 28 July 2010) *Towards Improving Agricultural Extension Service Delivery in the SADC Region* Proceedings of the Workshop on Information Sharing among Extension Players in the SADC Region, Dar es Salaam, Tanzania
- URT (May, 2001), *Agricultural Sector Development Strategy*, Dar es Salaam, Tanzania
- URT, (June, 2005). *National Strategy For Growth And Reduction Of Poverty (NSGRP)* Vice-President's Office June 2005
- Waddington, H., Snilstveit, B., White, H., and Anderson, A.J., (2010). *The Impact of Agricultural Extension Services*, 3ie Synthetic Reviews – SR00 9 at [www.3ieimpact.org/media/filer/2012/05/07/009%20Protocol.pdf](http://www.3ieimpact.org/media/filer/2012/05/07/009%20Protocol.pdf) accessed on 06/28/2013
- Walter D. (2008), *Tanzania: The Challenge Of Moving From Subsistence To Profit* at [www.oecd.org/ dev/publications/businessfordevelopment](http://www.oecd.org/dev/publications/businessfordevelopment) accessed on April, 21<sup>st</sup>, 2013
- Warren, D. M., (1991), *Using Indigenous Knowledge in Agricultural Development*; World Bank Discussion Paper No.127, Washington, D.C.: The World Bank.
- Website at Wikipedia <http://en.wikipedia.org/wiki/Aquaculture> accessed on 08/07/2014
- Website at <http://www.caadp.net/pdf> accessed on 08/07/2014
- Website at <http://www.thefreedictionary.com/apiculture> accessed on 08/07/2014
- Website <http://www.yourdictionary.com/pastoralist> accessed on 08/07/2014

- WHO, (2011), *WHO Guidelines On Transfer Of Technology In Pharmaceutical Manufacturing*, Technical Report Series, No. 961, 2011
- World Bank Report on ASDP at [http://www.pmoralg.go.tz/menu-data/programmes/ASDP/pdf/TZ\\_ASDP\\_PCN.pdf](http://www.pmoralg.go.tz/menu-data/programmes/ASDP/pdf/TZ_ASDP_PCN.pdf) accessed on Jan, 24<sup>th</sup> 2013.
- World Bank, (2007). *Cultivating Knowledge and Skills to Grow African Agriculture A Synthesis of an Institutional, Regional, and International Review*, The World Bank Agriculture And Rural Development Department Africa Region Human Development Department, The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington, DC 20433 Telephone 202-473-1000
- World Bank, (2012). *Tanzania Economic Update, Stairways to Heaven, Fiscal Prudence, Value for Money in Education, Economic Transformation of Firms*, The World Bank Poverty Reduction and Economic Management Unit Africa Region, The World Bank.
- Zakaria, H., (2011). *Introduction to Agricultural Extension, ARG 102 course guide, Lecture note at AER 102*, University For Development Studies Faculty Of Agriculture Department Of Agricultural Extension, Rural Development And Gender Studies at [http://academia.edu/1363062/ARG\\_102\\_INTRODUCTION\\_TO\\_AGRICULTURAL\\_EXTENSION](http://academia.edu/1363062/ARG_102_INTRODUCTION_TO_AGRICULTURAL_EXTENSION) accessed on 06/26/2013
- Zegge, K.B., (1972). *Agricultural Development Policy and Planning in Tanzania, 1969-1974, A Critical Analysis*, A Research Paper Under Plan B Submitted To Michigan State University In Partial Fulfillment Of The Requirement For The Master Degree MASTER OF SCIENCE In Department Of Agricultural Economics; Michigan State University 0/23/2013



**APPENDICES**

**APPENDIX 1: QUESTIONNAIRE**

IOWA STATE UNIVERSITY

KABURA PHILIP THESES PROPOSAL

Extension Program Needs of Farmers In Tanzania: A Descriptive Study.

Farmer’s questionnaire

Questionnaire number ..... Name of village .....

1.0. The perception of farmers regarding extension program need

1.1. Are you aware of presence of extension services in your area

\_\_\_ (a) Yes

\_\_\_ (b) No

1.2. If yes, what is extension services provider contacted you last year?

\_\_\_ (a) From the government

\_\_\_ (b) From non-governmental organizations (NGOs)

\_\_\_ (c) Both the government and NGOs

\_\_\_ (d) Others, (specify) .....

1.3. If NGOs provided extension services to you last year, please list them

.....  
.....  
.....  
.....  
.....

1.4. How often have you received extension service during this year's cropping season?

- \_\_\_ (a) At least once every week
- \_\_\_ (b) Once in two to three weeks
- \_\_\_ (c) About once in every in every months or more
- \_\_\_ (d) None in this cropping season

1.5. Perception of farmers with regard to extension services in addressing farmer' needs

		Strongly agree	Agree	Disagree	Strongly Disagree	Don't know
1	Extension programs in this area have addressed farmer's needs					
2	Extension programs has short term impact					
3	Extension programs are male gender biased					
4	Extension programs are livestock biased					
5	Extension programs contribute a lot in reducing poverty among farmers					

2.0. The priority farmers place on selected Extension programs

2.1. Of the following extension programs, which one do you prefer the most

(Rank from 1 to 5, 1 being the highest preference and 5 the least preferred)

- \_\_\_ (a) Crops and related extension programs
- \_\_\_ (b) Livestock and related extension programs
- \_\_\_ (c) Environmental control extension programs
- \_\_\_ (d) Non-farm/livestock extension programs

\_\_\_\_ (e) Others (specify) .....

2.2. Of the following crops and related extension programs, which one do you prefer the most (Rank from 1 to 6, 1 being the highest preference and 6 the least preferred).

\_\_\_\_ (a) Cereals

\_\_\_\_ (b) Legumes

\_\_\_\_ (c) Vegetables

\_\_\_\_ (d) Fruits

\_\_\_\_ (e) Root crops

\_\_\_\_ (f) Others (specify).....

2.3. Of the following livestock extension programs, which one do you prefer most (Rank from 1 to 6, 1 being the highest preference and 6 the least preferred)

\_\_\_\_ (a) Vaccination against diseases

\_\_\_\_ (b) Deworming

\_\_\_\_ (c) Dipping

\_\_\_\_ (d) Proper feeding

\_\_\_\_ (e) Livestock marketing

\_\_\_\_ (f) Others (specify).....

2.4. Of the following non-farm/livestock Extension programs, which one do you prefer most (Rank from 1 to 5, 1 being the highest preference and 5 the least preferred)

\_\_\_\_ (a) Aquaculture

\_\_\_\_ (b) Bee keeping

- \_\_\_ (c) Traditional crafts
- \_\_\_ (d) Entrepreneurship
- \_\_\_ (e) Others (specify).....

2.5. Of the following Extension programs, what category of extension services do you prefer most? Rank from 1 to 9, 1 being the most preferred and 9 being the least preferred

- \_\_\_ (a) Educational extension services
- \_\_\_ (b) Building agricultural infrastructures
- \_\_\_ (c) Providing loan to farmers in group
- \_\_\_ (d) Providing agricultural inputs subsidies
- \_\_\_ (e) Building livestock infrastructures
- \_\_\_ (f) Providing loan to livestock keepers in group
- \_\_\_ (g) Providing livestock inputs subsidies
- \_\_\_ (h) Providing farmers with improved production facilities such as tractors
- \_\_\_ (i) Others, (specify) .....

3.0. Extension program recommended Extension improved practices that have been implemented by district farmers during the past 10 years

3.1. Of the following list of topics, which Extension program improved practices in agronomy have you practiced in the last ten years (Check all that apply).

- \_\_\_ (a) Good farm preparation
- \_\_\_ (b) Use of improved seeds
- \_\_\_ (c) Use of recommended plant spacing
- \_\_\_ (d) Organic manure application

- \_\_\_ (e) Fertilizer application
- \_\_\_ (f) Pest control
- \_\_\_ (g) Disease control
- \_\_\_ (h) Environmental conservation (e.g. Afforestation, terracing).
- \_\_\_ (i) Others (specify) .....

3.2. Of the following list of topics, which Extension program improved practices in animal husbandry have you practiced in the last ten years (Check all that apply)

- \_\_\_ (a) Controlled breeding
- \_\_\_ (b) Proper feeding
- \_\_\_ (c) Timely vaccination
- \_\_\_ (d) Routine deworming
- \_\_\_ (e) Proper housing
- \_\_\_ (f) Commercial livestock keeping
- \_\_\_ (g) Others (specify) .....

3.3 Are there any other needs you have as a farmer that extension programs might address? Please list

.....

.....

.....

.....

4.0. Factors that affect implementation of Extension program recommended practices that address farmer priorities

4.1. Please, indicate whether strongly agree, agree, disagree, strongly disagree or don't know to the following statements with regard to factors affecting implementation of Extension program recommended practices that address farmer priorities

		Strongly agree	Agree	Disagree	Strongly Disagree	Don't know
1	Lack of extension staff in my area					
2	Extension staff has no means of transport					
3	Extension staff in my area is not motivated					
4	Extension programs are not participative in planning					
5	Extension programs are not participative in implementation					
6	Extension programs are not participative in evaluation					
7	Low investment in extension programs					
8	Lack of agricultural input in my area					
9	High price of agricultural input in my area					
10	Frequent occurrence of climatic disasters in my area					

4.2. Please list the factors affecting the implementation of Extension program recommended practices that address farmer priorities (List in the order of importance, (a), the greatest and (e), being the least)

- (a) .....
- (b) .....
- (c) .....
- (d) .....
- (e) .....

## 5.0. Demographic data

## 5.1. Select production activities that apply to you

- (a) Grow crops only
- (b) Produce livestock only
- (c) Grow crops and produce livestock
- (d) Others (specify) .....

## 5.2. If grow crops, which crop do you grow (Check all that apply)

- (a) Maize
- (b) Beans
- (c) Sorghum
- (d) Cassava
- (e) Fruits
- (f) Others (specify) .....

## 5.3. How many acres of land do you own?

- (a) Less than 2 acres
- (b) 2-5 acres
- (c) 6-10 acres
- (d) More than 10 acres
- (e) None

5.4. If you own land, usually how many acres of maize do you grow?

- (a) Less than 2 acres
- (b) 2-5 acres
- (c) 6-10 acres
- (d) More than 10 acres
- (e) None

5.5. Under good weather condition, what is the average yield of maize per acre over the past five years in bags of 100kg

- (a) less than 5 bags
- (b) 5-10 bags
- (c) 11-15 bags
- (d) 16-20 bags
- (e) More than 20 bags (specify) .....

5.6. If you produce livestock, what type of livestock do you produce? (Check all that apply)

- (a) Cattle
- (b) Goats
- (c) Sheep
- (d) Chickens
- (e) Others (specify) .....

5.7. Gender

- (a) Male
- (b) Female



## 5.8. Marital status

- (a) Married
- (b) Single
- (c) Divorced
- (d) Widow
- (e) Others (specify)

## 5.9. Age

- (a) Below 15 years
- (b) 15-20 years
- (c) 21-35 years
- (d) 36-55 years
- (e) Above 55 years

## 5.10. Highest education level

- (a) No formal education
- (b) Primary education
- (c) Secondary education
- (d) Others (specify) .....

**APPENDIX 2: TRANSLATED QUESTIONNAIRE (SWAHILI)**

**CHUO KIKUU CHA JIMBO LA IOWA**

Utafiti juu ya Mahitaji ya Programu ya Huduma za Ugani kwa Wakulima/Wafugaji

Tanzania

Dodoso la Mkulima

Namba ya dodoso ..... Jina la Kijiji ..... Muda wa kuanza .....

1.1. Je unaelewa kuwa kuna huduma za ugani katika eneo lako? (Weka alama panapohusika)

..... (a) Ndiyo

..... (b) Hapana

1.2. Kama jibu ni ndiyo, nani watoa huduma za ugani waliokufikia mwaka jana?

(Chagua kati ya wafuatao)

..... (a) Kutoka serikalini

..... (b) Kutoka mashirika yasiyo ya kiserikali (NGOs)

..... (c) Kutoka serikalini na mashirika yasiyo ya kerikali (NGOs)

..... (d) Wengineo (taja), .....

1.3. Kama NGOs walikupatia huduma za ugani, taja hizo NGOs.

.....  
.....  
.....  
.....

1.4. Je ulikuwa unapata huduma za ugani kila baada ya muda gani katika msimu wa kilimo wa mwaka huu 2012/2013?

- ..... (a) Angalau mara moja kila wiki
- ..... (b) Mara moja katika wiki mbili hadi tatu
- ..... (c) Kama mara moja kwa mwezi au zaidi
- ..... (d) Sikupata huduma yoyote ya ugani msimu huu wa kilimo

1.5. Miradi ya ugani katika eneo hili imezingatia mahitaji ya wakulima/wafugaji

- ..... (a) Nakubaliana sana
- ..... (b) Nakubaliana
- ..... (c) Sikubaliani
- ..... (d) Sikubaliani kabisa
- ..... (e) Sijui

1.6. Huduma za ugani zinachangia katika kupunguza umasikini wa wakulima

- ..... (a) Nakubaliana sana
- ..... (b) Nakubaliana
- ..... (c) Sikubaliani
- ..... (d) Sikubaliani kabisa
- ..... (e) Sijui

2.1. Kati ya miradi ya ugani ifuatayo, ipi unayopendelea zaidi (ipange kuanzia (a) hadi (e), (a) inawakilisha mradi unaopenda zaidi na (e) mradi usioupendelea)

- ..... (a) Miradi inayolenga mazao ya kilimo
- ..... (b) Miradi inayolenga mifugo
- ..... (c) Miradi inayolenga mazingira
- ..... (d) Miradi isiyolenga kilimo wala mifugo

..... (e) Miradi mingineyo (taja) .....

2.2. Kati ya miradi ya ugani inayohusiana na mazao ya kilimo, miradi ipi unayopendelea zaidi? (ipange kuanzia (a) hadi (f), (a) inawakilisha mradi unaopenda zaidi na (f) mradi usioupendelea)

..... (a) Miradi inayolenga mazao ya nafaka

..... (b) Miradi inayolenga mikunde

..... (c) Miradi inayolenga uzalishaji wa mboga

..... (d) Miradi inayolenga uzalishaji wa matunda

..... (e) Miradi inayolenga mazao ya mizizi

..... (f) Miradi mingineyo (taja) .....

2.3. Kati ya miradi ya ugani inayohusiana na ufugaji, miradi ipi unayopendelea zaidi? (ipange kuanzia (a) hadi (f), (a) inawakilisha mradi unaopenda zaidi na (f) mradi usioupendelea)

..... (a) Miradi inayolenga chanjo dhidi ya magonjwa

..... (b) Miradi inayolenga kutoa dawa za minyoo

..... (c) Miradi inayolenga kuogesha mifugo

..... (d) Miradi inayolenga lishe ya mifugo

..... (e) Miradi inayolenga masoko ya mifugo

..... (f) Miradi mingineyo (taja) .....

2.4. Kati ya miradi ya ugani inayohusiana na miradi isiyo ya kilimo wala mifugo, miradi ipi unayopendelea zaidi? (ipange kuanzia (a) hadi (e), (a) inawakilisha mradi unaopenda zaidi na (e) mradi usioupendelea)

..... (a) Miradi inayolenga ufugaji wa samaki

..... (b) Miradi inayolenga ufugaji wa nyuki

- ..... (c) Miradi inayolenga shughuli za utamaduni
- ..... (d) Miradi inayolenga ujasiliamali
- ..... (e) Miradi mingineyo (taja) .....

2.5. Kati ya miradi ifuatayo ya ugani, lipi kundi la huduma za ugani unayopendelea zaidi? (ipange kuanzia (a) hadi (i), (a) inawakilisha mradi unaopenda zaidi na (i) mradi usioupendelea)

- ..... (a) Kutoa elimu kwa wakulima/wafugaji
- ..... (b) Kujenga miundo mbinu ya kilimo
- ..... (c) Kutoa mikopo kwa wakulima katika vikundi
- ..... (d) Kutoa ruzuku ya pembejeo za kilimo
- ..... (e) Kujenga miundo mbinu ya ufugaji
- ..... (f) Kutoa mikopo kwa wafugaji katika vikundi
- ..... (g) Kutoa ruzuku ya pembejeo za mifugo
- ..... (h) Kuwapatia wakulima zana za kisasa za kuzalishia kama matrekta
- ..... (i) Miradi mingineyo (taja) .....

3.1. Kati ya mbinu zifuatazo za kanuni ya kilimo bora, ni kanuni zipi umezitemia katika miaka kumi iliyopita? (Chagua kanuni zote ulizotumia)

- ..... (a) Uandaaji bora wa shamba
- ..... (b) Matumizi ya mbegu bora
- ..... (c) Upandaji kwa nafasi zinazishauriwa kitalamu
- ..... (d) Matumizi ya samadi
- ..... (e) Uwekaji wa mbolea
- ..... (f) Kuthibiti visumbufu
- ..... (g) Kudhibiti magonjwa

..... (h) Hifadhi ya mazingira (mfano, upandaji miti, makinga maji).

..... (i) Kanuni zinginezo (taja) .....

3.2. Kati ya mbinu zifuatazo za kanuni ya ufugaji bora, ni kanuni zipi umezitumia katika miaka kumi iliyopita? (Chagua kanuni zote ulizotumia)

..... (a) Uzaaji bora wa mifugo

..... (b) Ulishaji bora wa mifugo

..... (c) Kuchanja kwa wakati

..... (d) Utoaji sahihi wa dawa za minyoo

..... (e) Matumizi ya nyumba bora za mifugo

..... (f) Ufugaji wa kibiashara

..... (g) Kudhibiti magonjwa

..... (h) Kanuni zinginezo (taja) .....

3.3 Je, kuna mahitaji mengine uliyonayo kama mkulima/mfugaji ambayo hayajapatiwa ufumbuzi ambayo ungependa miradi ya ugani ishughulikie? Tafadhali taja.

.....

.....

.....

.....

.....

4.1. Tafadhali taja vitu vinavyokwamisha utekelezaji wa miradi bora ambayo ni chaguo la wakulima na wafugaji (taja kwa umuhimu, (a) ikiwa na muhimu zaidi na (e) ikiwa na umuhimu mdogo)

(a) .....

(b) .....

(c) .....

(d) .....

(e) .....

5.1. Chagua shughuli uifanyayo

\_\_\_ (a) Kulima tu

\_\_\_ (b) Kufuga tu

\_\_\_ (c) Kulima na kufuga

\_\_\_ (d) Shughuli nyingine (taja) .....

5.2. Kama ni mkulima, unalima mazao gani (chagua mazao unayolima)

\_\_\_ (a) Mahindi

\_\_\_ (b) Maharage

\_\_\_ (c) Mtama

\_\_\_ (d) Muhogo

\_\_\_ (e) Matunda

\_\_\_ (f) Mazao mengine (taja) .....

5.3. Je, unamiliki eka ngapi?

\_\_\_ (a) Chini ya eka 2

\_\_\_ (b) Eka 2-5

\_\_\_ (c) Eka 6-10

\_\_\_ (d) Zadi ya eka 10

\_\_\_ (e) Hakuna

5.4. Kama unamiliki ardhi, kwa kawaida huwa unapanda mahindi katika eka ngapi?

\_\_\_ (a) Chini ya eka 2

\_\_\_ (b) Eka 2-5

\_\_\_ (c) Eka 6-10

\_\_\_ (d) Zaidi ya 10

\_\_\_ (e) Hakuna

5.5 Kunapokuwa na msimu mzuri, katika miaka mitano iliyopita umekuwa ukivuna magunia ya kilo 100 mangapi ya mahindi kwa eka?

\_\_\_ (a) Chini ya gunia 5

\_\_\_ (b) Gunia 5-10

\_\_\_ (c) Gunia 11-15

\_\_\_ (d) Gunia 16-20

\_\_\_ (e) Zaidi ya gunia 20 (taja) .....

5.6 Kama unafuga, unafuga mifugo gani? Chagua yote inayohusika na idadi yake

\_\_\_ (a) Ng'ombe -idadi .....

\_\_\_ (b) Mbuzi -idadi .....

\_\_\_ (c) Kondoo -idadi .....

\_\_\_ (d) Kuku -idadi .....

\_\_\_ (e) Mifugo mingine (taja) .....-idadi .....

5.7 Jinsia

\_\_\_ (a) Mwanaume

\_\_\_ (b) Mwanamke

5.8 Hali ya ndoa

\_\_\_ (a) Ameoa/Ameolewa

\_\_\_ (b) Hajaoa/olewa

\_\_\_ (c) Talaka



- \_\_\_ (d) Mjane
- \_\_\_ (e) Nyingine (taja)

### 5.9 Umri

- \_\_\_ (a) Chini ya miaka 15
- \_\_\_ (b) Miaka 15-20
- \_\_\_ (c) Miaka 21-35
- \_\_\_ (d) Miaka 36-55
- \_\_\_ (e) Zaidi ya miaka 55

### 5.10 Kiwango cha elimu ulichonacho

- \_\_\_ (a) Hakupata elimu rasmi
- \_\_\_ (b) Elimu ya msingi
- \_\_\_ (c) Elimu ya sekondari
- \_\_\_ (d) Elimu nyingine (taja) .....

Muda wa kumaliza ..... Tarehe ..... Mtahini ..... (herufi)

## APPENDIX 4: INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

Institutional Review Board  
Office for Responsible Research  
Vice President for Research  
1138 Pearson Hall  
Ames, Iowa 50011-2207  
515 294-4566  
FAX 515 294-4267

**Date:** 6/27/2013

**To:** Kabura James Philip  
111 Lynn Ave, 306  
Ames, IA 50010

**CC:** Dr. Robert Martin  
201 Curtiss Hall

**From:** Office for Responsible Research

**Title:** The Extent Current Extension Programs in Tanzania Address the Priority Need of Reducing Poverty Among Farmers in Tanzania: A Descriptive Survey Research

**IRB ID:** 13-300

**Study Review Date:** 6/27/2013

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.
- (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects.

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.

**INSTITUTIONAL REVIEW BOARD (IRB)  
Exempt Study Review Form**

Title of Project: The Extent Current Extension Programs In Tanzania Address The Priority Need Of Reducing Poverty Among Farmers In Tanzania: A Descriptive Survey Research.

Principal Investigator (PI): <b>Kabura James Philip</b>		Degrees: MSc in Agriculture Extension Education
University ID: <b>289582293</b>	Phone: 5154512017	Email Address: kjphilip@iastate.edu
Correspondence Address: 111 Lynn Ave 306 Ames IA		
Department: Agricultural Education and Studies		College/Center/Institute: College of Agriculture and Life Sciences
PI Level: <input type="checkbox"/> Tenured, Tenure-Eligible, & NTER Faculty <input type="checkbox"/> Adjunct/Affiliate Faculty <input type="checkbox"/> Collaborator Faculty <input type="checkbox"/> Emeritus Faculty <input type="checkbox"/> Visiting Faculty/Scientist <input type="checkbox"/> Senior Lecturer/Clinician <input type="checkbox"/> Lecturer/Clinician, w/Ph.D. or DVM <input type="checkbox"/> P&S Employee, P37 & above <input type="checkbox"/> Extension to Families/Youth Specialist <input type="checkbox"/> Field Specialist III <input type="checkbox"/> Postdoctoral Associate <input checked="" type="checkbox"/> Graduate/Undergrad Student <input type="checkbox"/> Other (specify: )		

RECEIVED  
JUN 18 2013  
BY IRB

**FOR STUDENT PROJECTS** (Required when the principal investigator is a student)

Name of Major Professor/Supervising Faculty: Dr. Robert Martin

University ID: 045521366	Phone: 5152940896	Email Address: drmartin@iastate.edu
Campus Address: 201 Curtis Hall, Ames, IA 50011-1050		Department: Agriculture Education and Studies
Type of Project: (check all that apply) <input checked="" type="checkbox"/> Thesis/Dissertation <input type="checkbox"/> Class Project <input type="checkbox"/> Other (specify: )		

Alternate Contact Person:	Email Address:
Correspondence Address:	Phone:

**ASSURANCE**

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies. Misrepresentation of the research described in this or any other IRB application may constitute non-compliance with federal regulations and/or academic misconduct.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are protected. I will report any problems to the IRB. See Reporting Adverse Events and Unanticipated Problems for details.
- I agree that modifications to the approved project will not take place without prior review and approval by the IRB.
- I agree that the research will not take place without the receipt of permission from any cooperating institutions, when applicable.
- I agree to obtain approval from other appropriate committees as needed for this project, such as the IACUC (if the research includes animals), the IBC (if the research involves biohazards), the Radiation Safety Committee (if the research involves x-rays or other radiation producing devices or procedures), etc.
- I understand that approval of this project does not grant access to any facilities, materials or data on which this research may depend. Such access must be granted by the unit with the relevant custodial authority.
- I agree that all activities will be performed in accordance with all applicable federal, state, local, and Iowa State University policies.

Kabura James Philip      06/14/2013  
Signature of Principal Investigator      Date

Robert A. Martin      6-14-13  
Signature of Major Professor/Supervising Faculty      Date  
(Required when the principal investigator is a student)

- I have reviewed this application and determined that departmental requirements are met, the investigator(s) has/have adequate resources to conduct the research, and the research design is scientifically sound and has scientific merit.

W Wade Miller      6/14/13  
Signature of Department Chair      Date

<b>For IRB</b>	<input type="checkbox"/> Not Research Per Federal Regulations	<input type="checkbox"/> No Human Participants	Review Date: <u>June 27, 2013</u>
----------------	---	--	-----------------------------------

Use Only	<input checked="" type="checkbox"/> Minimal Risk	EXEMPT Per 45 CFR 46.101(b): 2.4
IRB Reviewer's Signature	<i>RokuBapp</i>	4/27/13

**Exempt Study Information**

Please provide Yes or No answers, except as specified. Incomplete forms will be returned without review.

Part A: Key Personnel

List all members and relevant qualifications of the project personnel. Key personnel includes the principal investigator, co-principal investigators, supervising faculty member, and any other individuals who will have contact with the participants or the participants' data (e.g., interviewers, transcribers, coders, etc.). This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project. For more information, please see [Human Subjects - Persons Required to Obtain IRB Training](#).

NAME	Interpersonal contact or communication with subjects, or access to private identifiable data?	Involved in the consent process?	Contact with human blood, specimens, or other biohazardous materials?	Other Roles in Research	Qualifications (i.e., special training, degrees, certifications, coursework, etc.)	Human Subjects Training Date
✓ Dr. Robert Martin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	supervise	Ph.D	07/20/2000
✓ Kabura James Philip	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Interviewing, data analysis and report writing.	Bachelor of Science	02/02/2013
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Please complete additional pages of key personnel as necessary.

PART B: FUNDING INFORMATION AND CONFLICTS OF INTEREST

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>1. Is or will the project be externally funded?</b>
If <i>No</i> , skip to question 8.	
If <i>Yes</i> , please identify the type(s) of source(s) from which the project is directly funded.	
<input checked="" type="checkbox"/> Federal agency <input type="checkbox"/> State/local government agency <input type="checkbox"/> University or School <input type="checkbox"/> Foundation <input type="checkbox"/> Other Non-Profit Institution <input type="checkbox"/> For-Profit Business <input type="checkbox"/> Other; specify: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>2. Is ISU considered to be the Lead or Prime awardee for this project?</b>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>3. Are there or will there be any subcontracts issued to others for this project?</b>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>4. Is or will this project be funded by a subcontract issued by another entity?</b>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>5. If ISU is the recipient of the subcontract, does it involve any federal funding, such as federal flow-through funds?</b>
<b>6. If this project will be externally funded, please provide the complete name(s) of the funding source(s); please do not use acronyms. If any subcontracts will be issued to others, please describe and include a list of all entities.</b>	
<i>Ohio State University</i> United States Agency for International Development (USAID) and Innovative Agricultural Research Initiative (iAGRI)	
<input checked="" type="checkbox"/> Attached	<b>7. Please attach a <u>complete and final copy</u> of the entire grant proposal or contract from which the project is or will be funded.</b>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>8. Do or will any of the investigators or key personnel listed on this application have a conflict of interest management plan in place with the Office of the Vice President for Research &amp; Economic Development?</b>

Part C: General Overview

<b>Please provide a brief summary of the purpose of your study:</b>
To explore the extent current extension programs in Tanzania address the priority need of reducing poverty among farmers.



<b>Please provide a brief summary of your research design:</b>
The research design will be descriptive survey of collection of data from farmers and extension staffs using a questionnaire and a checklist.

Part D: Exemption Categories

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>1. Are you conducting research on Educational Practices (e.g., instructional techniques, curriculum effectiveness, etc.)? If Yes, please answer questions 1a through 1e. If No, please proceed to question 2.</b>
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1a.</b> Will the research be conducted in an established or commonly accepted educational setting, such as a classroom, school, professional development seminar, etc.?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1b.</b> Will the research be conducted in any settings that would <b>not</b> generally be considered to be established or commonly accepted educational settings? If Yes, please specify: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1c.</b> Will the research procedures and activities involve normal educational practices (e.g., activities that normally occur in the educational setting)? Examples include research on regular or special education instructional strategies or the effectiveness of instructional techniques, curricula, or classroom management methods.
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1d.</b> Will the research procedures include anything <b>other than</b> normal educational practices? If Yes, please specify: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1e.</b> Will the procedures include randomization into different treatments or conditions, radically new instructional strategies, or deception of subjects? If Yes, please specify: _____

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>2. Does your research involve use of educational tests, survey procedures, interview procedures, or observations of public behavior? If Yes, please answer questions 2a through 2c. If No, please proceed to question 3.</b>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>2a.</b> Will the research involve one or more of the following? (Check all that apply.)
	<input type="checkbox"/> The use of educational tests (cognitive, diagnostic, aptitude, achievement) <input checked="" type="checkbox"/> Surveying or interviewing adults <input type="checkbox"/> Observations of public behavior* of adults <input type="checkbox"/> Observations of public behavior* of children, when the researcher will not interact or intervene with the children

\*Note: Activities occurring in the workplace and school classrooms are not generally considered to involve public behavior.

- Yes  No 2b. Are all of the participants elected or appointed public officials or candidates for public office?

Yes  No 3. Does the research involve the collection or study of *currently existing* data, documents, records, pathological specimens, or diagnostic specimens? If Yes, please answer questions 3a through 3c. If No, please proceed to question 4.

- Yes  No 3a. Are all of the data, documents, records, or specimens publicly available?

- Yes  No 3c. Will the data you record for your study include ID codes? If Yes, please answer 3ci and 3cii.

- Yes  No 3ci. Does a "key" exist linking the ID codes to the identities of the individuals to whom the data pertains?

- Yes  No 3cii. Will any persons on the research team have access to this key?

Yes  No 4. Does your research involve Taste and Food Quality tests and Consumer Acceptance Studies involving food? If Yes, please answer questions 4a through 4c. If No, please proceed to question 5.

- Yes  No 4a. Is the food to be consumed normally considered wholesome, such as one would find in a typical grocery store?

- Yes  No 4b. If the food contains additives, are the additives at or below the level normally considered to be safe by the FDA, EPA or Food Safety and Inspection Service of USDA? Consider additives in commercially available foods found at a grocery store and/or any additives that are added to food for research purposes.

- Yes  No 4c. If there are agricultural chemicals or environmental contaminants in the food, are they at or below the level found to be safe by the FDA, EPA or Food Safety and Inspection Service of USDA?

Yes  No 5. Is your study a research or demonstration project to examine

- Federal public benefit or service programs such as Medicaid, unemployment, social security, etc.; or
- Procedures for obtaining benefits or service under these programs; or
- Possible changes in or alternatives to those programs or procedures; or
- Possible changes in methods or levels of payment for benefits or services under these programs?



<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>5a.</b> If Yes, is the research or demonstration project pursuant to specific federal statutory authority?
--	---

**Part E: Additional Information**

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>6.</b> Does your research involve any procedures that do not fit into one or more of the categories in items #1–#5 listed above, such as the following? (Check all that apply.)
	<input type="checkbox"/> Usability testing of websites, software, devices, etc. <input type="checkbox"/> Collection of information from private records when identifiers are recorded <input type="checkbox"/> Procedures conducted to induce stress, moods, or other psychological or physiological reactions <input type="checkbox"/> Presentation of materials typically considered to be offensive, threatening, or degrading <input type="checkbox"/> Video recording or photographing non-public behaviors <input type="checkbox"/> Use of deception (e.g., misleading participants about the procedures or purpose of the study) <input type="checkbox"/> Physical interventions, such as <ul style="list-style-type: none"> <li><input type="checkbox"/> blood draws</li> <li><input type="checkbox"/> new collection of biological specimens</li> <li><input type="checkbox"/> use of physical sensors (ECG, EKG, EEG, ultrasound, etc.)</li> <li><input type="checkbox"/> exercise, muscular strength assessment, flexibility testing</li> <li><input type="checkbox"/> body composition assessment</li> <li><input type="checkbox"/> measuring of height and weight</li> <li><input type="checkbox"/> x-rays</li> <li><input type="checkbox"/> changes in diet or exercise</li> </ul> <input type="checkbox"/> Tests of sensory acuity (i.e., vision or hearing tests, olfactory tests, etc.) <input type="checkbox"/> Consumption of food (other than as described in #4) or dietary supplements <input type="checkbox"/> Clinical studies of drugs or medical devices <input type="checkbox"/> Other; please specify: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>6a.</b> If Yes, is your research conducted in an established educational setting, and are the checked procedures part of normal educational practices given that setting? If Yes, please describe: _____

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>7.</b> Do you intend or is it likely that your study will include any persons from the following populations? (Check all that apply.)
	<input type="checkbox"/> Prisoners <input type="checkbox"/> Cognitively impaired

Children (persons under age 18)  
 Wards of the State  
 Persons who are institutionalized

7 a. If Yes, please describe how they will be involved and what procedures they will complete:  
 \_\_\_\_\_

Yes     No    8. Will any of the following identifiers be *linked to the data* at any time point during the research? (Check all that apply.)

Names:     First Name Only     Last Name Only     First and Last Name  
 Phone/fax numbers  
 ID codes that can be linked to the identity of the participant (e.g., student IDs, medical record numbers, account numbers, study-specific codes, etc.)  
 Addresses (email or physical)  
 Social security numbers  
 Exact dates of birth  
 IP addresses  
 Photographs or video recordings  
 Other; please specify: approximate age

Yes     No    9. Is there a reasonable possibility that participants' identities could be ascertained from any combination of information in the data? If Yes, please describe: \_\_\_\_\_

10. If Yes to *either* #8 or #9 above, please answer the following:

Yes     No    10a. Will participants' identities be kept confidential when results of the research are disseminated?

Yes     No    10b. Could any of the information collected, if disclosed outside of the research, reasonably place the subjects at risk of any of the following? (Check all that apply.)

Criminal liability  
 Civil liability  
 Damage to the subjects' financial standing  
 Damage to the subjects' employability  
 Damage to the subjects' reputation

Yes     No    10c. Does the research, directly or indirectly, involve or result in the collection of any information regarding any of the following? (Check all that apply.)

Use of illicit drugs  
 Criminal activity  
 Child, spousal, or familiar abuse  
 Mental illness  
 Episodes of clinical depression  
 Suicidal thoughts or suicide attempts  
 Health history  
 History of job losses  
 Exact household income other than in general ranges  
 Negative opinions about one's supervisor, workplace, teacher, or others to whom the subject is in a subordinate position  
 Opinions about race, gender, sexual orientation, or any other socially sensitive or

- controversial topics
- Sexual preferences or behaviors
  - Religious beliefs
  - Any other information that is generally considered to be private or sensitive given the setting of your research; if so, please specify: \_\_\_\_\_

After completion of Parts A, B, and C of this application, please send the completed form to:

Institutional Review Board (IRB)  
Office for Responsible Research  
1138 Pearson Hall  
Ames, IA 50011-2200

*Data collection materials (e.g., survey instruments, interview questions, recruitment and consent documents, etc.) do not need to be submitted with this application.*

If you have any questions or feedback, please contact the IRB office at [IRB@iastate.edu](mailto:IRB@iastate.edu) or 515-294-4566.

KF A# USAID-IANZANIA-11-003-RFA  
 Collaborative Research and Capacity Building of Sokoine University of  
 Agriculture and the National Agricultural Research System  
 The Ohio State University  
 Iowa Subaward - Effective Aug. 01, 2011 - Aug. 2013

OSU/USAID TOTAL  
 \$182,298

ISU COST SHARE TOTAL  
 \$ 2,580.24

Budget Item ID	Unit Cost, \$	Unit	YR 1 Units	0 MS Year 1 \$	YR 2 Units	2 MS, 1 PhD Year 2 \$	Total
<b>a. Personnel</b>							
Ag Educ/Ext.: David Acker @ 2% USAID/0.5% ISU	\$ 203,800	YR	2.00%	4,076.00		-	4,076.00
Agronomist: Mark Westgate @ 2% USAID/0.5% ISU	\$ 109,950	YR	2.00%	2,199.00		-	2,199.00
MS Stipend-USA training (Aug 2012 - Aug 2013)	\$ 24,000	YR		-	2	48,000.00	48,000.00
PhD Stipend-USA training (Aug 2012 - Aug 2013)	\$ 24,000	YR		-	1	24,000.00	24,000.00
<b>Total Personnel</b>				<b>6,275.00</b>		<b>72,000.00</b>	<b>78,275.00</b>
<b>b. Fringe Benefits</b>							
Ag Educ/Ext.: David Acker @ 2% USAID/0.5% ISU	29.0%	percent		1,182.00		-	1,182.00
Agronomist: Mark Westgate @ 2% USAID/0.5% ISU	29.0%	percent		638.00		-	638.00
MS Stipend-USA training (Aug 2012 - Aug 2013)	12.9%	percent		-		6,192.00	6,192.00
PhD Stipend-USA training (Aug 2012 - Aug 2013)	12.9%	percent		-		3,096.00	3,096.00
<b>Total Fringe Benefits</b>				<b>1,820.00</b>		<b>9,288.00</b>	<b>11,108.00</b>
<b>c. Travel</b>							
Roundtrip airfare: DSM to Tanzania @ \$2200/ea	\$ 2,200	trip	2	4,400.00		-	4,400.00
Lodging/Meal per diem @ \$200 day x 15 days x 2 faculty	\$ 3,000	trip	2	6,000.00		-	6,000.00
Emergency medical evacuation coverage @ \$250/person	\$ 250	trip	2	500.00		-	500.00
Ground transportation @ \$200/ea	\$ 200	trip	2	400.00		-	400.00
<b>Total Travel</b>				<b>11,300.00</b>		-	<b>11,300.00</b>
<b>d. Tuition</b>							
MS - Resident rates (\$4,395/semester + \$2,570 for 1/2 su	\$ 11,360	YR		-	2	22,720.00	22,720.00
PhD - Resident rates (\$4,395/semester + \$2,570 for 1/2 su	\$ 11,360	YR		-	1	11,360.00	11,360.00
<b>Total Construction Charges</b>				-		<b>34,080.00</b>	<b>34,080.00</b>
<b>e. Other Direct Costs</b>							
Student Books/Supplies/Computer (*increased to \$2K YR	\$ 2,000	lot		-	3	6,000.00	6,000.00
Student Settling Allowance (15 days @ \$150)	\$ 2,250	lot		-	3	6,750.00	6,750.00
Return Baggage fee for students returning to TZ	\$ 300	lot		-	2	600.00	600.00
HAC Insurance (\$100 mo*12 months)	\$ 1,200	lot		-	3	3,600.00	3,600.00
<b>Total Other Direct Costs</b>				-		<b>16,950.00</b>	<b>16,950.00</b>
<b>f. Total Direct Cost</b>							
MTDC (-tuition, equipment, subawards)				19,395.00		132,318.00	151,713.00
				19,395.00		98,238.00	117,633.00
<b>g. Indirect Cost</b>							
	26%	Percent		5,043.00		25,542.00	30,585.00
<b>h. Total</b>							
				<b>24,438.00</b>		<b>157,860.00</b>	<b>182,298.00</b>

Draft 05/07/12

Iowa

\$52,746

**MS Degree Per Student Expense on USAID TZ Project for YEAR 2**  
**Academic Year: Aug. 2012 - July 2013**

Budget Item ID	Unit Cost, \$	Unit	Units	Total
<b>a. Personnel</b>				
Stipend, MS Student (USA training /YR, Aug-Jul 2013)	\$ 24,000	year	1	24,000.00
<b>Total Personnel</b>				<b>24,000.00</b>
<b>b. Fringe Benefits (% rate)</b>				
Stipend, MS Student (USA training /YR, Aug-Jul 2013)	12.9%	percent	1	3,096.00
<b>Total Fringe Benefits</b>				<b>3,096.00</b>
<b>c. Tuition - Resident Rates</b>				
MS student - Resident rates @ \$4,395/semester	\$ 4,395	semester	2	8,790.00
MS student - 1/2 summer semester @ 2,570	\$ 2,570	semester	1	2,570.00
<b>Total Tuition Charges</b>				<b>11,360.00</b>
<b>d. Other Direct Costs</b>				
Student Books/Supplies	\$ 2,000	lot	1	2,000.00
Student Settling Allowance (15 days @ \$150)	\$ 2,250	lot	1	2,250.00
Return Baggage fee for long term students	\$ 300	lot	1	300.00
HAC/Health insurance (\$100 mo*12 months)	\$ 1,200	lot	1	1,200.00
<b>Total Other Direct Costs</b>				<b>5,750.00</b>
<b>e. Total Direct Cost</b>				<b>44,206.00</b>
MTDC (-tuition, equipment, first \$25K subawards)				32,846.00
<b>f. Indirect Cost</b>				
				26%
				Percent
				8,540.00
<b>g. Total</b>				<b>52,746.00</b>

\*1/2 summer semester = 5 credits

\*\*Note: please do not change expenses in "Other Direct Costs" columns as these are fixed amounts per student.

Research Subaward Agreement Amendment		
Prime Recipient	Subrecipient	
Institution/Organization ("Prime Recipient")  Name: The Ohio State University Address: Office of Sponsored Programs 1960 Kenny Road Columbus, Ohio 43210	Institution/Organization ("Subrecipient")  Name: Iowa State University Address: Sponsored Programs Administration 1138 Pearson Hall Ames, IA 50011-1050	
Prime Award No. 621-A-00-11-00009-00	Subaward No. 60030090	Principal Investigator David Acker
Effective Date of Amendment 7/1/2012	Amendment No. 2	
<b>Amendment(s) to Original Terms and Conditions</b>		
<b>Subaward Performance Period:</b>  Original Award Period: 8/1/2011 – 2/29/2012 Modification No. 1 Period: 8/1/2011 – 9/30/2015 Modification No. 2 No Change		
<b>Amount Funded this Action:</b>  Original Funding: \$ 24,438.00 Modification No. 1 Funding is increased by: \$ 0.00 Modification No. 2 Funding is increased by: \$157,860.00  Cumulative amount not to exceed: \$182,298.00		
All other terms and conditions of this Subaward Agreement remain in full force and effect.		
By an Authorized Official of Prime Recipient:  _____  Name _____ Date _____ Title _____		By an Authorized Official of Subrecipient:  _____  Name _____ Date _____ Title _____

**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

Institutional Review Board  
Office for Responsible Research  
Vice President for Research  
1138 Pearson Hall  
Ames, Iowa 50011-2207  
515 294-4566  
FAX 515 294-4267

**Date:** 6/27/2013

**To:** Kabura James Philip  
111 Lynn Ave, 306  
Ames, IA 50010

**CC:** Dr. Robert Martin  
201 Curtiss Hall

**From:** Office for Responsible Research

**Title:** The Extent Current Extension Programs in Tanzania Address the Priority Need of Reducing Poverty Among Farmers in Tanzania: A Descriptive Survey Research

**IRB ID:** 13-300

**Study Review Date:** 6/27/2013

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.
- (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects.

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 permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or [IRB@iastate.edu](mailto:IRB@iastate.edu).



IRB ID: 13-300

**INSTITUTIONAL REVIEW BOARD (IRB)  
Exempt Study Review Form**

Title of Project: The Extent Current Extension Programs In Tanzania Address The Priority Need Of Reducing Poverty Among Farmers In Tanzania: A Descriptive Survey Research.

Principal Investigator (PI): <b>Kabura James Philip</b>		Degrees: <u>MSc in Agriculture Extension Education</u>
University ID: <b>289582293</b>	Phone: <u>5154512017</u>	Email Address: <u>kjphilip@iastate.edu</u>
Correspondence Address: <u>111 Lynn Ave 306 Ames IA</u>		
Department: <u>Agricultural Education and Studies</u>		College/Center/Institute: <u>College of Agriculture and Life Sciences</u>
PI Level: <input type="checkbox"/> Tenured, Tenure-Eligible, & NTER Faculty <input type="checkbox"/> Adjunct/Affiliate Faculty <input type="checkbox"/> Collaborator Faculty <input type="checkbox"/> Emeritus Faculty <input type="checkbox"/> Visiting Faculty/Scientist <input type="checkbox"/> Senior Lecturer/Clinician <input type="checkbox"/> Lecturer/Clinician, w/Ph.D. or DVM <input type="checkbox"/> P&S Employee, P37 & above <input type="checkbox"/> Extension to Families/Youth Specialist <input type="checkbox"/> Field Specialist III <input type="checkbox"/> Postdoctoral Associate <input checked="" type="checkbox"/> Graduate/Undergrad Student <input type="checkbox"/> Other (specify: )		

RECEIVED  
JUN 18 2013  
BY IRB

**FOR STUDENT PROJECTS** (Required when the principal investigator is a student)

Name of Major Professor/Supervising Faculty: Dr. Robert Martin

University ID: <u>045521366</u>	Phone: <u>5152940896</u>	Email Address: <u>drmartin@iastate.edu</u>
Campus Address: <u>201 Curtis Hall, Ames, IA 50011-1050</u>		Department: <u>Agriculture Education and Studies</u>
Type of Project: (check all that apply) <input checked="" type="checkbox"/> Thesis/Dissertation <input type="checkbox"/> Class Project <input type="checkbox"/> Other (specify: )		

Alternate Contact Person:	Email Address:
Correspondence Address:	Phone:

**ASSURANCE**

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies. Misrepresentation of the research described in this or any other IRB application may constitute non-compliance with federal regulations and/or academic misconduct.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are protected. I will report any problems to the IRB. See Reporting Adverse Events and Unanticipated Problems for details.
- I agree that modifications to the approved project will not take place without prior review and approval by the IRB.
- I agree that the research will not take place without the receipt of permission from any cooperating institutions, when applicable.
- I agree to obtain approval from other appropriate committees as needed for this project, such as the IACUC (if the research includes animals), the IBC (if the research involves biohazards), the Radiation Safety Committee (if the research involves x-rays or other radiation producing devices or procedures), etc.
- I understand that approval of this project does not grant access to any facilities, materials or data on which this research may depend. Such access must be granted by the unit with the relevant custodial authority.
- I agree that all activities will be performed in accordance with all applicable federal, state, local, and Iowa State University policies.

Kabura James Philip    06/14/2013  
Signature of Principal Investigator    Date

Robert A. Martin    6-14-13  
Signature of Major Professor/Supervising Faculty    Date  
(Required when the principal investigator is a student)

- I have reviewed this application and determined that departmental requirements are met, the investigator(s) has/have adequate resources to conduct the research, and the research design is scientifically sound and has scientific merit.

W Wade Miller    6/14/13  
Signature of Department Chair    Date

For IRB	<input type="checkbox"/> Not Research Per Federal Regulations	<input type="checkbox"/> No Human Participants	Review Date: <u>June 27, 2013</u>
---------	---	--	-----------------------------------

Use Only	<input checked="" type="checkbox"/> Minimal Risk	EXEMPT Per 45 CFR 46.101(b): 2,4
IRB Reviewer's Signature	<i>RokuBapp</i>	4/27/13

**Exempt Study Information**

Please provide Yes or No answers, except as specified. Incomplete forms will be returned without review.

Part A: Key Personnel

List all members and relevant qualifications of the project personnel. Key personnel includes the principal investigator, co-principal investigators, supervising faculty member, and any other individuals who will have contact with the participants or the participants' data (e.g., interviewers, transcribers, coders, etc.). This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project. For more information, please see [Human Subjects - Persons Required to Obtain IRB Training](#).

NAME	Interpersonal contact or communication with subjects, or access to private identifiable data?	Involved in the consent process?	Contact with human blood, specimens, or other biohazardous materials?	Other Roles in Research	Qualifications (i.e., special training, degrees, certifications, coursework, etc.)	Human Subjects Training Date
✓ Dr. Robert Martin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	supervise	Ph.D	07/20/2000
✓ Kabura James Philip	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Interviewing, data analysis and report writing.	Bachelor of Science	02/02/2013
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Please complete additional pages of key personnel as necessary.

## PART B: FUNDING INFORMATION AND CONFLICTS OF INTEREST

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. Is or will the project be externally funded?
If <i>No</i> , skip to question 8.	
If <i>Yes</i> , please identify the type(s) of source(s) from which the project is directly funded.	
<input checked="" type="checkbox"/> Federal agency <input type="checkbox"/> State/local government agency <input type="checkbox"/> University or School <input type="checkbox"/> Foundation <input type="checkbox"/> Other Non-Profit Institution <input type="checkbox"/> For-Profit Business <input type="checkbox"/> Other; specify: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Is ISU considered to be the Lead or Prime awardee for this project?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3. Are there or will there be any subcontracts issued to others for this project?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4. Is or will this project be funded by a subcontract issued by another entity?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. If ISU is the recipient of the subcontract, does it involve any federal funding, such as federal flow-through funds?
6. If this project will be externally funded, please provide the complete name(s) of the funding source(s); please do not use acronyms. If any subcontracts will be issued to others, please describe and include a list of all entities.	
<i>Ohio State University</i> United States Agency for International Development (USAID) and Innovative Agricultural Research Initiative (iAGRI)	
<input checked="" type="checkbox"/> Attached	7. Please attach a <u>complete and final copy</u> of the entire grant proposal or contract from which the project is or will be funded.
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	8. Do or will any of the investigators or key personnel listed on this application have a conflict of interest management plan in place with the Office of the Vice President for Research & Economic Development?

## Part C: General Overview

Please provide a brief summary of the purpose of your study:

To explore the extent current extension programs in Tanzania address the priority need of reducing poverty among farmers.

<b>Please provide a brief summary of your research design:</b>
The research design will be descriptive survey of collection of data from farmers and extension staffs using a questionnaire and a checklist.

## Part D: Exemption Categories

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>1. Are you conducting research on Educational Practices (e.g., instructional techniques, curriculum effectiveness, etc.)? If Yes, please answer questions 1a through 1e. If No, please proceed to question 2.</b>
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1a.</b> Will the research be conducted in an established or commonly accepted educational setting, such as a classroom, school, professional development seminar, etc.?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1b.</b> Will the research be conducted in any settings that would <b>not</b> generally be considered to be established or commonly accepted educational settings? If Yes, please specify: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1c.</b> Will the research procedures and activities involve normal educational practices (e.g., activities that normally occur in the educational setting)? Examples include research on regular or special education instructional strategies or the effectiveness of instructional techniques, curricula, or classroom management methods.
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1d.</b> Will the research procedures include anything <b>other than</b> normal educational practices? If Yes, please specify: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>1e.</b> Will the procedures include randomization into different treatments or conditions, radically new instructional strategies, or deception of subjects? If Yes, please specify: _____

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>2. Does your research involve use of educational tests, survey procedures, interview procedures, or observations of public behavior? If Yes, please answer questions 2a through 2c. If No, please proceed to question 3.</b>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>2a.</b> Will the research involve one or more of the following? (Check all that apply.)
	<input type="checkbox"/> The use of educational tests (cognitive, diagnostic, aptitude, achievement) <input checked="" type="checkbox"/> Surveying or interviewing adults <input type="checkbox"/> Observations of public behavior* of adults <input type="checkbox"/> Observations of public behavior* of children, when the researcher will not interact or intervene with the children



## APPENDIX 5: LETTER OF INTRODUCTION

IOWA STATE UNIVERSITY  
OF SCIENCE AND TECHNOLOGY

Department of Agricultural Education and Studies  
201 Curtiss Hall  
Ames, Iowa 50011-1050  
Administration and Graduate Programs 515 294-587  
Undergraduate Programs 515 294-6924  
Extension Programs 515 294-4076  
FAX 515 294-0530

For: To Whom It May Concern

Re: Letter of Introduction

The purpose of this document is to present a "Letter of Introduction" for your information regarding a research study to be conducted focused on Agricultural Extension Education in selected areas of Tanzania. This study will be conducted on-site by Kabura Philip.

The agricultural extension systems that exist in many countries have a long history of serving farmers as they strive to increase crop and livestock production. Extension Systems around the world are in constant search for improved production and management practices as well as searching for the best ways to communicate with farmers regarding learning and using these improved practices.

In an effort to discover and use the best practices to deliver educational program training, we are preparing to conduct a research study entitled Extension Program Needs of Farmers in Tanzania: A Descriptive Study. We need your help and cooperation.

We propose to randomly select farmers in the Ngorongoro District, Arusha, Tanzania, with whom we will conduct interviews. These interviews will focus on identifying farmer needs and how Agricultural Extension might help farmers improve their way of learning and in turn improve their farming operations.

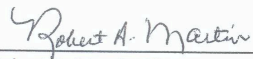
Participation in this study is strictly voluntary. Furthermore, participants can skip any questions they prefer not to answer. Responses to all questions will be held in strict confidence and only used for group analysis. To ensure confidentiality, there will be no personal identifying information on the survey form. Each interview will take approximately 30 minutes to complete.


The findings of this study will be used to complete a Masters degree in Agricultural Education with a Specialization in Agricultural Extension Education at Iowa State University, U.S.A., in cooperation with Sokoine University of Agriculture (SUA) in Tanzania. This study has been reviewed and approved by the Iowa State University Institutional Review Board for use of information from human subjects.

We expect the findings of this study will provide guidelines to identify training practices and ways to enhance Agricultural Extension programs in Tanzania. Findings from the study will be shared with all interested individuals who may find the results of the study useful.

If you have any further questions regarding this study, please contact Emmanuel Rwambali at +255784522755 or [rwambali@iagri.org](mailto:rwambali@iagri.org) or Robert A. Martin at [drmartin@iastate.edu](mailto:drmartin@iastate.edu).

Thank you,

  
\_\_\_\_\_  
Robert A. Martin, Ph.D.  
Major Professor

  
\_\_\_\_\_  
Kabura Philip  
Graduate Student

## APPENDIX 6: INFORMED CONSENT

### IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Agricultural Education and Studies  
201 Curtiss Hall  
Ames, Iowa 50011-1050  
Administration and Graduate Programs 515 294-5872  
Undergraduate Programs 515 294-6924  
Extension Programs 515 294-4076  
FAX 515 294-0530

For: To Whom It May Concern  
Re: Participant Introductory Statement  
Research Study on Agricultural Extension

The agricultural extension systems that exist in many countries have a long history of serving farmers as they strive to increase crop and livestock production. Extension systems around the world are in constant search for improved production and management practices as well as searching for the best ways to communicate with farmers regarding learning and using these improved practices.

In an effort to discover and use the best practices to deliver educational program training, we are conducting a research study entitled Extension Program Needs of Farmers in Tanzania: A Descriptive Study. We need your help.


Your participation in the study is very important; therefore, we value your input. You have been randomly selected to participate in this study through an interview. It is important for you to know that your participation in this study is strictly voluntary. Furthermore, you can skip any question that you do not feel comfortable answering. Your responses will be held in strict confidence and only used for group analysis and description. To ensure confidentiality, there is no personal identifying information on the survey form. Each interview will take approximately 30 minutes to complete.

The findings of this study will be used to complete a Master degree in Agricultural Education with a Specialization in Agricultural Extension Education at Iowa State University, U.S.A., in cooperation with Sokoine University of Agriculture (SUA) in Tanzania. This study has been reviewed and approved by the Iowa State University Institutional Review Board for the use of information from human subjects.

We expect that the findings of this study will provide guidelines to identify training priorities and ways to enhance Agricultural Extension programs in Tanzania. The results of this study have the potential of increasing crop and livestock production on farms like yours through improved Extension services. Findings of this study will be shared with all interested individuals who may find the results of the study useful.

If you have any further questions regarding this study, please contact Emmanuel Rwambali at +255784522755 or [rwambali@iagri.org](mailto:rwambali@iagri.org) or Robert A. Martin at [drmartin@iastate.edu](mailto:drmartin@iastate.edu).

Thank you,

  
Robert A. Martin, Ph.D.  
Major Professor

  
Kabura Philip  
Graduate Student