

**EFFICACY OF LOCAL LANGUAGE RADIO PROGRAMS ON CROP PESTS
AND DISEASES MANAGEMENT IN KENYA: A STUDY OF CHAMGEI FM'S
'TUGET AB KOBOTIK' PROGRAM AMONG MAIZE FARMERS IN BOMET
EAST SUB-COUNTY**

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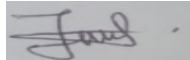
**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF JOURNALISM
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OF NAIROBI**

2020

DECLARATION

I hereby declare that this project is my original work and has not been presented for any academic award in this or any other university. No part of this work may be reproduced without prior permission from the author or the UON.

Signature



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This project has been submitted for examination with my approval as university supervisor

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Date 18.11.2020

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DEDICATION

I dedicate this work to my parents (Joseph K. C. Maritim & Grace C. C. Maritim), siblings (Hillary, Violar, Caroline, Eric & Victor), nieces, nephews and friends for their inspiration, support and love throughout my coursework and research project writing.

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ABBREVIATIONS AND ACRONYMS

MLND	-	Maize Lethal Necrosis Diseases
CLN	-	Corn Lethal Necrosis
NACOSTI	-	National Commission for Science, Technology and Innovation
KNBS	-	Kenya National Bureau of Statistics
FDG	-	Focus discussion group
KII	-	Key Informant Interview
ICT	-	Information and Communication Technology
FAW	-	Fall Armyworm
FM	-	Frequency Modulation
TV	-	Television
KTN	-	Kenya Television Network

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ABSTRACT

The study sought to analyze the efficacy of local language radio programs on crop pests and diseases management in Kenya based on *Tuget ab Kobotik* program on Changei FM among maize farmers in Bomet East Sub-County. The specific objectives of the study were; To examine the methods of access to *Tuget ab Kobotik* program on Changei FM by maize farmers in Bomet East Sub-County, to assess the adoption of the information on *Tuget ab Kobotik* program on crop pests and diseases management activities to maize farmers in Bomet East Sub-County and to analyze the efficacy of the content on *Tuget ab Kobotik* program on crop pests and diseases management among maize farmers in Bomet East Sub County. The study was built on Uses and Gratifications theory. The study employed qualitative research design. It had interviews with maize farmers and Key Informant interviews with agricultural extension officers in Bomet. The study area was Bomet East Sub-County in Bomet County where the estimated population is 29,958 households. The Qualitative data obtained was organized into themes according to research objectives and reported in a narrative form. Research findings revealed that farmers in Bomet East Sub County have a variety of sources for agricultural information with radio being the most popular. The farmers sampled revealed that they accessed *Tuget ab Kobotik* program on Changei FM via a radio set. They also revealed that they used the information obtained to eradicate crop pests and diseases in their maize farms and as a result, their maize production has improved. The farmers and extension officers recommend that the program session aired at 6:55 p.m. be rescheduled to 8 p.m.

CHAPTER ONE: INTRODUCTION

1.0 Overview

This chapter presents the background, statement of the problem, research objectives, research questions, significance, justification, scope and limitation and operational definition terms of the study.

1.1 Background of the Study

Radio is a key tool in mass communication in Kenya today. Mass communication is the process in which information is shared among anonymous and heterogeneous people through a channel of communication such as television, radio, social media and print (McQuail, 2010). The rise of Kenya's radio stations is related to the government's liberalization of the airwaves in the early 1990s, and listeners have a broad range of listening choices, particularly entertainment services (Maina, 2006). Previously considered a threat to state security, regional-based local language stations now abound and continue to open.

Most are commercially focused and many concentrate on non-serious entertainment concerns with 80 percent of their content, resulting in a need for radio to become more informative and balanced between knowledge and entertainment. Traditional media has therefore become a companion and an important source of information among its audience. They have also become a basis for people's conversation topics as they set the public discourse agenda, affect their views and offer diverse gratifications that meet the needs of the audience because of their framing. (Steeves, 2001).

Media such as radio, television, print and online media can reach individuals in areas otherwise inaccessible and function as direct educational resources. Education is important for a country's social, economic and political growth. Economy relies solely

on agriculture and the media mostly radio, has played a role in agricultural information circulation. Radio is an agent of change where radio programs are designed to convey information on new practices for community development, change of attitude, beliefs and agricultural skills. In the past fifteen years, there has been a major development of the media industry in Kenya, where more stations have come into existence as a result of cross-media ownership, privatization, and commercialization and are free from government intervention. (Moemeka, 1994; Murumba & Mogambi 2017).

Since the liberalization of the media waves in Kenya has seen an increase in the number of both public and private radio stations in the country over the years. Among the most popular stations are Radio Citizen, Coro FM, Inooro FM, Kameme FM, Easy FM, Radio Jambo, Hope FM, Family FM, Radio RAHM, Baraka Radio, Radio Waumini, Iqra FM, Biblia Husema Radio, Watchman FM, Jesus is Lord Radio, Radio Amani, KBC, Classic FM, Capital FM, Milele FM, Kiss 100 FM, Egesa FM, Homeboys Radio, Radio 316, East FM, Mulembe FM, Pwani FM, Kass FM among many others.

Barlow (1988) posits that by practicing the cultural production of radio programs used as instruments for education, social justice and socio-economic growth, local stations reinforce their communities, fostering group debates and providing facts in support of the movement for radical social and economic change. Local language radio stations like Changei FM have programs that set agenda for their listener. This agenda revolves around the political, social and cultural beliefs of their audience. Agricultural programs have been developed and designed for their audience too. This study intends to analyze *Tuget ab Kobotik* program in relation to crop pests and disease management among the specific audience.

Studies have shown that local stations are a forum for local people or a group to bring out secret problems, educating them on various issues related to political and socio-economic growth. Most people in Kenya live in rural areas and, as their main livelihood, are engaged in subsistence agriculture (Economic Review Agriculture, 2012). The Kenya Population Census report for 2019 shows that 80 % of the population of Kenya is currently engaged in agriculture and depends on it for sustainability.

Agriculture accounts for the bulk of exports from Kenya, accounting for up to 65% of merchandise exports in 2017 (worldbank.org). Agriculture is key to the government's Big 4 Growth Agenda, which aims to ensure that all Kenyans achieve 100% food and nutritional protection by 2022. While agriculture is a critical pillar for Kenya's sustainable development and poverty reduction, it continues to face challenges and emerging constraints that require urgent and special attention at global, regional and national levels (GOK, 2008). Socio-economic information is relevant to the community and radio majorly local language stations play this role. Most local language audiences engage in farming practices and they face challenges such as, crop pests and disease management. Radio programs therefore, are designed to offer solutions to these challenges. A farmer would probably use the media because of the need that the media gratifies. As such, agricultural radio services have the farmer as the target audience on local radio stations.

Changei FM is a local language radio that broadcasts in Kipsigis Language under the Royal Media Services. *Tuget ab Kobotik* meaning the 'voice of farmers' is a pre-recorded program that targets farmers especially maize farmers as it gives information on crop pests and diseases that affect the maize farmers including its marketing. It airs every day for 5 mins at 6:55 a.m., 10:45 a.m. and 6:55 p.m. The program is therefore the main focus of research. This study seeks to investigate the

efficacy of the program on crop pests and diseases among Bomet East Sub County maize farmers.

Rural communities' use of the media is highly dependent on their needs and motives. Media usage is influenced by relatively continuous elements of social media systems, according to McQuail (2010). The social constructs include demographics such as education level, level of income, age, gender, jobs, among others.

In the growth and development of the community and country, radio outlets are very relevant and useful, providing health knowledge and information, education and entertainment, for example. Almost all Kenyans listen to the radio and use it as a source of news and information rather than just entertainment. FM radio is the most common method of listening to radio transmissions; a famous second is the AM waveband. Shortwave and cell phone listening are both alternative listening strategies used by most audiences on a regular basis when engaging in various activities, including farming. (Bowen, 2010; Berry & Sobieraj 2011).

Most farmers in Bomet East Sub-County engage in farming practices. Maize farming is the major crop for both commercial and consumption. Maize is one of East Africa's most essential staple foods (FAOSTAT, 2020) and one of the most commonly grown plants with the potential to thrive in different climates (Ng'ombe et. al,2020; Agbonifo & Olufolaji, 2012). The plant can be grown under irrigation however, main cultivation season of maize is the rainy season making it susceptible to many pests and diseases.

Anthraxnose, gray leaf blot, charcoal rot, common rust, common smut, downy mildew, giberrella stalk and ear rot, northern leaf blight, southern corn leaf blight, Pythium root rot, bacteria such as bacterial leaf blight, bacterial leaf stripe, bacterial stalk rot or soft rot, goss bacterial blight, holcus spot, stewart's. We also have

nematodes such as root knot nematode (Plant Village, 2020). The prevalent pests include: slugs, insects such as aphids, corn earworm, cutworms, fall armyworm, flea beetles, mites, and thrips.

According to Muyanga *et al.* (2005), the food security situation and, in particular, the production and distribution of maize as the staple food of Kenya has lately decreased. This argument can be associated with several factors which range from pests and diseases management, market for the produce, negative change of climatic conditions, reduced land size and poor farming practices. All these factors can be associated to lack of information. This study therefore, seeks to analyze the efficacy of radio agricultural programs and their relevance to crop pests and disease management in Kenya.

1.2 Statement of the problem

Maize remains a staple food for over 85% of the Kenyan population. The country relies on maize growing regions to satisfy its requirements. This was not the case on an annual basis because the annual production of maize in Kenya is around 40 million bags lower than the annual demand for maize of 51 million bags based on annual per capita consumption. The deficit has always led to importation of maize. Several factors contribute to the insufficiency. Partly, the deficit has been as a result of crop pests and diseases menace such as maize lethal necrosis disease (MLND) and fall army worm (FAW), (Republic of Kenya, 1997; 2004;2008; Kang'ethe, 2004).

For a long time, farmers in Kenya have relied on extension officers for information on production skills and new farming methods. In case of an outbreak of crop pests and diseases, farmers have always relied on extension officers for guidance. Due to challenges related to relying on agricultural extension officers such as few number of extension officers compared to the number of farmers to be served as

witnessed in different parts of the country for instance Bomet East Sub County, many farmers have turned to other methods of getting information to fight off these crop pests and diseases which continue to deal a blow to their produce both in quality and quantity.

One of the avenues that local farmers have been using to get information is radio, specifically local language radio which reaches majority of the farmers who get the messages on farming practices in their local languages. Together with the benefits associated with using local language radio to reach farmers in rural areas and deal with effects of diseases and crop pests, it's important to analyze the efficacy of such and other local language radio programs like *Tuget ab Kobotik* on Changei FM radio.

1.3 Research objectives

The main objective of this study was to analyze the efficacy of *Tuget ab Kobotik* radio program on crop pests and diseases management among maize farmers in Bomet East Sub-County.

1.3.1 Specific Objectives

- i. To examine the platforms of access to *Tuget ab Kobotik* program on Changei FM by maize farmers in Bomet East Sub-County.
- ii. To assess the adoption of the information on *Tuget ab Kobotik* program on crop pests and diseases management activities to maize farmers in Bomet East Sub-County.
- iii. To analyze the efficacy of the content on *Tuget ab Kobotik* program on crop pests and diseases management among maize farmers in Bomet East Sub County.

1.4 Research Questions

The study sought to answer the following questions in order to attain the above goals:

- i. What are the platforms of access to *Tuget ab Kobotik* radio program on Changei FM by Bomet East Sub-County maize farmers?
- ii. How have maize farmers adopted the information on *Tuget ab Kobotik* program on crop pests and diseases management activities in Bomet East Sub-County?
- iii. How has the content on *Tuget ab Kobotik* Program on Changei FM influenced maize farmers in Bomet East Sub-County?

1.5 Significance of the Study

Indeed, through schooling, knowledge and entertainment, the media affects every aspect of our lives (thoughts, behaviors, decisions, lifestyles, decision making, among others). Given this important role, media programs on agriculture can be used as a tool of agricultural transformation hence, in improving people's livelihoods.

This study emphasizes the vital role that radio can play in crop pests and disease management both locally and internationally. It aims to support radio journalists and stakeholders in new and rewarding career paths and policies, where their unique contribution to problem-solving is recognized and embraced. It was important to conduct the study since it is a feedback mechanism for media stakeholders to conduct an impact assessment and make improvements on the program where necessary. The study is useful to government through the ministry of Agriculture, Livestock and Fisheries (MoALF), NGOs, Plant Pathologists and Researchers in learning the communication factors that can influence the utilization of crop pests and diseases management hence, improving on maize yields in the Sub-County and the country as a whole.

1.6 Justification of the Study

Maize production in the country has reduced with time throughout the country due to pests and diseases. In Bomet East Sub- county the decline has been mainly due crop pests and diseases such as fall army worm and maize lethal necrosis diseases (Devi, 2018). Conducting this study in Bomet East Sub County was necessary as it assessed the efficacy of *Tuget ab kobotik* program on Changei FM since, other studies on local language radio have focused on the effects of the programs on agricultural productivity and not on a particular challenge.

1.7 Scope and Limitation of the Study

This research was conducted amid May and July 2020 and was limited to the effectiveness of the Changei FM *Tuget ab Kobotik* program in the management of crop pests and diseases among maize farmers in Bomet East Sub-County, Bomet County. Respondents were confined to Bomet East Sub County maize farmers and Bomet East Sub County extension officers. One of the predicted drawbacks was the incoherence of the respondents ' answers. The investigator investigated the use of follow-up questions to ensure that the respondents presented the correct information and to ensure that their answers were reliable.

The lack of support from respondents who were pessimistic about the motives of this research was one predicted limitation of the study. In order to address this, the investigator informed the respondents that all responses were for academic purposes only and were not intended to identify any person or victimize them.

Another limitation was getting reliable and accurate information from respondents especially residents who were not comfortable revealing details on their relationship with the Changei FM *Tuget ab Kobotik* program. Once again, this was

countered by assuring them that the study is purely academic and confidentiality will be observed strictly.

1.8 Operational Definitions of Terms

Crops pests: These are insects or small animals such as Fall Army Worm that may damage plants hence affecting the crop productivity

Diseases: Harmful deviation that affects the normal functioning of the physiological processes of a plant resulting to low yields for example Maize Lethal Necrosis Disease

Efficacy: This is the effectiveness of a radio program in ensuring that maize farmers minimize losses due to crop pests and diseases for example, *Tuget ab Kobotik* program on Changei FM which is geared at ensuring farmers adopt new farming methods in managing crop pests and diseases

Local Language Radio: This is any radio that broadcast in a local language spoken as the native language of a particular ethnic community in Kenya such as Kipsigis.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

This chapter reviewed relevant literature on Radio in Kenya, role of radio in Kenya, local language radio in Kenya, radio listenership, use of radio in Agricultural information dissemination, use of radio in crop pests and diseases management, local language radio programming, use of radio program messages, communication channels used to convey agricultural information. It also looked at the Uses and Gratifications theory and its applicability to the study.

2.1 Radio in Kenya

Radio is a trendsetter medium. Since its inception in the 19th century, it grew to being the first medium to break the barrier of space. Radio industry has managed to prosper amid serious threat posed by television and other mediums and emerging technologies by changing the nature of its relationship with its audiences. Baran (2006) contends that the pre-television radio, was national in outlook, had mass audience, and was consumed primarily in homes, typically with people around the set. Local, fractured, specialized, personal and mobile post-television radio is local.

In 1928, radio broadcasting in Kenya began with one channel targeting European settlers. Its goal was to provide the settlers with news from their countries of origin and other areas of the world. African Broadcasting Services was established for Africans in 1953 as the first radio. The station's programs, including Swahili, Dholuo, Kikuyu, Kinandi, Kiluhya, Kikamba, and Arabic, were broadcast in various languages.

In 1959, the British colonial administration founded the Kenya Broadcasting Corporation (KBC) with the objective of providing both radio and television broadcasting. In June 1964, the Company was nationalized and renamed Voice of

Kenya (VoK). The position has changed from the mouthpiece of the government to the provision of information, education and entertainment. In 1989, through the KBC Act, the VoK was renamed the Kenya Broadcasting Corporation and its status changed to a commercial one.

For a long time, KBC which is a state-owned corporation was a monopoly. The station was the government's mouthpiece however, with evolution in the last fifteen years there has been rise of more stations. This has been influenced by the change in media ownership and limited interference by the government which gave rise to the freedom of the media. (Moemeka, 1994; Githaiga 2012). With liberalization of airwaves in the early 1990s which led to issuing of permits and licenses to private entities and foreign radio stations, there has been transformation in broadcasting. Different radio stations now serve as platforms of information and public discussions. The stations now allow citizens to debate on issues important to them such as governance. They also have a wide variety of stations they can choose from for entertainment and information (MCK 2011).

According to the communication Authority of Kenya, there are more than 131 commercial radio stations and 42 local language radio stations. These local language radio stations broadcast information to people in a particular region in various languages such as; Kamba, Kikuyu, Dholuo, Kalenjin among others. The most common local language FM radio stations we have in Kenya include but not limited to; Musyi, Vuuka, Mbaitu, Inooro, kameme, Njata, Coro, Kass, Emoo, Kitwek, Taach and Changei FM.

2.1.1 Role of Radio in Kenya

As it can reach more people than other media, radio is the most effective means of communication and change in society. The Communication for Development Round

Table Report (UNCDR, 2010) shows that it has remained the most common and accessible mass media available to poor people in rural areas, as it is often the only communication channel available. It spreads across a larger geographical region to a large number of scattered populations. In addition, the report notes that it is the only source of knowledge in rural areas where people receive information on the weather, market prices and developments in agriculture. It is also a cheap medium that uses simple technology and is thus more suited to living in communities and cultures that are more characterized by oral and folk practices that are less educated.

As such, due to its ability to reach a large audience even in the poorest rural settings, many development-oriented communicators have chosen radio (Yalala 2015). Because of its accessibility and affordability, even among the rural poor, radio is a source of knowledge for many people in rural areas because it is relatively cheap to obtain (Buckley *et al*, 2008: Hatzold *et al.*, 2014). It has therefore become a popular medium for rural people, most of whom have restricted access to other types of media, such as newspapers, television and even social media (Mogambi, 2011). The efficiency and effectiveness of radio depends on the mode of use and the purpose of consumption and not on intrinsic characteristics (Moemeka 1994). Like any other radio, Changei Fm radio hits a wide range of people who, among others, can speak Kipsigis in Nakuru, Kericho, Eldama Ravine, Eldoret, Kabarnet.

2.1.2 Local language Radio in Kenya

Baran (2006) describes mass communication as the mechanism amid the mass media and their audience of establishing common meaning. For people to share the meaning of a mass medium, they must first comprehend the messages being disseminated through the mass media. In Kenya almost each community has a local language radio station that comprehend information and disseminate in a simplified

form that can be understood by the target community. Local Language radio stations such as, Changei FM which broadcasts in Kipsigis has helped people interpret messages easily. It has also become a central point where the communities identify with their language enabling continuity of community`s cultural norms and in the process brought new technologies to the people.

Local language radio stations are different from commercial and public service broadcasting, working to bring small communities together at the local level, concentrating on the everyday needs of the general public, and helping to meet local expectations and desires. Based on this definition, their mission is to enrich the local people`s lifestyles through content created by the individuals and for the individuals of the specific community (Kinyua & Ngugi 2014). Most local language radio is classified as a non-profit organization and is considered to serve particular local communities in order to transmit programming and content important to the community. (Fleming, 2002). In Kenya though, most local language stations are owned by individuals as commercial entities. This makes them engage in money making activities which impact on their programming. It therefore distorts the information packaged for the listener and calls for a study to understand the relevance of the developed programs to the listener.

In growth, the media also has a critical role to play. Chandra (2004) states that the media plays a major role in encouraging small-scale farmers to take charge of various aspects of their agricultural production for better yields, such as crop pests and diseases. The press also sets the pace for social, political and economic growth. By staging public and political forums, it can be used as an efficient platform to speak out against marginalization. Srampickal (2006) maintains that by educating broad masses of audiences on development problems, television, radio, internet and print media can be used to disseminate information, obvious doubt. He further notes that a large pool of

expertise and information is generated by the mass media as a medium for growth and supplements other approaches to development. The radio in Kenya, where the medium has been used as a tool to educate farmers and promote agriculture and development, has proved this.

Local language radio has been used to pass development messages to people in their rural areas by use of their native languages. Several studies on the use of radio programs among farmers in Kenya have been carried out. An analysis of the effects of regional radio programs on farmers shows that farmers listen to the radio. A Radio Research for Farming? In Kimilili Sub-County of Bungoma County, a study of regional radio programs and agricultural productivity in Kenya by Murumba and Mogambi (2017) revealed that Ukulima Ajira radio program on West FM has helped farmers learn various farming techniques and boost land use. This implies that radio is playing a critical role in farming in Kenya. It therefore leads to specific studies of local language radio on specific agricultural practices in Kenya. Various local language radio stations are set up based on the geographical settings and target specific audiences that subscribe to their language. They have a set of programs and content designed for their listener. Their goals differ.

Therefore, the purpose of local language radio stations such as Chamgei FM is to empower rural communities with the appropriate, timely and accurate information required to make decisions and improve their living standards. Radio programs such as *Tuget ab Kobotik* aired on Chamgei FM radio which contains information on crop pests and diseases designed for maize growing farmers is useful as it gives content on the new advances and methods of managing crop pests and diseases for improved yields and marketing of the produce which results in improved livelihoods of the farmers in Bomet East Sub-County and even beyond. The need to study this program was to help

understand how well the program can be crafted and designed to reach the farmer and be useful.

2.2 Radio Listenership

The media specifically radio is seen as a tool of change and can therefore be used as a source of information to those living in the rural areas. Due to its ability to inform, it has been tasked to inform people of the national policies, current affairs and national development (Maloba, 2013). Farmers use this medium due to affordability and accessibility. The information sought on the media include; information about the latest innovations on new farming methods and marketing.

The Kenya Audience Research Foundation reports that, in terms of audience penetration and sharing, some of the leading local language radio stations include: Kameme, Inooro, Coro, Ramogi, Musyi, Kass and West FM. Local language radio stations based in Kikuyu enjoy the highest audience in terms of coverage and sharing, partially due to the proportionate population sampling used by KARF and the interactive nature of the programs broadcast on local language radio stations. The use of rich language (laden with ethnic metaphors, similes and other oral language elements) brings out some of the conversations in a way that borders on comedy and absurd imagery to which the public is strongly attracted (MCK Ethics in Ethnic Media Report, 2015).

Despite the increase in numbers and listenership, professionalism and ethical concerns remain key challenges facing the stations, as indicated above. Of course, these concerns can be resolved through adequate training of journalists working with stations, media literacy and public understanding of the content and essence of call-in contributions. Chamgei FM, *Tuget ab Kobotik* radio program is being used by farmers across the Rift valley because the content has been packed well in Kipsigis language

they understand and identify with. The program has been used by farmers in Bomet East Sub County at their work places because of the portability, accessibility and affordability of radio

2.3 Use of Radio in Agricultural Information Dissemination

Before radio became a common phenomenon, two-way communication has always lacked hence, a breakdown in information dissemination between field's personnel and organizers in the rural areas, (McAnany, 1980; Ghanbari & Rahmati 2010). In developing countries, there is limited supply of agents of information. Available information for rural development can therefore reach a limited number of farmers even with the availability of mass media which can be used to disseminate messages to the farmers.

Availability of radio in Africa can therefore play the role of communicating to various people in rural areas (McAnany, 1980.). Early development communication theorists claimed that radio message exposure was sufficient to trigger social change that would lead to development (Fisher, 1990). This conviction led to the launch of many projects for growth. Agricultural programs were a "top- down" communication process where information was sent from the government agricultural department to the farmer. The messages being complex and technical to understand resulted in minimal feedback from the farmers and farmers were discouraged from adapting the information. Radio was therefore forced to adopt the two-way communication where recipients were allowed to air their views and seek for clarifications (Fisher 1990). From the argument, program managers are expected to be careful when coming up with program so as to ensure that they are easily understood by the audience and that there is a feedback mechanism by the audience (Murumba & Mogambi, 2017).

Chapman (2003) posits that rural radio can be used to improve the sharing among rural farming communities of agricultural knowledge. Participatory communication strategies will help efforts to expand agriculture, especially through the use of local languages and rural radio to communicate directly with farmers (Chapman, R.2003:10). Since regional radio is confined to a limited geographical area, Arpita (2011) maintains that it serves a group with common problems and concerns about growth. However, their interests are related to national and regional growth objectives.

The *Tuget ab Kobotik* program in Changei FM radio, is an agricultural program that has been tailored in a simple language to ensure that farmers understand the key messages on agricultural activities. The farmer's goal is to achieve the country's development goal which is also one of the Big 4 Agenda, Food Security and Nutrition. It also deals with the specific needs of farmers such as crop pests and diseases management among other agricultural practices.

2.3.1 Use of Radio in Crop Pests and Diseases Management in Kenya

Farmers are in a high risk due to change in climatic conditions and market uncertainties. Lack of information however intensifies their exposure to the risk and may lead to utilization of poor agricultural techniques resulting in low income. Farmers who receive quality and up to date information, can use the information to reduce the magnitude of the risk (Mittal and Tripathi, 2009).

Access to the information is therefore necessary for increase in production. The information required by farmers are knowledge on new agricultural inputs, new production techniques, pests and disease management techniques and how to economize in production and marketing (Wharton 1965). Available information tools should therefore be used to disseminate useful information to the farmers, agricultural extension officers and researchers. (FAO 2001; Chapman *et al* 2003).

According to FAO, Crop pests and diseases affect food crops, causing significant losses of a wide range of crops to farmers that threaten food security of a country. In the recent years, spread of trans-boundary plant pests and diseases have increased. The main causes of these outbreaks are climate change, trade, disruptive human activities, globalization and reduced flexibility of production systems as a result of agricultural intensification.

Agricultural information can be described as organized data or information related to the activities of farmers, such as crop production and security, production of livestock, and management of natural resources (Tadesse, 2008). Agricultural activities vary from: crop production and protection, livestock production, agroforestry, management of pests and diseases, accessibility and application of fertilizers, agricultural credit facilities, market rates, improved varieties of seeds, to local weather patterns (Oduwale & Ikhizma, 2003). The data may be formal or informal, according to Aina, Kaniki, Ojambo (1995) and Ekoja (2000). Agricultural information types have been divided into various groups, such as: technical / scientific information collected from research and development work carried out at universities, agricultural research institutes, agricultural colleges and private agricultural research organizations; commercial information that is useful for obtaining market information; Socio-cultural information is information on traditional agricultural activities, such as methods of cultural control of pests and diseases and labor availability, and legal information is information on statutory regulations on the production and distribution of agricultural commodities.

In agricultural production, agricultural knowledge is very useful. Agricultural knowledge helps farmers to introduce modern farming technology, to know the type of crop to be planted and when to be planted, to recognize the disease and the pesticide to

be used to combat the disease and the animal to rear and where to rear. The information has also helped them to source for market and to determine the market prices of their produce. Radio especially local language radio stations with Agricultural programs have been seen to be accessible and cost-effective channels of communication which can bridge information gap (Okello, *et al.*, 2011; Mogambi 2011). Essential information on weather conditions, crops to plant in a particular region, seed varieties to plant, agricultural technological advancements and good agricultural practices are required (Munyua 2007).

2.4 Local Language Radio Programming

Radio programming especially for local language radio is affected by its ownership. The direct involvement of management by these individuals affect the editorial independence which is sacrificed in most cases to meet proprietorial interests of the owners. A monitoring report conducted by the Media council of Kenya (2011) on the performance of vernacular radio stations in Kenya showed that vernacular radio stations broadcast 24hours a day. From 24.00 until 5.00 there is a music-only program. The results also showed that the call-in show is the most common and dominant among the local language radio stations. With the breakfast show being the most common, each station runs 4 to 6 call-in shows a day. The services contain prayers, a summary of the newspaper, news bulletins and topical discussions with one or two guests from the studio and at least ten callers.

Hourly news briefs and bulletins were also found out to be common to the vernacular radio stations. It was shown that the brief and the bulletin will run at 7.00, 9.00, 13.00, 16.00, 19.00 and 21.00. The key news bulletins are 15 to 20 minutes long and typically consist of between 6 and 9 news items. From one central news desk, the Royal Media Services (RMS) stations run their news. At the end of each newscast, all

stations broadcast the same national news, followed by two or three regional news stories.

Many local language radio stations still concentrate on music and entertainment, but because of viewer demand, there has been a change. Therefore, the stations have set aside most of their airtime, particularly in the morning, for talk shows and phone-in programs. Changei FM being one of the Royal Media Services radio also runs news bulletins and briefs. Apart from informing the audiences it also entertains and educate them on various issues such as health, governance, agriculture and marketing among others. For this reason, it has *Tuget ab Kobotik* program at 6:55 a.m., 10:45 a.m. and 6:55 p.m. The program is meant to educate farmers on good agricultural practices and mostly on crop pests and diseases management with the aim of improving the quality and quantity of agricultural produce among its listeners.

2.5 Use of Radio Program Messages

The communication language and content contribute to radio listenership. Therefore, farmers prefer listening in their mother tongue to important, interesting and diverse programs. News, sports, and politics are the shows with the largest listenership. Farmers often listen to agricultural programs, but they claim that most of these programs focus on farm inputs rather than their requirements and preferences (Kenya Agricultural Research Institute, 2009). However, in a study investigating the use of radio as a medium for the provision of agricultural information to farmers in the state of Benue in Nigeria, Okwu, Kuku and Aba (2007), the agricultural program broadcast on Radio Benue was important to most farmers because it met their information needs.

This study is therefore very important since it will seek to analyze if the maize farmers in Bomet East sub-County use the content from *Tuget ab Kobotik* program on Changei FM radio.

2.6 Communication Channels used to convey Agricultural Information

These are channels through which agricultural information is conveyed. These channels are chosen based on the needs, affordability of the channel of communication and how well the information is packaged. These networks are, thus, data carriers. Studies have been carried out to establish the type of source of knowledge for farm extension employees. Knowledge sources for extension employees include associations, individual partners, local, national and international conferences, personnel, training courses, print and electronic media, telecommunications, and internet resources (Y. Alfred, 2007). These sources were further categorized by Koyenikan (2011) as either formal, such as radio stations, local and international print media (such as newspapers, newsletters, and journals) and seminars / workshops, or informal sources, such as farmers, family friends and personal evaluations and judgments.

With several studies conducted, radio has however gained a lot of popularity. With the rise of Information and communication technology (ICT), radio has become a two-way communication media since it has given room of interaction and people can now discuss further topics of interest. Therefore, it is no longer viewed as a one-way communication. (Rao, 2015). It has been seen to be more effective since it reaches the largest audience in most developing countries (Rogers & Nichoff, 2002). It has therefore proved to be economical since it reaches many audiences at the same time. It is also been considered as a credible source of information due to its authenticity and trustworthiness. This has therefore, influenced the farmers' attitude and actions and has resulted in adoption of agricultural technology (Kakade & Kolar, 2013).

Ajaegbu *et al* (2015) posits that the radio also breaks boundaries since information is packaged in the language well understood by the targeted group of audience. Maina (2013) adds that radio has retained its listenership due to its ability to

serve the disadvantaged communities hence, reducing illiteracy which is a barrier to communication.

2.7 Theoretical Framework

The study engaged Gurevitch`s Uses and Gratifications theory.

2.7.1 Uses and Gratifications Theory

Katz, Blumler and Gurevitch developed theory of Uses and Gratifications in 1974. The theory suggests that, based on their gratification, viewers choose what they want from the media. As the viewer chooses, the philosophy is audience-centered and has reasons for using those media to meet their needs, hence the varied audience traffic between media houses, including radio. Turner (2000) notes that there are several explanations why a certain media is preferred by viewers. Education, entertainment, escapism, social contact, personal identity and knowledge differ between them. Bulmer and Katz (1974), Malik *et al.* (2016) argued that the same contact message is used by different individuals to meet different needs. These criteria include: cognitive needs, affective needs, integrative personal needs, social integrative needs, needs for stress release, and needs for medium appeal.

The theory of usage and gratifications offers a context for the mechanism by which media audiences selectively pursue content that is similar to their needs and desires. There are different needs and interests of the viewer that contribute to its continuous use if met by a given media. The influence of radio on media users is direct, immediate and influential (Katz, 1959). This can be connected with its affordability and accessibility. The theory of uses and gratifications thus constructs the idea that what matters is what people do with the media and not what people do with the mass media. Therefore, it offers people the chance to use the media to fulfill their needs. Whiting & Williams (2013) say that the interests of people affect what media they use, how they

use specific media and how they are fulfilled. Based on this notion the audience are in control of the media and the media strives to satisfy them. Radio and mostly local language stations like Changei FM have to develop their programs in line with the needs of its audiences. Farming is part of the audience's daily activities and therefore, agricultural information should be part of radio programming. This has led to the development of *Tuget ab Kobotik* Program whose content is on agricultural information.

Uses and gratifications theory therefore implies that that the media tries to compete with other information sources for audience gratifications (Katz, E., Blumler, J.G., & Gurevitch, M.1974; Lariscy *et al.*, 2011). Radio too as a tool competes with other media sources such as print media, television and social media for audience gratifications. Local language radio stations like Changei FM compete with other similar local language stations and Kiswahili broadcasting stations for audiences. In comparison to passivity in reading and assimilating media in their own lives, the theory suggests that the audience plays a lively role. The principle of uses and gratifications passes to the viewers all the burden of media material use.

Uses and gratifications theory in radio can be based on the aspects of informing, educating and entertaining the audience. The radio listener wants to acquire information, knowledge and understanding by listening to the content of radio programs. The central principle of the U&G approach is concerned with the ways in which people use the media (Katz, et.al, 1974). The theory of uses and gratifications lies on the premise that members of the public search out the mass media to fulfill their needs.

The hypothesis that people use mass media for various purposes and to pursue various gratifications reinforces the theory of uses and gratifications. It alludes to the

"content gratification" and "process gratification" of these gratifications. It is more important for content gratification to receive such messages, while engaging in the "use process" is of much greater value in process gratification (Windahl *et al.*, 2008). This makes the principle of uses and pleasure important to this research.

Application of this theory to the study was based on the tenet that the audience are active participants in radio content development and was used to determine if the audience are active listeners to the agricultural programs on radio specifically Changei FM's *Tuget ab Kobotik* program in Bomet East Sub-County and if they use the content provided to determine the choice of crop pests and disease management measures in their farming.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

A summary of the research design , research methodology, field of study, study population, sampling and sampling procedure, sample size, description of research instruments , data collection methods, pre-testing, data analysis and presentation techniques and ethical considerations used during the study are given in this chapter.

3.1 Research Design

In a research study to address research questions, a research design is a plan, structure and strategy used (Ogula, 2005). Kerlinger (1973), adds that it sets a researcher's context for the analysis.

A narrative style was adopted by this report. A perception of the phenomenon often includes narrative inquiry as a technique. Narrative research is a technique that enables one to understand the perspectives of people (Connelly & Clandinin, 1990; Meraz et. al., 2019).

This research design was used among maize farmers in Bomet east Sub County to collect information on the methods of access of *Tuget ab Kobotik* program on Changei FM, to assess the adoption of information on *Tuget ab Kobotik* Program on crop pests and diseases management activities and to analyze the efficacy of the content on the program on crop pests and diseases among farmers in Bomet East Sub County.

3.2 Research Approach

This analysis followed the methodology of qualitative studies. Qualitative analysis is an approach that uses methods of interpretation to define, decode, translate and agree with the significance of a phenomenon. (Lindlof & Taylor, 2005). The approach was used to describe the method of access to *Tuget ab Kobotik* program on

Changei FM, the adoption of the information they obtain from the program and the efficacy of the content in the program on the maize farmers.

The benefit of qualitative data were that the research required the narration, analysis and discussion of data obtained from farmers and agricultural extension officers.

3.3 Study Area

The study area was Bomet East Sub County within Bomet County. Bomet East Sub County consists of 5 wards that is Merigi, Kembu, Longisa, Kiprerres and Chemaner. The sub-county covers a total area of 305 km² with a total population of 143, 275 and an annual growth of 2.9%. The total number of households in the area are 29, 958 giving an average household of 4.8 (KNBS, 2019).

Semi-humid and sub-humid agro-climate zones are located in the region. It receives an average annual rainfall of between 1100 and 1500 mm, which is distributed equally, but between January and February there is a brief dry spell and April and May are the wettest months. The temperature ranges range from 16 ° C to 24 ° C, with February to April being the coldest months and December to January being the hot seasons (County Government of Bomet, 2013).

This study area was selected purposively because of high land/ soil potential and rich agricultural land where maize farming is mainly practiced for both commercial and subsistence. The common crop grown by the residents is maize. However we have other crops such as beans, pasture, millet, sorghum and potatoes.

3.4 Study Population

Mugenda and Mugenda (2003) note that a population is the particular entity in which descriptive or explanatory claims can be made or about whom. The target

population of this study was maize farmers and agricultural extension officers from Bomet East Sub County.

3.5 Sampling and Sampling Technique

A smaller group or sub-group obtained from the available population is a sample (Mugenda and Mugenda, 1999). Sampling is a process, method or technique in which a sub-group is chosen from a population to participate in the analysis (Ogula, 2005). The selection is made in such a way that the characteristics of the sample population are reflected by the individuals chosen. Therefore, any claims made about the sample should be true of the population (Orodho, 2005).

Purposive sampling technique was employed in the study. The technique allows the researcher to obtain information from subjects that have the required information (Mugenda and Mugenda, 1999). Purposive sampling technique was used to obtain information from maize farmers and agricultural extension officers. The maize farmers chosen were listeners of Changei FM, *Tuget ab Kobotik* program and practiced large scale maize farming in the area. The extension officers on the other hand were chosen because of their expertise and knowledge of farming in the area and therefore had knowledge on what farmers go through and have a one on one interaction with the farmers during active growth of their crops.

3.5.1 Sample Size

During the study, 10 farmers and 2 extension officers were chosen purposively. Two leading farmers in terms of acreage of land under maize farming were chosen from each ward. Their choice was also influenced by their listenership *Tuget ab Kobotik* Program on Changei FM. Interviews and a focus discussion group were conducted among the 10 maize farmers and Key informant interviews among 2 extension officers from the County Agriculture office in Bomet.

3.5.2 *Sampling Frame*

The sampling frame was obtained from a list of maize farmers and extension officers from the County Agricultural office. From this, the researcher purposively selected 10 farmers that is 2 from each of the 5 wards in the area based on a previsit to the area which helped establish the maize farmers who listened to Changei FM, *Tuget ab Kobotik* program and were large scale maize farmers in the area. Two extension officers were chosen based on their expertise and knowledge of farming in the area.

3.6 *Data Collection Instruments*

The study employed Interview guides and focus discussion group guide on purposively sampled individuals.

3.6.1 *Interview Guide*

An interview guide is a method for knowledge collection through a set of questions and observations. An interview with a number of people is a one-on-one speech (Mugenda & Mugenda, 2003). Interviews were favored as they enabled the researcher to obtain in-depth participant information via interaction with the respondents, using follow-up or probes on issues that emerged to challenge a problem. Patton (2002) emphasizes that interviews are used because without speaking and listening to them, researchers will not observe anything, such as the thoughts and emotions of the person.

3.6.2 *Focus discussion group*

A focus discussion group is a method of collecting data that helps in obtaining information about people's attitudes and behaviour (Wimmer & Dominick, 2011: 89). Focused group discussions are normally conducted among people with similar socio-characteristics and for the purpose of clarifying on issues that come up as a result of using other methods of data collection (Richardson & Rabiee, 2001).

Krueger & Casey (2000) suggest between six and ten participants for a focus group. They assert that smaller groups show greater potential however, the number can go up to ten. They also add that large groups give a variety of perspectives but, should be maintained small enough to ensure order.

3.7 Data Collection Procedures

Data is something given as a fact on which inference from research is based. It is something that is true or believed as a basis for measurement (Mugenda & Mugenda, 2008). The investigator obtained an introductory letter from the University of Nairobi in this study and collaborated and obtained introductions for collaboration purposes from the County Agriculture Office in Bomet. The researcher collected data until approval was given. From the interview guides, the qualitative data were created.

3.7.1 Interviews

This study used open-ended interview with semi-structured questions to allow for follow-up probing questions. The questions asked were on the efficacy of *Tuget ab kobotik* program on crop pests and diseases management among maize farmers in Bomet East Sub County. After identifying the 10 maize farmers with the help of the County Agricultural office, the researcher contacted the farmers and identified herself and booked an appointment. After this, the researcher planned schedules on when and where to meet the farmers. In-depth interviews were conducted with each respondent at the convenience of the participant. The researcher planned a face to face interview with the respondents. Visits to the respondent's residents was done through the help of extension officers who introduced the researcher and respondents interviewed based on the interview guide that had been prepared and scrutinized to avoid any short comings.

Key informant interviews were also conducted at the convenience of 2 agricultural extension officers. The information obtained was then used as an insight to clarify on the information obtained through interviews.

Interviews were recorded. Farber (2006) notes that interview tape recording is important because it helps to solve the short comings of memory dependence and can be a point of reference during study.

Participants have been told that they will be registered. Patton (2002) posits that during the interview, the researcher should clearly clarify the need for audio recording and secure permission for its use. He also recommends that the researcher remind the participant that during the interview they can interrupt the recording at any time.

3.7.2 *Focus discussion group*

This study therefore had 1 focus discussion group with the 10 farmers who had been sampled to take part in the study. This was to ensure that the focus discussion group was orderly and provided an opportunity for each participant to give their views on the efficacy of *Tuget ab Kobotik* in crop pests and disease management in Bomet East Sub County. The 10 maize farmers who were selected with the guide of the county agricultural office had information about maize production in the area. The information collected from the method was then used as an insight to clarify on the information obtained through interviews.

3.8 Pretesting

Pretesting of the interview guide was done by interviewing 4 maize farmers in Chepalungu Sub County. The four farmers were selected purposively through the help of the Bomet County director of Agriculture. The testing tool should be pilot tested to identify flaws or errors in the instrument, according to Cooper & Schindler (2003). This was critical as it ensured that the research instrument was tested before the actual data

collection for reliability and validity. The results of the pre-testing showed that in Chepalungu Sub County, the Tuget ab Kobotik Program was successful in managing crop pests and diseases among farmers. The results from the respondents were however not included in the findings but was helpful in preparation and conducting of interviews. This was an indicator that the research tools were effective in collecting data for the study and capturing all data related to the study.

3.9 Data Analysis and Presentation

All data were scrutinized after the data collection exercise was completed to remove mistakes that may have been made during data collection. The information gathered from the interviews was sorted, edited, and thematically arranged. According to research goals, the information was then classified into themes and reported in narrative form to display trends, patterns and issues that emerge from the data. The investigator used the open coding method to keep open to all possibilities. Among the 10 instances, the themes and trends formed were compared and contrasted to determine themes and a deeper level of understanding relating to the study's objectives.

The findings were then presented under each key main theme and objective using appropriate verbatim quotes to illustrate the findings.

3.10 Ethical Considerations

During and after the analysis and release of the findings, the confidentiality of the respondents involved in the study was strictly adhered to at all times. The physical and psychological protection of each subject is of paramount significance, according to Corey, Corey, & Callanan (2008). In the design and analysis of the design, every attempt was made to establish suitable safety measures. All contact and relationships experienced during the full course of the analysis were performed with the highest respect for truthful and principled activities and research standards in a professional and

ethical way. All appropriate steps have been taken to respect and protect the safety of all involved, including victims, victims' families and outreach officers. In terms of non-manipulation of data, the most important aspect was used. All information obtained for the purpose of evaluation and/or publication was managed carefully and for the sole purpose of evaluation and/or publication. Before the study, the researcher sought for authorization from National Commission for Science, Technology and Innovation (NACOSTI), Bomet County Government authorization letter and introductory letter from the University.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Overview

This chapter presents the study findings based on study objectives to: Examine the methods of access to *Tuget ab Kobotik* program on Chamgei FM by maize farmers in Bomet East Sub-County; assess the adoption of the information on *Tuget ab Kobotik* program on crop pests and diseases management activities to maize farmers in Bomet East Sub-County and analyze the efficacy of the content on *Tuget ab Kobotik* program on crop pests and diseases management among maize farmers in Bomet East Sub County.

4.1 Introduction

Data were analysed to identify, describe and explore the relationship between the information on crop pests and diseases management aired on *Tuget ab Kobotik* radio programme and its effectiveness among maize farmers in Bomet East Sub County. The findings were based on narrative analysis.

4.2 Response rate

All the 10 selected maize farmers were interviewed. Interviews were conducted among 10 farmers and 2 extension officers selected purposively. The interviews were conducted in 5 wards namely; Merigi, Kembu, Chemaner, Longisa and Kiprerer where two farmers who practice large scale farming of maize in the ward and listen to *Tuget ab Kobotik* programme on Chamgei FM were selected as respondents. This was achieved for the reason that the respondents were selected purposively and interviews done as scheduled based on the appointments given by the farmers.

A focus discussion group was also conducted with ten farmers. The discussion was centralized in Longisa as agreed by the farmers. During the discussion, the farmers

were keen and participated actively. This is because they were passionate about maize farming and were seeking solutions to the various challenges they face such as MLND and fall Army worm which have been of a menace for almost 10 years now. Two key informant interviews were also conducted among two agricultural officers in the sub County where one is based at Longisa and the other at Kiprerer.

4.2.1 Respondents Data

Respondent's data collected included age, gender, education, farm size, duration of maize farming, and decision making on agricultural activities. The results are presented in the sections below.

4.2.2 Gender

In this study gender was also important since it related to the influence on control over assets and resources required (Meinzen-Dick *et al.*, 2011, Wambui & Kae 2019). Both female and male took part in the study. This showed that males and females in the Sub-County take part in farming. Their participation in agricultural activities showed that they depend on farming to fulfil their needs and therefore they are also affected by crop pests and diseases during their production process. The respondents based on gender on the sample size selected were 3 females and 7 males. This means that most of the respondents were male. In the sub-county farming is also seen to be practised more by males than female. This could be due to the culture and norms of the people in the area where land ownership is believed to be for male.

4.2.3 Age Distribution and Education Level

During the data collection, respondents stated their age and the level of education. On the education aspect the researcher was interested to find out the literacy levels of farmers sampled in the five wards so as to determine how they implement the skills acquired from radio programs. Out of the 10 farmers sampled 1 had no formal

education, 4 had primary education, 3 had secondary education, 1 had college education and 1 had university education. The age distribution of the farmers were as follows: 1 farmer was between 35-40 years, 2 farmers were between the age 40-45 years where one was precisely 45 years of age and one was between the age of 45-50 years explicitly 48 years of age, 6 out of the ten farmers were between 50 and 60 years and with specific ages being 50, 52, 55, 58, 59 and 59 and one was 70 years. This implies that majority of the respondents in the area of study involved in large scale commercial farming were above 35 years of age. Most youths as defined by the United Nations (2014) are those between the age of 15 and 24 years based on the above definition, this study alludes that most youths are not involved in large scale commercial maize farming. However the African Youth Charter defines youth as those between age of 15 and 35 years. Linking the youth and the adult population, the youth who were 35 years and below interviewed was one out of the ten farmers of the sampled population. It collaborates with the findings observed by Spurk *et al.* (2012) that the older population is the one involved in farming.

4.2.4 Size of Farm under Maize Farming

The study was aimed at assessing the effectiveness on *Tuget ab Kobotik* program on crop pests and disease management among maize farmers in Bomet East Sub County. The respondents were therefore asked to approximate the size of their piece of land under maize farming. Since the researcher targeted large scale maize farmers, he found out that one farmer which translates to 10% had 5 acres, 1 had 6 acres, 1 had 7 acres, 2 had 10 acres, 1 had 15 acres, 1 had 20 acres, 1 had 23 acres, 1 had 25 acres and 1 had 30 acres of maize.

4.2.5 Purpose of Maize Farming

The study found out that none of the respondents engage in maize farming for entirely subsistence. However, 2 out of 10 farmers, engage in maize farming for entirely commercial while 8 engage in maize farming for both commercial and subsistence. This indicates that majority of them engage in maize farming for income generation and family use.

4.2.6 Duration of Maize Farming among Farmers in Bomet East Sub-county

The respondents reported to have been growing maize in large scale between fifteen to 47 years. The farmers have been practising maize farming as follows; 2 farmers have practiced maize farming for 15 years, 1 farmer for 20 years, 1 farmer for 23 years, 2 farmers for 26 years, 3 farmers for 30 years and 1 farmer for 47 years.

4.2.7 Challenges Faced by Maize Farmers in Bomet East Sub-County

The study found out that for the past five years, the farmers have been faced with various challenges. From lack of market for their produce, crop pests and diseases, frequent weather condition changes, fertilizer prices and expensive farm inputs.

4.2.7.1 Market for the Maize Produce

Market for the produce was cited as a challenge as most farmers agreed that there is market but what hinders them are the ever fluctuating prices. Asked during FGD's they stated that they can access the local market in different capacities however their challenge was on market prices which are often low and most local buyers were exploiting them on prices. Asked if radio helps in pricing and marketing, they said it was not able to state clearly the market prices as they fluctuate. The findings suggest to what Republic of Kenya (2009) indicates that market access is critical to increasing agricultural productivity and commercialization of enterprises so that farming is

perceived as business but most local farmers do not have well-functioning marketing networks for most of their farm produces including maize.

4.2.7.2 Weather Conditions

8 out of 10 purposively sampled farmers said that they have not experienced a difficulty in weather however, 2 maize farmers said that there is a challenge. Farmer 2 said:

4.2.7.3 Maize Crop Pests and Diseases

All maize farmers agreed that they have been invested by pests and diseases. They added that it is more than 5 years now. The crop pests and diseases they listed down include: MLN, FAW, blight, leaf stalk borer and aflatoxin that is mostly experienced due to prolonged poor storage.

Focus discussion group also revealed that farmers faced challenges and losses due to crop pests and diseases. They even revealed that for the past five years MLN has been a major problem and that they have not found any solution to the problem to date.

Also during the Key informant interviews with agricultural extension officers, it was found out that crop pests and diseases were a major challenge that farmers faced in the area. The extension officers said that they had tried their best to help farmers however, new pests and diseases invested the area and sometimes the disease would re-invest the area with new symptoms making it hard to come into a conclusion about a particular pest or disease.

4.2.7.4 Poor Maize Seeds

Results showed that most of the farmers did not have a problem with the seed. However, there are some farmers who indicated that the seeds could be a cause of their decrease in harvest. Farmer 3 claimed:

Sometimes seeds do not grow as expected for instance if you purchase 2 packets of certified seed from the same shop and plant in the same farm without mixing

you will realize that where you planted one packet grows well and the harvest is higher while the other side where one packet was planted struggle to grow and end up harvesting less.

Farmer 2 affirmed:

Sometimes the seeds germination percentage is lower than what is indicated in the seed packet and I therefore gamble with the seeds by changing the varieties and repeatedly plant that which did better in the previous years.

Farmer 3 added:

I have always thought that seeds could be a problem and my harvest has been low but on planting DK777 of Monsanto Company as recommended by Tuget Ab Kobotik program, I harvested more.

This was an indicator that pests and diseases that affect crops are sometimes seed borne and farmers need to look for the genuine seed from genuine seed sellers.

4.2.7.5 Changing Fertilizer Prices

All farmers agreed that the fertilizer is always available however, the prices keep rising posing a challenge to farmers who are sometimes forced to reduce the amount they use on top dressing. They added that a bag of 50 Kg of fertilizer currently costs more than Ksh. 3,000.

4.2.7.6 Expensive Machinery

All farmers agreed that they do not have a problem with machinery. Majority of the respondent said that they use tractor for planting and human labour for weeding. While some said that they use oxen since their land a bit sloppy and the topography do not allow use of tractor. After harvesting they said they hire a shelling machine which shells maize at Ksh. 100 per bag.

4.2.7.7 Knowledge on maize farming

Results showed that most of the respondents had knowledge on maize farming but acknowledged changing behaviour in terms of pests and diseases. One farmer noted having insufficient knowledge on maize farming. Farmer 3 said I do not have less

knowledge of maize farming while the others acknowledged having acquired enough knowledge but the challenge comes in when there are new pests and/or disease in the maize farms.

4.3 Sources of Information on Crop Pests and Disease Management Techniques

The study collected data on sources and frequency of information on crop pests and diseases management among maize farmers in the study area. This variable was important in indicating where the respondents got information on Crop Pests and Diseases.

4.3.1 Sources of information on Crop Pests and Diseases and reasons for preferences

During data collection, respondents were asked to name their sources of information on agriculture and especially on Crop pests and Diseases Techniques. Various sources were listed. Respondents were also requested to indicate whether the source named met their information needs by rating it, the results are presented below.

4.3.1.1 Agricultural Extension Officers as Sources of Information on Crop Pests and Diseases

Extension officers are effective in giving information and knowledge on crop pests and diseases to farmers. The services rendered by these extension officers are mostly practical which helps farmers to observe hence the ability to learn faster. The demonstrations also allow farmers to recall the information easily and the information is retained for long. From the interviews conducted, it revealed that majority of the respondents were able to access information on crop pests and diseases from the extension officers while few of the respondents indicated they did not receive information from the extension officers as required. Even though the information was not sufficient as indicated by most of the respondents who received information from

these extension officers, the respondents agreed that the information received was relevant. Some of the respondents however, said that the information was insufficient due to less contact time between the farmer and extension officers. A farmer also added:

When a disease is very new it is unique extension officers therefore, need time to learn about a crop pest or a disease for him to be able to give the right information on the control and management measures to the farmers.

On interviewing extension officers, they said that, they reached farmers through public barazas and farmer to farmer visits however farmers sometimes go for these meetings with their own problems in mind inhibiting the level of understanding. Extension officers also added that the barazas and meetings they organize are crucial for knowledge and experience sharing among farmers however, not all farmers attend meetings due to lack of finances and poor infrastructure.

The ratio of extension officers to farmers can also be attributed to insufficiency of information. The ratio stands at 1:1500 as revealed by key informant interviews. This was brought about by non-replacement of retired officers.

In Longisa ward we have a retired extension officer who has not be replaced and I therefore need to cover a larger area until when the officer will be send to replace the retired officer
.... said one of the extension officers.

4.3.1.2 Use of other Farmers as Sources of Information on Crop Pests and Diseases

The respondents were asked whether they obtained information on crop pests and diseases management from fellow farmers. The results showed some of the respondents obtained information on crop pests and diseases from their friends. Farmers said:

Sometimes when we sit we discuss various issues including issues on crop pests and diseases when there is an outbreak to alert our fellow farmers so that they be on the lookout before we raise an alarm to the extension officers.

4.3.1.3 Radio as a source of Agricultural Information on Crop Pests and Diseases

All the respondents indicated that they receive information on crop pests and disease management via radio. Results further showed that most of the respondents preferred radio because it was highly available since they owned it. They also added that radio was portable and therefore they can carry their radio gadgets to the farm and different areas they were working during the day. Farmer 6 also added that, he didn't have electricity connection in his home and that he uses dry cells in his radio making it portable and not inconveniencing unlike other means such as TV which require electricity or solar power supply.

Asked the same question during FGD's they revealed that they got information on crop pests and diseases via radio as it is cheap. KIIs with the extension officers also revealed that farmers sourced information on crop pests and diseases on radio. They acknowledged that there is agricultural information available from various radio stations such as Changei which has *Tuget ab Kobotik*, and Kass with Agritech. The findings espouse that radio is a relevant too in information circulation on crop pests and diseases. It alludes to the findings by Musa *et al.*, (2011) in a study where radio was studied and highly ranked as an effective ICT in disseminating agricultural information. Other study cooperates with the findings with a study by Ango *et al.*, (2013) finding out that majority of farmers relied on radio as a source of agricultural information. In the radio spectrum, this study denotes that local language stations are highly positioned to impact the agricultural sector by channelling information to their audience.

4.3.1.4 Television as a source of Information on Crop Pests and Diseases

On use of Television as a source of information, an average number of the respondents said that they owned TV sets and access agricultural information on them. They indicated that agricultural programs are aired on television in specific days of the

week and they miss them by either being engaged somewhere or while listening to other channels. Asked the same question during a FGD they all agreed that Television was unreliable as they can miss the programs because of their work schedule, power interruptions, inability to move around with television sets and language barriers. KII with extension officers showed that maize farmers owned TV and they accessed agricultural information from various TV stations such as KTN farmers, Citizen TV which has shamba shape up and Kass TV with Agritech program.

One of the agricultural officers declared:

While in the public barazas farmers usually ask us to rush through the program because they want to catch up with several agricultural programs in various TV stations like KTN and Citizen. This means that the information they get from these sources are very helpful.

4.3.1.5 Print media as a Source of Information on Crop Pests and Diseases

Results show that some of the farmers accessed print media however not frequently due to distance. The maize farmers said that, newspapers are available in Longisa town which is an average of 12 KMs from their areas of residents and roads are impassable when there is heavy down pour. Most of the farmers who accessed the print media however said that sometimes they do not get their copies due to cost. This is in agreement with Key informant interviews with two extension officers who said:

Maize farmers can get information on maize farming however, most farmers in the area are illiterate and are therefore not likely to understand the information.

4.3.1.6 Social Media as Sources of Information on Crop Pests and Diseases

The study also revealed that very few respondents accessed information on crop pests and diseases via social media. During interview, one of the farmers said:

I use different social media platforms such as Facebook, WhatsApp and even access Tuko news on their Facebook page to get information on crop pests and diseases however, sometimes the internet connectivity is a problem because network in this area is poor.

This however is contrary to the findings by Cline (2011) & Kuria (2014) where most respondents allocated most of their time to social media sites to gain agricultural information and participated in the sites. This was attributed to the education level and age of the respondents in Bomet East Sub-County.

4.4 Radio Programs that attract Listenership

All the respondents said that educational programs attracted their listenership to radio. Farmer 1 and 5 added that agricultural information is what they listen to mostly because they are more interested in farming as it is their source of income.

On the other hand, an average number of the respondents said that, they were also attracted by news and political information because they would like to know what is going on around the globe. One of the respondents however revealed that they used radio to satisfy their entertainment needs. Farmer 2 stated:

When I am tired especially after a long day in my farm, I tune in to radio to listen to music as it helps me in relaxing and avoiding stress because I sometimes count losses that are likely to hit me especially when my crops are invested by pests and diseases.

4.5 Platform Used to Listening to Changei FM

All the respondents said that they access Changei FM via a radio gadget. Most of the respondents said that they used a radio set because it is affordable and cheaper compared to other gadgets making it easy to acquire. They also added that a radio set is portable making it easy for them to carry around and listen to the programs of their preference such as *Tuget ab Kobotik* at their convince that is, while at home and in the farm.

The maize farmers also indicated that they access *Tuget ab Kobotik* Program on Changei FM via a radio set because it was cheap to acquire, portable and didn't face any interruption due to power that is, they used dry cells to power their radios since

most of them did not have access to electricity. One of the respondents during interview maintained:

Radio does not entirely depend on electricity for its operation. In this area we therefore use radio set because most of us do not have electricity connectivity or any other source of power and depend entirely on dry cells which are easy and cheap to acquire because they are available in the shops.

None of the respondents reported to access Chamgei FM via social media or online. This was attributed to the age and literacy levels of the respondents where a majority of them were above 50 years and with primary education.

The farmers were also not aware that digital television could be used as a platform to access radio.

The only way I know I can access a radio program is through radio while television is for TV programs which are audio-visual.

On being asked if they use their mobile phones to access Chamgei FM, the farmers said their phones could not access because it required them to connect the earphones which act as antennas.

When we buy mobile phones, the first thing we lose or give to our children are the earphones because we do not know their use. Again people in our society cannot respect you as an old person if they find you with the headphones or earphones because these are for the young people.

This was further asserted by the findings from key informant interviews and focused group discussion where all the farmers said that they accessed Chamgei FM via radio set.

4.6 Frequency of farmers' listenership to *Tuget Ab Kobotik* Program

When asked the frequency at which they listen to *Tuget ab Kobotik* program, an average number of the respondents revealed that they listen to the program frequently. Some of the respondents however revealed that they listened to the program selectively while few of the respondents listened to the program occasionally.

Focused group discussions confirmed that most farmers listened to *Tuget ab Kobotik* frequently while a few listened selectively and occasionally. FGDs also affirmed that the maize farmers listened keenly to these programs during the active growth of their maize crops and when not engaged in any work in the farm.

4.7 How Farmers use Information from Tuget ab Kobotik on Crop Pests and Diseases

The study followed up on the question whether *Tuget ab Kobotik* Program informed and educated farmers on crop pests and diseases management. It also collected information on how farmers used the information from the program in their agricultural activities. This was important as the study wanted to establish whether information from the program influenced their maize farming activities and their maize productivity.

All the farmers agreed that the program informs and educates them on crop pests and diseases. On the use of the information which they get from the radio program, all the respondents agreed that they put into practise the information from the program to manage pests and diseases in their maize farms.

Upon being asked how they use the information from the program to manage crop pests and diseases, some farmers stated:

We report signs of disease as taught by the program to the nearest extension officer and in case of a pest, we pick the pest and carry them with us during public barazas. Sometimes we walk to their offices and avail the pest to the officers for advice on the methods of control. The extension officers also identify these pests and diseases during their field visits.

Other farmers asserted:

We practise crop rotation, collect soil samples from the maize farm for testing after every 5 years and wash our farm tools after use to avoid spread of pests and diseases as taught in the program.

During focus discussion group, the respondents attested:

The information we get from the program is beneficial and has greatly influenced our farming practices hence, maize productivity. For instance, we prepare our land early enough before the onset of rains to allow time for decomposition of macro and micro-organisms. After which we plant certified seeds some few days to the onset of rains. We weed our crops early enough so that the plants cannot compete for nutrients with the crops. After the first weeding, we then top dress our crops and walk to our maize farms frequently to check for any signs of pests and diseases after which we harvest them during a dry season to avoid losing the produce due to diseases while being stored.

Farmers revealed that *Tuget ab Kobotik* Program informed and educated maize farmers on crop pests and diseases. The findings through FGD revealed that these farmers had implemented the teachings from the program based on the challenges they faced and the stage at which the crops were. It also revealed that they preferred the chemical control methods because, according to them, it was the easiest method to use in farming activities.

During KII, extension officers were asked if they recommended the farmers to put into practise the information they get from *Tuget ab Kobotik* program. They said that:

We highly recommend our farmers to implement the information from the program because it addresses the current issues affecting maize farmers especially the crop pests and disease menace which is causing havoc.

4.8 Information on Maize Crop Pests and Diseases Management from *Tuget ab Kobotik* Program

Upon being asked about the information on maize crop pests and diseases from *Tuget ab Kobotik* program, farmers revealed that they received a lot of information which ranged from land preparation to post-harvest. The farmers indicated that the program producer informed farmers on when and how to prepare their land, when and how to plant that is, the spacing of the crop along the row and spacing between the rows, when to weed and top dress. The farmers also revealed that they were taught on

regular farming activities which include identification of pests, monitoring and control of the pests and diseases. In controlling of pests farmers indicated that they were taught the physical, chemical and biological control measures they were expected to take for each crop pest such as fall army worm and diseases such as maize lethal necrosis disease.

During focus discussion group farmers said:

We are now able to identify different pests and diseases based on the characteristics given by the program producer and this has helped us take the different measures to control them. As farmers we have been encouraged to start with physical control and choose chemical control as the last option where all other control measures have failed.

Before receiving information on proper storage practices, we could lose almost half of our harvest during storage because our storage structures had poor ventilation, dump and small. This facilitated growth of bacteria and fungus which later infested our produce and ended up not selling them because they could not meet the quality for human consumption. The information from the program has also helped us understand that pests and diseases does not only affect maize during their active growth but, also active during storage of our harvest. As a result we have tried putting into practice measures such as not allowing the sacks we use to store our maize to come into contact with the floor and wall and ensure proper ventilation of the storage rooms.

4.9 Efficacy of Tuget ab Kobotik Program on Maize Farmers' Crop Pests and Diseases Management

The study sought to find out what had stimulated the respondents to use the information from *Tuget ab Kobotik* program. The results revealed that the maize farmers wanted to increase their maize productivity and avoid post-harvest losses. And on asking them to compare their production before and after listening to *Tuget ab Kobotik* program, it showed that all the respondents' quantity and quality of production had improved. However, the respondents indicated that they had not reached the expected maximum yield of maize per acreage, during an interview one of the farmers attested:

Since I started listening to the program, my maize productivity have improved up to 40 bags per acre from 3 bags per acre although I have not reached the maximum yield of 60 bags per acre that I could harvest before pests and diseases infestation.

Upon asking the extension officers whether maize production had improved in the last 5 years in the subs-county generally, all the two extension officers said that

from the records they had, there was a clear improvement in maize farming compared with about 8 years ago when the area was hard hit by MLN and later with FAW. One of the extension officers claimed:

Records indicate that maize productivity in the area has greatly improved in the last 5 years because farmers have been able to manage crop pests and diseases using available information from various sources unlike when the diseases were new.

As per the extension officers the increase in productivity can be attributed to the information gained by farmers from radio agricultural programs with Changei FM's *Tuget ab Kobotik* program as a sure source of information on maize crop pests and diseases management in Bomet East Sub-County. The purposively sampled farmers and the extension officers were asked if the *Tuget ab Kobotik* program was helpful to them. Most of the respondents indicated that the program had aided in the increase in their farm outputs with increase in the number of maize bags per acreage. The respondents rated information gained from radio program on crop pests and diseases management highly as it had assisted most of them to achieve high yields in maize produce due to reduced risks of crop pests and diseases like Fall Army Worm and Maize Lethal Necrosis Disease which are now under control.

Tuget ab Kobotik program has aided as in gaining new skills in fighting crop pests, before we could wait for officers and companies selling pesticides to come to our area and teach us new methods.

...noted farmer 4 whose view in Focus discussion group was supported by the other farmers.

During FGDs the respondents revealed that the program was a success to their farming activities since they had been able to implement most of the crop pests and diseases management activities and their productivity had improved. The farmers also added that post-harvest losses as a result of poor storage had reduced.

The extension officers, who also listened to the program, said that the program had an impact on maize crop and pest management among farmers in Bomet East Sub-County. They added that radio had made their work easier as they supplemented the information they provided. *Tuget ab Kobotik* program was also rated highly by the extension officers in provision of information on crop pests and diseases management among maize farmers in Bomet East Sub-County by the extension officers.

The extension officers expounded that use of local languages in delivering information on crop pests and diseases management to the farmers was of significance. One of the the extension officers affirmed:

Tuget ab Kobotik program airs content on crop pests and diseases and uses kipsigis language making it easy for the maize farmers in Bomet East Sub County to comprehend the information and use them to improve their productivity.

The two extension officers sampled in Bomet East Sub-County also said that, the reports from most maize farmers during field engagements indicated that information delivered to farmers was productive as there is decrease in crop pests and diseases and acquisition of new farming skills.

Focus discussion group with the maize farmers tallied with the findings from the interviews. Farmers agreed that their maize produce increased after listening and using the information gained from *Tuget ab Kobotik* program since they had been able to manage most pests and diseases during the active growth of the crops and even had also managed to reduce their post-harvest loses.

4.10 Participation of Farmers in *Tuget ab Kobotik* Program

All the farmers revealed that they had given views to the program producer and the Changei FM station concerning *Tuget Ab Kobotik* program. Most of them said they had called the producers at the end of the program to give their views since the program

was helpful. Some revealed that they had written short messages to the program producers requesting them to either repeat airing of information during the previous session. While few of the respondents requested the program to be prolonged to at least 10 minutes per session.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Overview

This chapter gives a summary of the findings, conclusion and recommendations of the study. The conclusion of the study has been formulated from the findings and a summary on the same has been given. The section also gives recommendations to the study based on the respondent's opinions on local language radio on crop pests and diseases management: a case of Changei FM *Tuget ab Kobotik* program among Maize Farmers in Bomet East Sub-County.

5.1 Summary of the Findings

Findings from the study indicate that farmers depend on maize for both subsistence and commercial. The findings further indicated that all the farmers in this study used radio as a source of information for education on agricultural matters such as crop pests and diseases which was identified as a major challenge and the main cause of decreased productivity. The maize farmers further indicated that they accessed *Tuget ab Kobotik* Program on Changei FM via a radio set because it was cheap to acquire, portable and didn't face any interruption due to power that is, they used dry cells to power their radios since most of them did not have access to electricity.

Findings from the study also show that maize farmers in Bomet Sub- County depend on local language radio for information on crop pests and diseases management, marketing and pricing, choice of best agricultural inputs such as certified seeds and fertilizers and both at the active growth period of the crop and during storage. This tallies with Sokoyo *et.al* (2014); Murumba & Mogambi (2017) who stated that information is a basis of success in human endeavour in the crop production chain toward ensuring food security.

Findings further revealed that, Changei FM, *Tuget ab Kobotik* program was used by all the maize farmers because it informed them on crop pests and diseases meaning that the information from this program was relevant as it taught them on how to identify, scout, monitor and even control these pests and diseases using various methods such as chemical, mechanical and biological control methods. It also taught them on good agricultural practices such as crop rotation to help break the crop pests and disease cycle and soil testing to ensure that the soil was free from macro and micro-organisms that could cause harm to their maize crops. The reason for utilization of the program was also due to the Kipsigis language used by the producers of the program which the respondents identified themselves with and they could therefore understand.

The findings from the study also revealed that maize productivity in Bomet East Sub-County had increased. This was attributed to the information they got from *Tuget ab Kobotik* program where farmers revealed that they implemented the information on crop pests and diseases management partially based on the growth stage of their maize crops and the pests and diseases that affected them at the different stages. Despite the *Tuget Ab Kobotik* program being helpful, farmers in the area still face challenges that affected their production. These challenges include high cost of farm inputs such as fertilizer and financial constraints which limits them from implementing all crop pests and diseases management methods as taught in the program.

Since all (100%) of the maize farmers used the messages on crop pests and diseases management from Changei FM's *Tuget ab Kobotik* program, the findings of the study revealed the program has been effective. All (100%) the respondents revealed that their productivity per acre had improved after adopting the methods of pest and disease control as learned from the program even though they partially implemented them.

5.2 Conclusion

The findings from this study, show that radio and the information shared on local language radio educates farmers in Bomet East and therefore has impact on crop pests and diseases control among maize farmers in in this area.

In this regard, the study found out that *Tuget ab Kobotik* program on Changei FM comes in hand and the information shared has impact on crop pests and diseases management. Local language radio is popular and the content gained from the local radio is of benefit in fighting crop pests and diseases. The results are consistent with Mogambi (2016) 's observations postulating that radio has proven to be a sustainable and interactive platform for poor oppressed communities to be heard and educated, to shape knowledgeable opinions, to learn the give-and - take of informed discourse and to be decisive agents in their own development.

Changei FM is dominant in the area studied with the program and *Tuget ab kobotik* having bearing on the farmers as it has also contributed to the increase in maize production. The use of local language (Kipsigis) for transmitting content on Changei FM which is understood by most farmers in this area has contributed to adoption and implementation of the knowledge shared in the agricultural program.

Changei FM which is a local radio station that airs its programs using the local dialect has proven to be an effective tool that maize farmers use and a medium to educate and inform them on agricultural matters such as crop pests and diseases which is a major challenge affecting farmers in Bomet East Sub- County. The main aim of *Tuget ab kobotik* program is therefore to improve maize productivity of the farmers hence, improve their lives. What matters most is the adoption of the information transmitted via *Tuget ab Kobotik* program and the efficacy.

Feder, Just, and Zilberman (1985) have defined adoption as the degree of use of a new technology when a farmer has full information about the technology and its potential. This study therefore sought to understand the potential therein of *Tuget ab Kobotik* program in relation to maize farming in Bomet East Sub-County of Bomet County.

Adoption can be said to be the process by which a new technology or information ranges or diffuses within a given area or region. In implementation and adopting an idea, there is variation between households. Radio programs are periodical and it's based on the periodically modification of the program that information is received, implemented and the measure of its success analysed. Maize farmers are also known to adopt technological information packages in steps, beginning with those that are simpler and cheaper to achieve. The maize farmers in Bomet East Sub-County indicated that they have to a greater level adopted the content shared on *Tuget ab Kobotik* program crop pests and disease management.

During data collection, maize farmers recommended the producers of the program to do farm visits and demonstrate to the farmers the methods suggested in the program in crop production and farming skills. This was deemed to be necessary as it would help farmers acquire more knowledge and practical skills required to improve maize productivity.

5.3 Recommendations

Some of the recommendations the maize farmers and extension officers to the station are:

- i. To reschedule the evening program which runs for 5 minutes from 6:55 p.m. to 8 p.m. so that everyone can have a chance to listen to the program since everyone at around the time has reported back home. They also recommended

that the program producers should have a field visits to these farmers where they can demonstrate to the farmers the various aspects of crop pests and diseases management from identification to management to specific pests and diseases.

- ii. Local language radio need to promote agricultural dialogue. This would help their audience embrace openness in dealing with issues that emerge from their maize farming activities. This will make farmers identify fully with content suitable to them and have a chance to voice their differences and opinion to improve on their productivity.
- iii. There is an interesting combination of approaches in maize farming, the use of local language radio for management of crop pests and diseases is sturdy, and this study recommends set up of policies by the ministry of information communication and technology that will control content production by local media houses suitable for farmers in varied fields.
- iv. Journalists who are program producers and presenters of agricultural programs need a sophisticated understanding of cause and effect of different challenges that face farmers in developing content for the farmers. There is need to include journalists in beat training on agricultural sector by the relevant stake holders to ensure improvement in designing and packaging of content for the audience who are farmers.
- v. The producers should also partner with specialists a such as researchers and extension officers to educate farmers on how to identify various crop pests and diseases, monitor and even manage them.

5.4 Recommendations for Further Research

Maize is a major food crop grown in Kenya's coastal area and constitutes a major component of the population's diet. However, average yields are well below the

region's capacity, and low levels of production are causing significant food deficits. Improved techniques for maize production are essential to overcoming these deficits. As described in the theory of uses and gratifications used in this report, this study cements the notion that radio is effective in communication and adds to the knowledge basket that radio is effective in spreading information among maize farmers on the management of crop pests and diseases.

The study recommends further studies in the development of content on local radio for farmers and majorly mixed farming which is being implemented by most large scale farmers.

Extension services need to be strengthened especially where lack of knowledge is cited as a hindrance to adoption of new technologies. This study therefore proposes further studies in the influence of digital media use by extension officers in the enhancement of new farming technologies in Bomet County.

The varied challenges affecting farmers in Kenya keep on fluctuating; this study sets room for the study on uptake of varied media information by different farmers in suppressing consumer behaviour encounters in the market.

Studies on the role the media plays when advertising of farm inputs including fertilizer and seeds and their impact to farmer adaptability would also open up the gaps in media functions.

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APPENDICES

Appendix I: Introduction Letter

Joyce Chebet

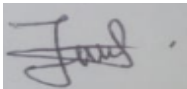
University of Nairobi

Dear Sir/ Madam,

RE: DATA COLLECTION

I am a post graduate student at the University of Nairobi. I am undertaking a Master of Arts in Communication Studies. This is to therefore request that you give me information through dialogue as part of my academic research. This information is purely academic and will be confidential. Your co-operation will be highly appreciated. Thank you in advance as I look forward to your co-operation.

Yours Faithfully,



JOYCE CHEBET

Appendix II: Interview Guide

An interview guide for maize farmers in Bomet East Sub County

SECTION A: DEMOGRAPHIC PROFILE OF INTERVIEWEE

1. AGE

2. GENDER Female Male

3. LEVEL OF EDUCATION
Primary Secondary
College University
4. How large is your maize farm?
.....
5. Do you deal in farming for subsistence or commercial?
Subsistence
Commercial
Both
6. For how long have you practiced maize farming?
.....
7. What challenges have you faced in maize farming in the past 5 years?
Market prices
Pests and diseases
Changes in weather conditions
Poor seeds
Fertilizer
Lack of proper machinery
Lack of maize farming knowledge
8. Which crop pests and diseases have ever invaded your maize farm?
.....
.....

9. How do you get information on crop pest and diseases management?
Print media
Extension officers
Radio
Television
Other farmers
Others....
b) Why do you prefer the selected means above.....
.....
10. Which programs attract you to listen to radio?
Educational
Entertainment/ Musical
News
11. Through which platform do you listen to Changei FM station?
Radio gadget
Mobile Phones
Online

Television set []

Social media.... []

b) Why do you prefer the selected means above.....

.....

12. How often do you listen to the *Tuget Ab Kobotik* Program?

Regularly [] Occasionally []

Selectively [] Don't listen []

13. Does the program inform and educate maize farmers on crop pests and diseases?

.....

b) How do you use the information on crop pests and diseases in managing your maize crops?

.....

c) Do you fully implement the information acquired from the program?

.....

14. How has the information acquired from the program influenced your management of maize crop pests and diseases?

.....

.....

15. How can you rate your maize productivity per acreage before and after using the learned skills on managing maize crop pest and diseases?

.....

.....

16. Do you think the *Tuget ab Kobotik* Program gives sufficient information on crop pests and diseases management?

.....

.....

17. Would you rate the program as success or failure in relation to maize crop pests and diseases management?

Successful [] Unsuccessful []

18. Have you ever given any views on farming methods in Bomet East Sub County to Changei FM?

.....

.....

19. What recommendations would you suggests to Changei FM about the *Tuget ab Kobotik* Program?

.....

.....

Appendix III: Key Informant Interview Guide

A Key Informant Interview guide for extension officers in Bomet East Sub County

1. What are the sources of agricultural information available to maize farmers in this area?
2. Do the sources meet the information needs of the farmers?
3. Kindly lists the sources of information on crop pests and diseases management used by the farmers in this area?
4. Which communication methods do you utilize when communication to farmers in Bomet East Sub County?
5. Are you aware of specific radio programs that target farmers? If yes, kindly state them.
6. For the last five years has the productivity of maize in the area improving or decreasing?
7. How is the content on *Tuget ab Kobotik* program on Changei FM helpful to maize farmers in Bomet Sub-County in managing crop pests and diseases?
8. Would you recommend farmers to put into practice the information they get on *Tuget ab Kobotik* Program on Changei FM?
9. What recommendations would you give to the producers of *Tuget ab Kobotik* program on Changei FM?

Appendix IV: Focus discussion group Guide

Focus discussion group Guide for maize farmers in Bomet East Sub- County.

1. What are some of the challenges you face as maize farmers in Bomet East Sub-County?
2. Through what platform do you listen to Changei FM station?
 - Radio gadget
 - Mobile Phones
 - Online
 - Television set
 - Social media....

b) Why do you prefer the selected means above.....
3. How often do you listen to *Tuget ab Kobotik* radio programme?
4. Does the *Tuget ab Kobotik* program inform and educate maize farmers on Crop pests and diseases management? Please explain
5. Have you been able to practice the crop pests and diseases management activities as discussed by *Tuget ab Kobotik* program on Changei FM? Please explain in detail
6. Is the information on *Tuget Ab Kobotik* program sufficient to your farming practices on Pests and diseases management?
7. Would you rate the program as success or failure in relation to maize crop pests and diseases management?
 - Successful
 - Unsuccessful
8. How has the information acquired from the program influenced your management of maize crop pests and diseases?
9. How can you rate your maize productivity per acreage before and after using the learned skills on managing maize crop pest and diseases?
10. What are the advantages of using Changei FM's *Tuget ab Kobotik* program as a source of information?
11. What challenges do you experience as farmers in using the program?