

**Commercial Vernacular Radio Stations and Food Security in
Machakos County: A Case of Musyi FM**

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DECLARATION

This research project is my original work except where indicated in reference in the text. The report preparation was carried out in accordance with the regulations of University of Nairobi, and it has never been presented in this or any other university for any academic purpose.

Mr. Michael Mwikya Mwangangi

Date

Approval

This Research project has been presented to the University of Nairobi with my approval as the supervisor.

Mr. Samuel Ngigi

Date

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DEDICATION

To my wife Rachael M. Mutua

Victor Mwangangi our son,

My parents: Mr. and Mrs. Mwangangi and Sister Salome Syombua for their support in time of need.

ABSTRACT

Agricultural information dissemination is an important aspect in the quest to improving food security in Kenya and particularly Machakos County. Studies have proved radio to be the most effective mass media for this purpose especially the vernacular ones. Vernacular radio is ideal in disseminating agricultural information and food security issues as majority of the people reside in rural areas, do farming as their economic activity and are characterized with illiteracy and low levels of income. Therefore using any other medium or national languages of English and Kiswahili will cut off some of them. Informed by diffusion of innovations and dependence theory of mass media, this study sought to establish the contribution commercial vernacular radios have in enhancing food security in Machakos County by focusing on Musyi FM as a case study. The study focused on Mananja and Mamba, which are two representative administrative sub locations of the farming activities carried out in the county. Through systematic random sampling, a sample size of 176 individual farmers were selected and three key informants who included the assistant head of Musyi FM radio doubling up as a program presenter at the station and two ward agricultural officers; one from Ndithini and the other from Kithimani ward were purposively selected. The study adopted a mixed qualitative and quantitative research methods to collect data through questionnaires, in-depth interviews and content analysis on Musyi FM programs. The data was analyzed and presented as frequency distribution tables, bar charts and narrations from which conclusions and recommendations were made. The study found that CVR stations delivery of agricultural information to rural farmers in an effort to improve food security in Machakos County was hindered by inappropriate broadcast time, poor signal and power problems. However the study found that CVRS were the best medium of ending food insecurity in Machakos County as they were the major source of agricultural information to farmers in the county. To improve food security in the county the researcher recommended CVR stations to broadcast their agricultural programs from 7.30pm to 9.00pm and improve their signal in all areas they cover.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xi
LIST OF FIGURES.....	xii
ACRONYMS	xiii
OPERATIONAL DEFINITION OF TERMS AND PHRASES.....	xiv
CHAPTER 1.....	1
INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem statement.....	4
1.3 Objectives of the study	5
1.4 Research questions.....	6
1.5 Justification of the study	6
1.6 Scope of the study.....	7
1.7 Limitations of the study	7
CHAPTER 2.....	9
LITERATURE REVIEW.....	9
2.1 Introduction.....	9
2.2 Existing literature on the study	9
2.2.1 Radio landscape in Kenya.....	9
2.2.2 Vernacular radio	10

2.2.3 Causes of food insecurity.....	11
2.2.4 Radio as an extended tool for food security	15
2.3 Summary	19
2.4 Research gap	21
2.5 Theoretical and conceptual framework.....	21
2.5.1 Theoretical framework.....	21
2.5.1.1 Diffusion of innovations	21
2.5.1.2 Dependence theory of mass communication	22
2.5.2 Conceptual frame work.....	23
Figure2.1 Conceptual frame work	23
CHAPTER 3.....	25
RESEARCH METHODOLOGY	25
3.1 Research design	25
3.2 Research population.....	26
3.3 Sample and sampling techniques.....	26
3.4 Research instruments	27
3.5 Data collection procedure	28
3.6 Validity of the research instrument.....	28
3.7 Data organization.....	29
3.7.1Data processing.....	29
3.7.2Data coding scheme	29
3.8 Data analysis	29
CHAPTER 4.....	30
DATA ANALYSIS, PRESENTATION AND DISCUSSION	30
4.1Introduction.....	30

4.2 Response rate	30
4.3 Demographic characteristics	30
4.3.1. Gender composition of the respondents.....	30
4.3.2 Age of the respondents	31
4.3.3 Education level of the respondent.....	32
4.3.4 Occupation	33
4.3.5 Farming activity	33
4.3.6 Period the activity has been undertaken	34
4.3.7 Respondents income per month	36
4.4 Analysis of farmers’ utilization of commercial vernacular radio	37
4.4.1 Respondents source of agricultural information on farming activity exercised	37
4.4.2 Commercial vernacular radio listenership	39
4.4.3 Duration spent listening to CVR.....	40
4.4.4 Access to radio	41
4.4.5 Agricultural information accessed through radio	42
4.4.6 Agricultural information heard from radio and practiced.....	42
4.5 Commercial vernacular radio and food security	44
4.5.1 Source of food security information	44
4.5. 2. Food security information gotten from radio.....	45
4.5.3 Practiced food security information gotten from radio.....	45
4.5.4 Source of market prices	46
4.5.5 Level of satisfaction	47
4.6 CVR and challenges faced in improving food security	48
4.6.1 Challenges faced while relying on CVR as a source of food security information.....	48

4.6.2 Solution to challenges facing farmers relying on CVR for agricultural information.....	49
4.7 CVR and farmers information needs	50
4.7.1 Farmers information needs	50
4.7.2 Source of information needs for farmers	51
4.7.2 Farmers other information needs	53
4.7.3 Consequences of lack of other farmers information needs.....	55
4.7.4 Solution to the farmers needs.....	55
CHAPTER 5.....	57
SUMMARY, CONCLUSION AND RECOMMENDATIONS	57
5.1 Introduction.....	57
5.2 Summary	57
5.2.1 Farmers and commercial vernacular radio stations	57
5.2.2 Commercial vernacular radio and food security	58
5.2.3 Commercial vernacular radio and challenges faced in improving food security	59
5.2.4 Commercial vernacular radio and farmers information needs.....	59
5.3 Conclusion	60
5.3.1 Farmers and commercial vernacular radio stations	60
5.3.2 Commercial vernacular radio and food security	61
5.2.3 Commercial vernacular radio and challenges faced in improving food security	62
5.2.4 Commercial vernacular radio and farmers information needs.....	62
5.4 Recommendations.....	62
5.4.1 Recommendation for a further study	63
REFERENCES	64

APPENDICES.....	70
Appendix 1 Map of Kenya and the 47 Counties.....	70
Appendix 2 Map of Machakos county- the study area.	71
Appendix 3 introduction letter.....	72
Appendix 4 Farmers survey questionnaire.....	72
Appendix 5 key informant interview schedule for agricultural officers.....	79
Appendix 6 key informant interview schedule for head of radio Musyi FM	80
Appendix 7 code schedule	81

LIST OF TABLES

Table 4.1 Occupation.....	33
Table 4.2 Farming activities practiced by respondents.....	34
Table 4.3 Source of agricultural information on farming activity exercised.....	37
Table 4.4 CVR Listened.....	39
Table 4.5 Duration spent listening to CVR.....	40
Table 4.6 Radio access.....	41
Table 4.7 Agricultural information accessed through radio	42
Table 4.8 Listened and practiced agricultural information from radio	43
Table 4.9 Source of food security information	44
Table 4.10 Food security information gotten from radio.....	45
Table 4.11 Practiced food security information gotten from radio.....	46
Table 4.12 Source of market food prices	46
Table 4.13 Challenges faced while relying on CVR as a source of food security information.....	48
Table 4.14 Solution to challenges facing farmers relying on CVR for agricultural information.....	49
Table 4.15 Farmer information needs	50
Table 4.16 Source of information needs for farmers	53
Table 4.17 Farmers' other information needs.....	54
Table 4.18 Consequences of lack of other information needs	55
Table 4.19 Solution to the farmers needs.....	56

LIST OF FIGURES

Figure2.1 conceptual frame work	23
Figure 4.1 Respondents' age.....	31
Figure 4.2 Education levels of respondents	32
Figure 4.3 Period the respondent has carried out the farming activity	35
Figure 4.4 Respondents income per month.....	36
Figure 4.5 level of satisfaction.....	47

ACRONYMS

ASALs	Arid and Semi-Arid Lands
BBC	British Broadcasting Corporation
CVR	Commercial vernacular radio
DW	Deutche welle
FAO	Food Agricultural organization
FRAISSFK	Final Report on Agricultural information for Small Scale Farmers in Kenya
GOK	Government of Kenya
ISS	Institute of Security Studies
KARI	Kenya Agricultural Research Institute
KBC	Kenya Broadcasting Corporation
KNBS	Kenya National Bureau of Statistics
MCK	Media council of Kenya
RC	Radio china
RFP	Radio France Press
RMS	Royal Media Services
UNESCO	United Nations Educational, Scientific and Cultural Organization
VOK	Voice of America
WFO	World Food Organization

OPERATIONAL DEFINITION OF TERMS AND PHRASES

Community radio – it's a medium in which the community participates as planners, producers and performers. It is a means of expression of the community rather than for community (Berrigan, 1979). It can also be defined as a low power radio station established, financed and manned by the people in the community using their local language other than the official language. The radio itself acts as a principal channel for this interaction with unrestricted opportunities for members of the community, as individuals or groups, to produce programs, and be helped by the radio station staff to do so using the technical production facilities available (UNESCO, 2001). Community radio represents an alternative means of expression for the otherwise silenced majority.

Vernacular – will refer to the native language or native dialect of a specific population, as opposed to a language of wider communication that is a second language or “foreign” language to the population, such as a national language or standard language. Its language of the natives of a region, with the further specification that it is the way ordinary people speak “naturally,” i.e., when they are not monitoring their own speech for “correctness”

Commercial vernacular radio(s) - refer to stations owned by a wide range of entities including individuals, holding companies, institutions, and bodies established by Act of Parliament like KBC and broadcasting using a local language to a target audience that understands the language of broadcast. The CVR stations broadcast to a community that is also defined by a common culture with a main goal of delivering to the audiences while maximizing profits for the owners or the shareholders.

Development ; its where a mass of people with a low rate of literacy and income is first of all informed about and motivated to accept and use a sizeable body of unfamiliar ideas and skills in very much less time than that process would normally take (Quebral, 1971).

Food security –will refer to a situation where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and

food preferences for an active and healthy life. This requires a nutritionally diverse diet (GOK, 2011).

Nutritional security - it's a situation where food security is combined with education, a sanitary environment, adequate health services and proper care and feeding practices to ensure a healthy life for all household members.

Food availability refers to the physical existence of food, either from own production or from the markets. At the national level, food availability is a combination of domestic food production, domestic food stocks, commercial food imports and food aid. Food access is ensured when all households and individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet. Food availability and access are influenced by the ability of individuals and households to produce their own food in sufficient quantity and to generate income to purchase food, the adequacy of infrastructure, effectiveness of food distribution systems and the affordability of food prices.

Poverty line will be taken to refer to the lowest amount of money that a person should use per day to be able to meet a basic balanced food diet.

Rural areas refer to areas in a country that are not fully developed. They are areas in a nation where there are high traditional lifestyles that cannot be found in the urban areas or centers (Asemah&Onyeka2013).

CHAPTER 1

INTRODUCTION

This section comprises of the background to the problem, the problem statement, the broad and specific research objectives, the overall and specific research questions, justification and significance of the study, scope of the study and operational definition of terms and phrases.

1.1 Background

Currently, it's projected that over 10 million people in Kenya are suffering from chronic food insecurity and poor nutrition. At any one time, it is estimated that about two million people require assistance to access food (GOK 2011). This is in spite of agriculture being the main economic activity in the country (GOK 2010). This situation is worse in arid and semi arid areas of the country. A case in point is Machakos County with its residents depending on agriculture for survival. Low erratic rainfall, climate change and depletion of land and water characterize the county, a fact that has resulted to decline in agricultural productivity in the area.

In addition, low application of farm inputs and other inappropriate farming practices, such as poor land preparation, late planting, improper weeding and use of inferior seeds has resulted to food insecurity and low household income in the county (KARI, 2010; Ngugi, 2002). Additionally, poverty, disease, illiteracy and high population growth rate that doesn't match food production are other features that characterize the county.

Increase in food insecurity in the county is critical as those who suffer famine have resulted in exploiting the environment. Munthali et al. (2012) notes that dependence on extractive use of biodiversity is more prominent in semi arid areas where due to erratic and insufficient rainfall, yields from agriculture are generally poor impelling rural communities in these areas to largely rely on natural resources to satisfy their nutritional needs. Among them cutting down trees to sell firewood, burning charcoal, sand harvesting and offering their children for child labor. This eventually result to a community that lacks skills to develop themselves as majority of the children are

withdrawn from school for underage jobs to support the family and at the same time making their lands prone to vagaries of weather, resulting to low agricultural productivity.

Unfortunately, with the dwindling natural resources necessary for food production, population increase encroaching on farm lands, climate change, drought among others (Stienen et al., 2007), food security will not be realized any time soon unless the small holder farmers and the policy makers pertaining agriculture adopt new strategies for addressing the problem. Increased cases of prolonged drought in the region, famine and adverse climate change have made adoption of agricultural innovations not an option.

The government has tried coming up with policies that can better the situation. One of such efforts has been availing agricultural extension officers to serve and educate farmers on best farming practices. Though a noble move, the poor infrastructure, lack of transport allowance by county government and the current ratio of one extension officer to 1093 farmers can hardly make any difference (Machakos county draft strategic plan, 2012). To alleviate the situation, there is need for effective and timely dissemination of agricultural information.

Mass media offers effective channels for communicating agricultural messages in timely manner which can increase knowledge and influence behavior of the intended audience (Nazari&Hasbullah, 2010). The mass media stimulates farmers about new information and then they get to their peer extension workers and friends to get more detailed information (Behrens 1984, in Haider, 2014).The extent to which media is used, however, will depend on the literacy level and accessibility of such a medium by the target audience. Majority of the county residents are poor and illiterate at a rate of 59.6 and 46.8 percent respectively (Open data Kenya; Kimeu, 2014). This means that the only medium that can be used as a catalyst for the county rural development especially towards dissemination of food security related information is the radio.

Radio is a more powerful instrument for liberation of fast information due to its vast coverage in rural areas. It's one of the broadcast medium that the rural population is familiar with and which almost all experts identify to be the most appropriate for rural

emancipation. This is because radio beats distance and has immediate effect on farmers and overcomes the barrier of illiteracy demanding less intellectual exertion (Ango et al., 2013; Oriare, 2010; Hungbo, 2008; Moemeka, 1994 Mwakawago, 1986; McAnany, 1973).

Though all mediums of mass communication are accessible in many parts of Machakos County owing to the county closeness to the country's capital city Nairobi, bordering it on the east, where majority of the stations broadcast from or publish, radio remains the leading among these due to cheap cost of radio sets, its availability in different platforms including mobile phones, cars and online as well as its mobility. This makes radio to be everywhere, a fact that has seen many investors invest on this medium.

Currently, Machakos county celebrates coverage by over five commercial vernacular radio stations (Nyanjom, 2012) and one community radio broadcasting in kikamba language, a language spoken and understandable by almost all the residents of Machakos county, where majority are Kamba. The commercial vernacular radios are Musyi, Mbaitu, Athiani, Mwatu, Syokimau and County FM. Based in Makeni County, Mangelete FM is the only community radio that its signals are partially received in Machakos County.

Of the commercial vernacular radios broadcasting in Kamba language, MusyiFM is the most listened to station in the region. Licensed in 2005 and commencing broadcasting the same year (MCK, 2012), Musyi FM is one of the RMS vernacular radio stations that generate its revenue through advertising. Its coverage include Nairobi, Kangundo, Mwingi, Wote and Machakos broadcasting on 102.2 FM and Kitui, Mbooni and Kibwezi on 103.6 FM. The station was set with the main aim of promoting Kamba culture and enhancing development through different talk shows. According to the deputy head of the station, it does this by broadcasting local and relevant international content to all those who can understand kikamba language especially those aged from 15 years and above. Musyi FM can also be accessed through its online portal in any part of the world. This study therefore used Musyi FM as a case study in establishing the role of vernacular commercial radio on improving food security in Machakos County.

1.2 Problem statement

Though there has been an increase in the number of CVRs broadcasting in Kamba language, hardly much has been done to analyze their impact in improving food security in Machakos County. Food insecurity as Munthali et al. (2012) observes, has been aggravated by limited and unexploited economic opportunities in most rural areas. Currently, most farmers in the county still follow traditional agricultural strategies involving over reliance on rain fed agriculture, use of crude farming tools, uncertified seeds, limited use of fertilizers and organic manure. This has resulted to low farm output leading to perennial famines in the county.

Despite the county's endowment with natural resources like large tracts of arable land, human capital, permanent water sources including Athi, Tana and Thika rivers which can irrigate hundreds of thousands of hectares of farm land throughout the year, food security to many of the county residents remain unattained. Access and distribution of farm products has been a problem in the area due to lack of adequate information on different market prices as well as inaccessibility of the markets. This has not only contributed to food insecurity to those whose farm produce has failed but also to those who had adequate farm output as their produce go to waste in their farms hence losing on the income that they could generate to meet other needs.

Apart from food accessibility issues, balanced diet too remains a problem. Malnutrition related sicknesses are common in Machakos County as a result of lack of knowhow on food groups and what constitutes balanced diet. This has contributed to slow economic development and uneconomical utilization of limited resources as it amounts to wastage when resources made for other development projects are allocated to health facilities to treat such ailments.

Food security is directly related to agricultural productivity which is information driven. Farmers' greatest challenge has been on how to meet their information needs pertaining weather and profitable crops, where to get effective farm inputs like certified seed varieties, fertilizers, chemicals and proper usage, proper product storage, market prices as well as access to credit facilities.

The government's effort in improving food security through use of extension- though a noble move- has been curtailed by their low numbers, poor infrastructure and lack of support by the county governments in their failure of allocation of transport allowances, fuel as well as maintenance of available transport means. This therefore means failure to urgently address these aforementioned food security issues will lead to slow economic development, increase in illiterate levels, famine and malnutrition leading to unwarranted deaths in the county.

Community radio stations are ideal in their endeavor to bring community development, food security being one of them. However Machakos County hardly has this and its only savior is the CVRs. Being served by over five CVRs (Nyanjom, 2012), Machakos County can overcome food insecurity and other related problems easily and faster. CVRs will be ideal in achieving this as their information dissemination are audience demand driven, an element that can be capitalized upon to drive programs beneficial to the farmers who are the largest target audience for these stations.

Despite the fact that a number of studies have been done on importance of CVR on food security, no such kind of research has been done and documented in the study area. This limits farmers' awareness of improved agricultural technology and innovations and hence affecting their level of production resulting to food insecurity. This has also allowed a gap that limit farmers awareness of the importance and efficiency of radio as a source of information for improving their agricultural activities. Ango et al. (2013) observes that this may remain a bottleneck in allowing the county and central governments in enhancing radio information dissemination. This study therefore endeavored in establishing how CVRs could be used to resolve the above issues related to food insecurity.

1.3 Objectives of the study

The broad objective of this study was to investigate the contribution of commercial vernacular radios towards improving food security in Machakos County.

Specific objectives of the study included:

1. To establish how farmers use CVR stations in improving their agricultural production strategies in Machakos County.
2. To establish whether CVR stations contribute towards food security in Machakos County.
3. To identify challenges farmers face while relying on CVRs in an effort to improve their food security.
4. To establish farmers' information needs addressed by CVR in Machakos County.

1.4 Research questions

The overall research question for the study was: What is the contribution of commercial vernacular radios towards improving food security in Machakos County?

Specific questions included:

1. Does farmers' use of commercial vernacular radio improve their agricultural production strategies in Machakos County?
2. What is the contribution of CVR stations towards food security in Machakos County?
3. What challenges do farmers face while relying on CVR stations in an effort to improve on their food security?
4. What are the farmers information needs addressed by CVR in Machakos county?

1.5 Justification of the study

The persisted drought and failure of crop yields has seen populations in the arid and semi arid areas in Machakos County and other parts of sub-Saharan Africa rely on food aid and food importation from other countries in and outside the continent. In the recent years, probably due to population increase and use of grain food for production of biofuel and animal feeds, there has been a gradual decline of food stocks that are purposed for export or for food aid leaving a food supply gap in these areas. This study is of help to farmers in the following ways;

Farmers will be motivated in creation and adoption of innovations pertaining agriculture due to their participation in radio talk shows and engaging other farmers on their innovations. Interaction with other stakeholders in agriculture will result to increased

adoption and scaling up of appropriate agricultural practices. This will see farmers better their live through improved farm output, ready market for their produce, food and nutritional security.

County and central government will have a better informed policy formulation process that will contribute to formulation of effective sustainable food security policies.

The CVR stations will benefit through government subsidies in their programming as well as increased listenership from farmers who will be targeted by improved programming. This can as well be realized through reductions on the charges that the stations remit to the government.

1.6 Scope of the study

The study sought to draw lessons on the role of CVR on improving food security in Machakos County by focusing on one commercial vernacular radio, Musyi Fm, one of Royal media services CVR broadcasting in kikamba language. The study focused on two sub locations that are representative of the County. These sub locations included Mananja and Mamba.

Mananja sub location was used as a representative of semi arid areas of the county. Here, fruits, cereals and livestock are farmed both for subsistence and for commercial purposes. Mamba sub location in Ndalani location represented the arid areas. Farming activities exercised in this sub location included horticultural farming, Livestock and bee keeping. Primary data was collected from famers through use of questionnaires on how vernacular radio influences their farming practices. Other primary data was gathered from the agricultural extension officers from the two locations, and management of Musyi FM. Secondary data was gathered from published sources.

1.7 Limitations of the study

According to Hancock (2006), limitations are factors that may affect the results of the study and that are generally beyond the control of the researcher. Kombo& Tromp (2006), Anderson & Poole (2001), states that limitations of the study are the challenges faced by the researcher that includes time, financial constrains, data inaccessibility and unanticipated occurrences. Due to inadequate time and finances, the researcher could not

carry investigations in the whole County. This also limited the sample size selected for the study. However, the researcher overcame this by selecting two sub locations, one arid and the other semi-arid which was a representative of the entire ASAL County. The researcher also had a challenge from some uncooperative key informants. The researcher overcame this by involving the deputies of such key informant who equally gave the expected information.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on related literature on how radio has been used as a tool for enhancing food security, challenges brought about by language used and the causes of food insecurity among others. The chapter comprise of critique of existing literature relevant to the study, summary and research gap, theoretical and conceptual framework.

2.2 Existing literature on the study

This sub section comprises review on radio landscape in Kenya, vernacular radio, causes of food insecurity and radio as an extended tool for food security.

2.2.1 Radio landscape in Kenya

As argued above, radio, among other mediums of mass communication remains the most popular and accessible in Kenya with over 95 percent of the population listening regularly to radio (MCK 2012; Nyanjom, 2012; Oriare, 2010). As of June 2013, 519 FM frequencies had been issued to 105 broadcasters throughout the country (CAK 2013).

Radio ownership in Kenya is classified in three tier; the public, private and community. The public are all those stations owned and controlled by the government. In Kenya, it's the Kenya Broadcasting Corporation (KBC), which was established in 1928 with the main aim of serving the white settlers (FRAISSFK 2013). KBC runs six stations among which five are vernacular stations. On top of this, it runs other seven vernacular regional services. Currently there are sixteen community radio stations in Kenya (Nyanjom, 2012). Among these are those set up in training institutions. The other classification is the privately owned commercial stations which are part of large media enterprises (MCK, 2012). Among these are the commercial vernacular stations.

The number of vernacular radio stations has risen considerably since the first station; Kameme FM was set up in 2000. Today there is a large variety of commercial, state-run

and community based local language stations on air. According to CAK, there are over 30 stations broadcasting in languages other than English and Kiswahili. Eleven of these are run by RMS. The vernacular radios are especially popular in rural areas, with majority of listeners being older than 30 years (MCK, 2012). Kenya is also covered by other international foreign agencies including: BBC, Deutsche Welle (DW), Radio France Press (RFP), Voice of America (VOA) and Radio China (RC) (Oriare, 2010).

2.2.2 Vernacular radio

Though there has been an increase in the number of radio stations able to cover a huge geographical area, it has not necessarily brought about a corresponding increase in social change (Schramm, 1964). Language applied to the mass media may have been an impediment to rural development. This could be because of failure to recognize African indigenous languages as official language. With the coming of colonizers, they partitioned the continent and promoted their culture through enforcing their own languages on indigenous people. The trend continued even after independence with the successive governments claiming that making indigenous languages official would divide the nation along tribal lines. In Kenya and Tanzania, Kiswahili was made a national language even though, especially in Kenya, majority of people could not communicate using it (Orao; Musau, 2009).

For effective communication to take place, Mwakawago (1986) observes that analysis of the setting should be done for example in the developing countries rural areas in order to get a clear perspective of the subject. This analysis should include language and culture of the people that a communicator wishes to communicate to. In most parts of the African continent, as Orao (2009) observes, the "officially ignored" indigenous languages are spoken by the majority of those with lower levels of education or no education at all. This is corroborated by FAO, 2006 report indicating that 82 percent of the world population is illiterate.

Language barrier has seen the country fail to meet its objectives even after spending billions of shillings on campaign messages on behavior change on different issues among them agriculture. Orao (2009) says that the official languages used in campaigns

are secondary languages which are very remote from immediate needs and daily living of the largely rural and less formally educated part of the population. This is true as Moemeka (1985) observes that ‘any communication message which completely ignores the values that underlie the context in which the people communicate, cannot produce the attitude and behavior changes necessary for rural development’. However this changed in most developing countries since the liberalization of the mass media in the 1990s. Ogola (2011) observes that the widespread disillusionment with the mainstream news media, the depoliticization of the new urban FM radio, and other factors provided an environment conducive to the rise of local-language in Kenya. The success of Kameme FM, a vernacular station introduced in 2000, prompted the emergence of other vernacular stations including Ramogi FM broadcasting in dholuo, Inooro FM in kikuyu; Musyi FM in kikamba; Mulembe FM in luhya; Kass FM in Kalenjin among others.

Currently, most of the communities in Kenya have more than one commercial vernacular station serving them in a language they can identify with. The use of the local language and the airing of local language programs give considerable prestige to the local/regional popular culture by publicly recognizing the dignity of its medium of expression. The vernacular mass media, therefore, play a significant role in shaping language pride; reinvention and preservation of community traditions, culture and identity and in the process bring these communities in touch with various socioeconomic innovations (chemwaina, 2014; Lekgoathi, 2012; Oriare et al., 2010; Orao, 2009; Suryadi, 2005).

2.2.3 Causes of food insecurity

Food security, according to government of Kenya (2011) refer to a situation where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The opposite of such will result to food insecurity. Factors that affect agricultural output have a direct effect on food security as well. Different researchers have been able to identify different causes of food insecurity;

Munthali et al. (2012) observes that constraint to agricultural production include poor soils, frequent droughts, poor infrastructure and limited access to irrigation resulting to chronic food insecurity for millions of farmers. They suggest that this problem can be addressed through investment in soil fertility, greater use of fertilizer and cheap organic inputs and better management and use of improved seed varieties.

Brownhill & Hickey (2012) in their research based in Wote –Makueni County found that challenge to food security in Kenya is poor information flow, lack of adequate research and education. These researchers observed that agricultural extension staffs are crucial in the flow of agricultural information and above all in the two way communication flow. But the challenge of using agricultural extension officers is curtailed by their number. In their research, they found that the ratio of 1 extension officer to 1800 farmers can't do much in timely availing of agricultural information.

Attainment of food security has largely been impeded by climate change as well. Researchers, among them Rarieya & Fortun (2010) and Gareau (2004) noted that climate variability resulted to drought, floods and increase of pests resulting to low agricultural productivity which has a negative impact on food security. Rarieya & Fortun (2010) further observes that the situation is worsened by lack of coping and adaptive capacity as well as the lack of social economic, technological and institutional support to mitigate the adverse effects of climate change.

Inadequate expertise and circulation of information make a key part of the problem. Gareau (2004) in his research based in USA further notes that food insecurity is caused by a number of other factors among them poverty, public utility inadequacy like water and electricity, Inadequate knowledge of nutritional concepts such as food groups, knowledge and skill on how to prepare and store food properly, inadequate facilities to meet this as well as lack of transportation to affordable food distribution outlets. Brownhill & Hickey (2012) ; Rarieya & Fortun (2010) stresses that the solution to food security lies on synergetic and collaborative effort across all relevant stakeholders that include policy makers, researchers, farmers, NGOs ,universities, private sector, central government and the international community.

Other researchers corroborating the findings of the aforementioned include: Kamara & Ranzaho (2014), Ongosi et al. (2014) and Olielo (2013) who conducted research on urban areas to establish the cause of food insecurity in different income groups. Ongosi et al. (2014) found that the nutrient adequacy of the diets of the lactating women in this low socio-economic area (Kibera slums) was not optimal due to domestic hunger, limited variety and poor diversity of the diet. She found that dietary intake is a major determinant of nutritional status although it cannot be used to classify a person or population as malnourished. It can identify an at risk state. She recommends an intervention to increase the dietary intake of the lactating mothers since breastfeeding is at its best when both the mother and infant benefit from the experience.

Kamara & Ranzaho (2014) on their research on food insecurity in Uganda found the cause of food insecurity to be the Uganda's poor governance, international food markets, unfavorable weather conditions, population growth, growth of the middle class, modern livestock farming, alternative and renewable oil sources like biofuel and urbanization and suggested solution to food security as strict regime of government financial discipline, promote alternative foods and innovation, price regulation on fuel, promoting Uganda's comparative advantage and harnessing research, government to stop leasing land to foreign governments, establishing strategic food and seed banks and proactive management of fresh water sources.

Solution to people's problems lies within them yet these researchers have only focused on what the government could do to change food insecurity without involving its citizens. The suggested solutions could lead to a sustainable food security if there are ways that will be utilized by the government to change people's attitude especially on the alternative foods even within the middle class.

Olielo (2013), in his research found that food security and nutrition in households can be improved by up-scaling occupations such as small-scale businesses and income, especially among the low income group and Irrigation on arid lands. He suggested nutrition training for households to consume balanced diet supplying nutrients and that households should, where possible, develop and maintain kitchen gardens to raise and

provide fruit, vegetables, poultry and other small animals. This can be achieved as well through effective communication where the audiences are first supposed to be made aware of the need of this and how they can achieve it of which the researcher did not factor.

Olajide (2014) on her research on the markets' impact on food security found that poorer Remote Farming Systems are more market oriented not necessarily because they have market surpluses but because other needs for cash drive them to sell off their items quickly. The poor market infrastructural facilities compel households to run a concurrent harvest sale-and-purchase which is counterproductive because of the cyclical nature and the prices obtained at such periods. This relationship points out the tendency towards periodical food insecurity. Results suggests that the farm families may not be food secure at any period in the year and compromising food quality has health and nutrition implications for productivity and income generation capacity.

Based on the results, the researcher suggested a two-sided view for effective mitigation of the situation. She says that on the market side, quality control in the food stuff market is required and the improvement of market/social infrastructure will enhance the capacity to store or process at a reduced cost. On the farm-family-household side, the health and nutrition education will over time help them insist on choosing good quality food stuffs; a seed bank and technological intervention will mitigate the tendency to sell off or consume what they have in a short period. In both cases, a state-private sector partnership in conjunction with the rural populace will enhance the delivery of the recommendations made.

Despite the good work that the researcher did in establishing the relationship between market, family and food insecurity, she failed to site an efficient way on how the farm families could get information and sustain their family food security especially on the part that she calls on state- private sector partnership in conjunction with the rural populace to deliver on the recommendations.

Other researchers on food security in Nigeria among them Adeniyi & Ojo (2013); Anyanwu (2013) and Ikelegbe & Edokpa (2013) found that family size, farm size,

modern farm input usage, income level, number of crops planted in a mixture, education level and farmer experience, distance to the market and infrastructure has a positive bearing to agricultural productivity and hence food security in Nigeria. Key recommendation by these researchers is that mass sensitization by the government should take place. Here the researchers fail to realize that language used play a big role given the fact that these farmers are in rural areas and majority has low levels of education. For farmers to have access to agricultural information through the radio and television, the language of presentation has to be based on that of the listeners (Oladele 2006).

Another research by Ogello et al. (2013) indicated that integrated farming can be a solution to food insecurity in the east Africa. Integrating crops, livestock and aquaculture is ideal in spreading risks as well as cutting down on cost of production as waste from one will be food for the other. Waste from harvested crops will feed the livestock and poultry, manure collected from livestock and poultry can be used to fertilize the fish ponds and farms for improved crop yield. This study proves how food insecurity can easily be won if at all there is an integrated approach in terms of information communication between experienced farmers with farmers in need of learning the new ideas, agricultural experts with farmers, marketers with farmers and agricultural economists with farmers through a channel accessible and a language understandable to them.

2.2.4 Radio as an extended tool for food security

In Kenya it is estimated that at any one time, about two million people require assistance to access food (GOK, 2011). This is collaborated by the WFO which currently projects that over 1.7 million people are in need of food assistance in the country. Kenya, endowed with so many natural resources can avoid such a situation in future if the farmers are made aware of their needs that are not currently satisfied by present customs and behavior and hence invent or borrow behavior that comes closer to meeting their needs. Effective mass media can more widely and quickly make the people aware of these needs and opportunities for meeting them and facilitate the decision process and help the people put the new practices smoothly and swiftly into effect (schramm,

1964). For food security to be attained, available agricultural information pertaining farm productivity, storage and market information can be timely availed to the rural farmer through an accessible medium and using his first language.

Among the different categories of radio, Community radios have proved to be the most ideal for dealing with food insecurity through participation of the end users. Farmers are involved in disseminating their innovations through this radio, others call to request to explain their innovations as well as seek clarification of concepts. Research done by World Bank (2014); Wabwire (2013) and African Farm Radio research initiative (2011), found that community radio has resulted to grass root-level participation and horizontal circulation of ideas among the deprived rural communities. This is evidenced by the development in South Africa which has over 82 community radio stations.

Some pressures however, on community radio in other African countries like Kenya and Liberia made it impossible for them to survive and they failed to create the social transformation African societies needed for modernization in development process (Mensah, 2000). Donor withdrawal and management wrangles are some of the challenges threatening the survival of community radio leading to many parts of the county, country and the rest of Africa and other developing countries fail to access such a good catalyst tool for food security/rural development. This is imbued on a research on sustainability of community radio in a commercialized environment, by Singa (2014) who found that lack of funds to sustain the community station has led to the well trained labor force being poached by the commercial vernacular stations which offer a competitive package, draining the station skills that consumed much of their resources to train. Community radio therefore, due to afore mentioned challenges cannot be the solution to the wide adoption of agricultural innovations by rural farmers.

A number of researchers have however proved commercial Vernacular radio to be effective tool especially in disseminating agricultural information that will in effect enhance food security;

In Pakistan, a research done by Haider (2014) found that 94 % of farmers listen to radio and they adopt new farm practices through the information provided. The farmers

purchase new varieties of seeds and pesticides that help them improve their yield. The local radio agricultural programs help farmers adopt new information and apply new methods and practices in their farms. Another research by World Bank (2004) in Tunisia found that the vernacular radio, by inviting farmers to share their innovations, many other farmers would seek more clarification and adopt that innovation and express their willingness to share their own innovations. These broadcasts in radio Gafsa started to influence the attitudes of scientists and development agents. The research indicated that after the agriculture and innovations program started, some of the more skeptical researchers began to show interest in the new approach to research and development building on the dynamics of indigenous knowledge.

In another research done by Chapman et al. (2003) titled; rural radio in agricultural extension: the examples of vernacular Radio programs on soil and water conservation in Northern Ghana, found that radio is effective in improving sharing of agricultural information by remote rural farming communities. Chapman observed that participatory communication techniques can support agricultural extension efforts especially using local languages and rural radio to communicate directly with farmers and listener groups.

Ango et al. (2013) in their research on the Role of farm radio Agricultural programs in disseminating Agricultural technology to rural farmers for agricultural development in Zaria, Kaduna state, Nigeria observed in their research that 98.7% of the farmers listened to agricultural programs which provided them with weather and farm product market prices as well as the farm activities to undertake. This farmers reported to have gained knowledge of agricultural practices through agricultural programs aired by radio, post –harvest losses and appropriate correct application of fertilizers and treatment of various diseases as well as access to credit and other loan facilities.

In Kenya, various researchers have indicated how effective vernacular radio is in terms of agricultural information dissemination to the rural farmers. For example, a research that was conducted by Mwangi (2014) in Kenya titled; Radio and agricultural development: An influence assessment of the program *mugambo wa murimi* on farming

practices of farmers in Gatanga constituency had much benefits to farmers. The researcher found that farmers had adopted new farming practices suggested in the program-‘ *mugambo wa murimi*’ which included; storage of folder, artificial insemination, horticulture, green house farming, grafting of fruit trees, growing cabbages using sacks, fighting crop pests and diseases among others.

Other two similar studies by Ronoh (2013) and Chemwaina (2014), using Kass FM, as their case study found that the station was of benefit to rural farmers in rift valley as they could get information through the agricultural programs initiated by the station as well as sponsored ones by different institutions, NGOs and the government departments. Such benefits included updates on market prices, new crop varieties, market demand for certain farm produce, beneficial farm produce for both household consumption and sale, information on crop insurance and agricultural loans.

This was a plus for farmers in the area of study as the information gotten could improve farm productivity and hence food security. However, the three researchers did not address the variable of storage. Farmers incur huge post-harvest losses due to poor storage or lack of storage facilities. This to some extent forces them to offer their produce for sale at low prices Olajide (2014), which cannot even cover the cost of production which renders other efforts in improving food security redundant. Their research also was concentrating on highland areas characterized by adequate rainfall as well as fertile agricultural soils. This research neglected arid and semi arid areas and how farmers in such regions could improve their farming and hence enhance their food security.

FRAISSFK,(2013); Gathecha et al.(2012); Mokotjo & Kalusopa, (2010); Ngugi, (2002) found that radio, broadcasting in the community’s language is the major source of agricultural information ranging from weather forecasts, agricultural product prices, availability of farm inputs among others. Though these researchers have indicated how best radio can be used in enhancing agricultural productivity especially by rural peasant farmers, none has integrated all these activities in their research to indicate how all this can reach the farmer through their favorite single radio channel.

Kimeu (2013) on his research on factors influencing utilization of agricultural research findings among rural communities in Kenya; a case study of Yatta Division, Machakos county, found that poverty accounting to 57.6% , illiteracy at 46.8 % and language barriers were the major factors hindering the utilization of research results in improving crop production. This and most of other studies reviewed indicate that majority of farmers have low literate level. However, Kijana (2012) in her research titled; a general assessment of the independent ethnic radio broadcasting stations in Kenya found that listeners of ethnic radio are well educated with 62 % having a tertiary level education. Of those interviewed only 2.2 % indicated to have benefited from agricultural information broadcasted from such vernacular stations. This however could be as a result of the area of study which was based in town centers resulting to such a sample that is not interested in farming as much of their income sources are in the service industry.

2.3 Summary

Commercial vernacular radio can be of benefit to farmers and the rural population as they provide data on the price and features of products, provides a forum for getting messages about innovations and efficiencies, and from the information received, farmers allocate their purchases more efficiently and this makes businesses design goods and services to keep pace with their competitors (woods & Poole economics inc., 2011). On the other hand, as different researchers reports indicate, including Mwangi (2014); Ronoh (2013) and Mokotjo & Kalusopa (2010) some challenges are faced which include; messages not tailored to the agricultural information needs of the farmer, farmer and the population having poor access to information due to poor radio signal and limited area coverage, some invited guests being inaudible, speaking language not understandable to the population as well as the program broadcast time being not appropriate to the farmer .

From the above literature, it's evident that war against food insecurity has never been won due to lack of effective communication with the majority of agricultural food producers who are small holder farmers in the rural areas. Most of the researchers on studies related to food security have not factored in communication as an important

factor that can facilitate food security in their different areas of study. Of which, even with the implementation of their good recommendations, with neglect of the importance of communication with the people affected, there will be no sustainable food security among these populations.

Among the tools of communication, research indicate that radio is the most accessible medium of communication in the third world countries that are beset by many challenges including poor infrastructure, high levels of illiteracy, poverty among others(Oriare et al. ,2010). Though literature points that there is a lot of research done on the contribution of radio towards rural development, much focus has been on community radio. Research findings indicate that community radio has been successful as a medium of development especially in rural settings, a fact evidenced in south Africa, Ghana and Gabon as countries in the sub-Saharan Africa that have almost overcome food insecurity due to the many community radio stations in use.

In Kenya, however, this has not been the case. The funding and management of community radio stations has played to their detriment. Much of the funding coming from donors has seen these stations halt their operation upon donor withdraw. Owned and managed by the community from where they are based, divisive disagreements among those who run them has resulted to their failure. Thirdly, being low power stations, and their low numbers- 16 stations in the whole country (Nyanjom, 2012) and their maximum 10 km radius coverage has been a challenge as a development tool as those who are not within this area will not participate nor get the messages disseminated. This therefore means community radio cannot be relied upon as an effective tool to enhance food security which is one of the rural development goals.

However, almost all parts of Kenya and particularly Machakos county, rural population access CVR stations which are well managed and broadcasts with an aim of maximizing on profits (Oriareet al.2010). They achieve this by hooking the listeners through provision of interesting programs and later sell them to advertisers. The few who have done research on CVR and agricultural related themes have failed to factor in an integrated approach in communicating agricultural issues to/with the targeted audience.

2.4 Research gap

In spite of over 68 percent of rural population in Kenya tuning in every day to vernacular stations (Oriare et al. 2010), of which majority are CVR there is scanty research available on how CVR stations have been/can be used in bringing about rural development with hardly any focusing on food security. With food insecurity increasing by day due to negative impacts of climate change on agricultural productivity and population increase putting more pressure on agricultural lands, more people in the world population will be prone to being food insecure. Therefore more research need to be done on how communication broadcast tools can be used to enhance food security and food availability in the world. Among these is to establish the contribution that CVR stations have towards enhancing food security in Machakos County.

2.5 Theoretical and conceptual framework

According to Kombo & Tromp (2006), theoretical framework is a collection of interrelated ideas based on theories. It attempts to clarify why things are the way they are based on theories. It's a set of assumptions about the nature of phenomena. A conceptual framework is a research tool intended to assist a researcher to develop awareness and understanding of the situation under scrutiny and communicate it (Guba & Lincoln, 1989 in Kombo & Tromp, 2006)

2.5.1 Theoretical framework

This study was embedded on two theories;

Diffusion of innovations and Dependence theory of Mass communication

2.5.1.1 Diffusion of innovations

This study and discussions that follow will partly be informed by the diffusion of innovations theory. Developed by Everret Rogers in 1962, the theory seeks to explain how and at what rate new ideas and technology spreads through cultures. Rogers sees diffusion as the process by which an innovation is communicated through certain channels overtime among the participants in a social system. The adoption of new technology and farming ideas in the agricultural sector which lead to food security can be better expressed through the diffusion of Innovation theory. The result of this

diffusion is that the rural farmers, who are part of a social system, will adopt a new idea, behavior, or product. According to Rogers, adoption means that a person does something differently than what they had previously if they perceive it as new and innovative. Therefore, if farmers/rural populations see the benefits they will acquire from the new behavior, activity or idea and adopt, it will amount to food security in the rural areas.

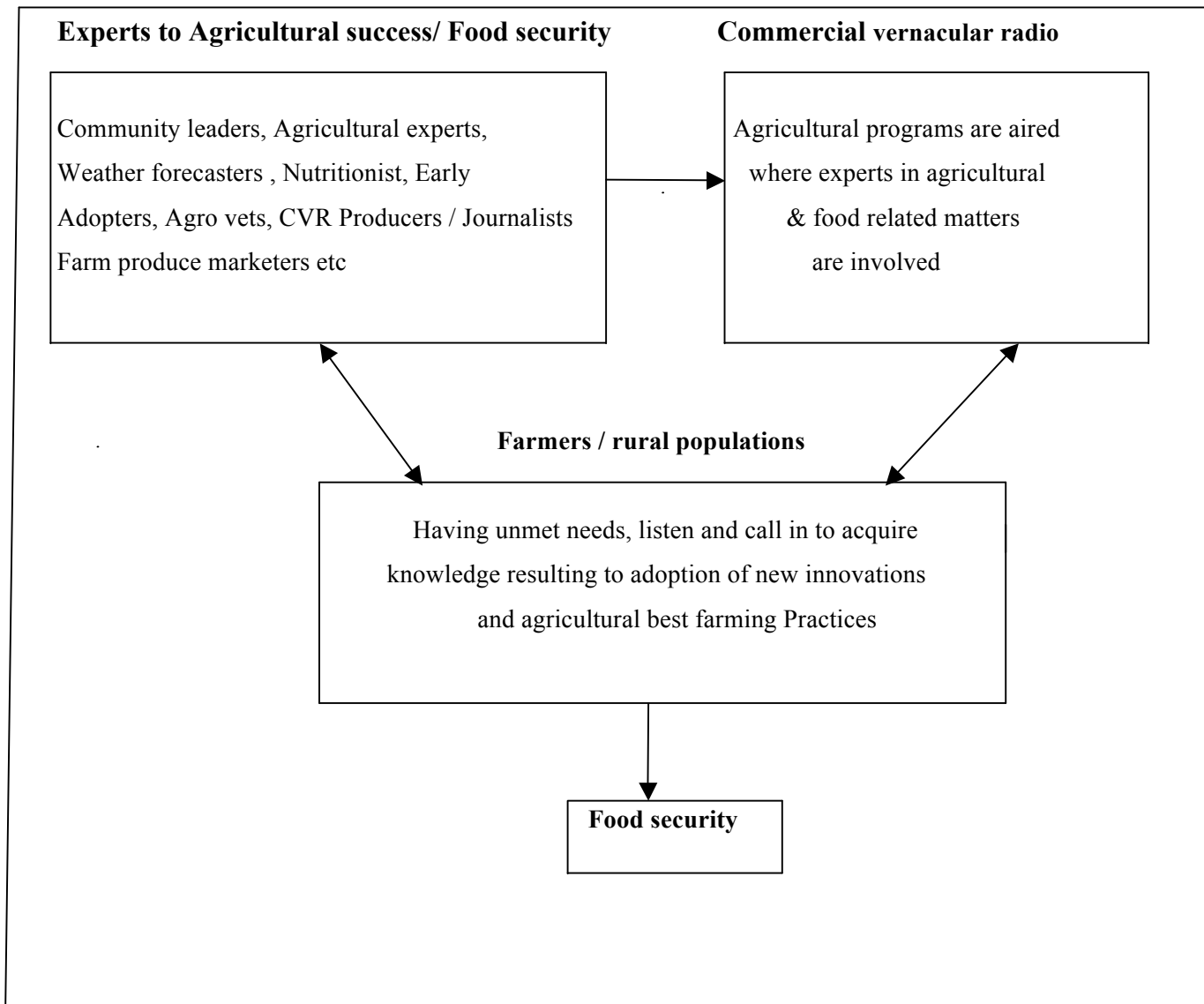
2.5.1.2 Dependence theory of mass communication

This study is also informed by dependence theory of mass communication advanced by Santra Ball-Rockeach and Melvin Defleur in 1976. According to this theory, audience turn to media to get more information to fulfill their needs as learning from their real life is limited. The theory postulates that the extent to which people will depend on media messages will also depend on the utility of these messages for individuals and for society. Proponents of this theory conclude that when media messages are not linked to audience dependencies, they will have little or no effect.

Based on this theory therefore, farmers /rural population will only tune to a given channel if that channel is producing and broadcasting programs of interest to them. This therefore implies that CVR stations that have farmers at heart will strive to produce and broadcast programs that carry food security/development messages both in their light and serious programs. The farmers' dependence on the media will increase if they all see themselves vulnerable to food insecurity and in an economic strive. This will increase their demand for information from the media on what they can do to overcome challenges faced. Through such, the farmer/rural population will be informed, educated and entertained and in the process attain food security through adopting the ideal farm practices and innovations being communicated by the CVR as a mass media.

2.5.2 Conceptual frame work

Figure 2.1 Conceptual frame work



Source; Researcher (2015)

Figure 2.1 is the conceptual frame work advanced for this study on commercial vernacular radio and food security. CVR stations are profit oriented and hence for them to survive, they need to broadcast programs that are of interest to rural farmers/rural populations who are target customers of the advertisers. This conceptual frame work therefore is informed by the idea that the rural population comprising majority farmers

will be interested in listening to radio stations with programs that enhances their welfare including their source of livelihood which is farming.

Different programs involving food security/ agricultural experts will be produced and aired by the CVR. Some will be inform of call in program which will enable farmers to call and get more insight and solutions to problems facing them. They can as well visit their fellow farmers who are early adopters for more information and exposure at their farms as well as get more clarification from other agricultural and nutritional experts closer to them. The result will be adoption of new farming methods and beneficial farm practices that will lead to food security.

CHAPTER 3

RESEARCH METHODOLOGY

This section presents the methodology used in conducting the research. It has sub-topics on research design, research population, sample and sampling techniques, research instruments, data collection procedures used and data analysis.

3.1 Research design

According to Creswell (2003) research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. Hancock (2006), states that a research design is determined by how well it allows full investigation of a particular research question.

This study therefore adopted a descriptive survey design. The purpose of descriptive research method was to describe the state of affairs as it is (Kombo & Tromp, 2006). This was the most appropriate design for the study as the information needed was collected through interviewing and administering questionnaires at the natural setting of the respondents. The design was the most appropriate in establishing how state of affairs was in relation to CVR use and food security in Machakos County.

In the study, the researcher employed a mixed research methods amounting to both quantitative and qualitative data. This included survey, interviews and content analysis. Survey method was ideal for the study as it amounts to results that can be generalized to the entire target population. Individual farmers were surveyed in Mananja and Mamba sub locations and results generalized to the entire farmers in Machakos county. Based on the research instrument used, surveys provide dependable data as the responded are in position to provide candid answers due to anonymity enabled by the questionnaires. According to Kerlinger (1969) in Kombo & Tromp (2006) surveys leads to formulation of important principles of knowledge and solution to significant problems that this research is geared towards.

In-depth interview is the other method that the study employed. Face to face kind of in-depth interview was conducted by the researcher with key informants who were selected

purposively to meet the study needs. The key informants included agricultural officers in the said sub locations, and the assistant head of radio at Musyi FM. Though guided by interview protocol, this method is of merit as it provided spontaneous answers by respondents and that the researcher was able to probe further on questions that arose from answers given to meet his research needs adequately.

Content analysis method was also used in the study. According to Kombo & Tromp (2006), content analysis examines the intensity with which certain words have been used. In this study, content analysis was done on Musyi FM programs based on formats employed and the wordings in the program content by assessing whether the wordings had any connotation on agriculture and food security issues.

3.2 Research population

According to Bailey (1994), population is the sum total of all the units of analysis. Population is an entire group of individuals, events or objects, having common observable characteristics (Kombo & Tromp, 2006; Mugenda & Mugenda, 2003). Population, according to Kombo & Tromp (2006) also refers to the large group from which the population is taken. Mugenda & Mugenda, (2003), identify two kinds of population: target population and accessible population. Target population is the total set of subjects in a study where the research will be generalized.

For this study, the target population was all individual farmers in Machakos County which could be approximately represented by the household in the county amounting to 264,500(KNBS, 2009 census report). Accessible population on the other hand refers to the set of subjects from which the sample of the study is to be derived. Therefore, the researcher for this study selected administrative sub locations that are reflective of the qualities of the entire county from which sample was drawn. These sub locations were Mananja and Mamba giving a total of 3520 individual farmers.

3.3 Sample and sampling techniques

Bailey(1994) defines a sample as a subset or portion of the total population. A sample is a small group obtained from the accessible population, while sampling technique is the

method applied in selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected (Mugenda & Mugenda, 2003). The researcher picked a representative sample to represent the entire county through purposive sampling technique.

Purposive technique allows the researcher to pick units having qualities desired for the study. This technique was used to pick sub locations that had farming activities (apiculture, horticulture, livestock, crops and fruit farming) and climatic conditions that are reflective of the entire county. The divisions having these qualities were Ndithini and Yatta, from which administrative locations having the same representative qualities were as well purposively picked and these were Mananja and Ndalani respectively. From these locations, Mananja and Mamba sub locations were as well purposively selected upon which questionnaires were administered to owners of households who are farmers.

The number of farmers in Mananja sub location amount to about 1520 (Republic of Kenya, 2010) while those of Mamba are 2000 giving a total of 3520. Systematic random sampling was used to get representative sample of 5 percent respondents from each sub location. This gave a total of 176 respondents, with 76 and 100 representing Mananja and mamba respectively. Key informants in the agricultural sector including the agricultural extension officers in the division and assistant head of radio at Musyi FM were purposively identified and interviewed.

3.4 Research instruments

Questionnaires, interview guides and content analysis code schedule are the tools that were used to collect information for the study. Use of questionnaires was ideal of the as they are easy to administer, collect and analyze data involving large numbers of respondents. For researchers study needs to be met, the questionnaires used featured both open and closed ended questions.

Interview guide was used to enable the researcher gather information from the key informants. Though the researcher was guided by interview guide, he was able to probe further on the answers provided by key informants to fully source the data required for the study. Code schedule is a classification system developed to record the data. The

codes were in relation to the wordings that the researcher wanted to establish in the broadcasted programs of Musyi FM.

3.5 Data collection procedure

The researcher procured research permit from the University of Nairobi, school of Journalism. He proceeded to secure permission from officials in charge of the study areas which involved deputy head of Musyi FM, chiefs and sub chiefs who are administrators of locations and sub locations respectively of areas of study. This followed administering of Questionnaires to farmers by the researcher.

Respondents were given adequate time to fill the questionnaires which the researcher collected immediately after they were filled. In cases where the respondents were unable to read and write, the researcher asked the questions and filled the respondents' responses on the questionnaires. In-depth interviews were conducted with the key informants at their respective areas by the researcher. The researcher also undertook content analysis on Musyi FM programs for two weeks spanning 27th July to 9th August 2015. Information from these programs was assessed following the coding schedule already prepared.

3.6 Validity of the research instrument

According to Selltiz et al. (1976) in Bailey (1994), validity in a measuring instrument is the extent to which differences in scores on it reflect true differences among individuals on the characteristic that we seek to measure rather than constant or random errors. Mugenda & Mugenda, (2003) define validity as the ability of instruments to measure what they are intended to measure.

For valid data, pretesting of the research tools was done prior to the actual research. For this purpose, five small scale farmers in Kiatineni in Ndithini division were involved in this exercise. This was to ascertain whether the questionnaires were able to meet the data needs of the study. After the pretesting, the researcher reframed some questions in the questionnaire. This helped in ensuring the instrument elicited the type of data anticipated to respond satisfactorily to the research needs.

3.7 Data organization

The raw data has to be organized in a way that is relevant to problem identified by the researcher, state facts that can be supported by data from which knowledge can be derived (Kombo & Tromp, 2006). This subsection therefore comprises subsections in data organization including data processing, data coding scheme and data analysis.

3.7.1 Data processing

Before analyzing the data, the researcher cleaned the data by removing some questions that were amounting to similar responses. The researcher also identified responses that were different but referring to the same thing and put that together. Contradictory data from related questions that could reflect negatively on the study findings was also cleaned.

3.7.2 Data coding scheme

Coding scheme is unambiguous set of prescriptions of how all possible answers are to be treated and what numerical codes are to be assigned to particular responses. Here the researcher assigns codes to each likely answer and specifies how other responses are to be handled (Kombo & Tromp, 2006). All the respondents responses from each of the choices in closed ended questions in the questionnaire were put together and numerical numbers allocated to such choices. The researcher allocated this choices code number: 1, 2, 3 and so on. For open ended questions, similar responses were grouped and similar coding applied to each of the responses.

3.8 Data analysis

The questionnaires, interviews, and content analysis were expected to bring about quantitative and qualitative data. Quantitative data from questionnaires was analyzed using computer statistical package for social sciences program (SPSS) version 22, where the codes developed for the data was keyed. This resulted to data that was presented in distribution tables and bar charts inform of frequencies and percentages. Analysis of the interviews and content analysis on the content and programming of Musyi FM was done using descriptive statistics. From these, inferences, conclusions and recommendations were made.

CHAPTER 4

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter summarizes the discussion of the study findings on the commercial vernacular radio and food security in Machakos County. The analyzed data is presented using tables, bar charts, narrations and discussions based on the study objectives and the questionnaire items. The researcher presents the raw data first followed by the discussion.

4.2 Response rate

The study got 99.4% response rate from the targeted respondents in both qualitative and quantitative data collection. There was a 100 percent response rate for quantitative respondents amounting to 176. Of these, 76 were from Mananja and the remainder from Mamba sub location. The 112 females formed majority respondents resulting to 63.7% while males who were 64 formed 36.4%. For qualitative data collection, the study involved face to face interview with two agricultural officers; one each from Ndithini and Kithimani wards respectively, and the deputy head of Musyi FM radio forming 75% of the respondents targeted.

4.3 Demographic characteristics

Demographic characteristics of the respondents were analyzed based on their gender, age, education level, occupation, farming activity, period the farming activity has been undertaken and income from farming activities per month.

4.3.1. Gender composition of the respondents

Gender composition is crucial in understanding the use of CVRs in an effort to establish food security in the county. The study results revealed that majority of the farmers are female represented by 63.6% of respondents and that of males at 36.4 %. The time agricultural programs are broadcasted is ideal in determining the listenership of the target audience. Even though listenership of radio can be done while performing other duties, effective understanding and application of crucial agricultural information

require undivided attention from the listener. Women, the majority respondents here spend much of their time juggling over different chores after farm work which explains why there is a low level of agricultural productivity in the study area. This is attributed to lack of adequate time to listen to agricultural programs disseminating agricultural best practices which if taken up and practiced will amount to improved food production.

4.3.2 Age of the respondents

The study sought to investigate the age of the respondents which may have a bearing on listenership of CVRs and hence an effect on food security. According to the study findings, majority of the respondents were in the age bracket of 36-45 years forming 28.98% of the total respondents. Those in the age bracket of 26-35 years formed 27.84% and the ones above 55 years were 18.18%.The study further revealed that 14.77% respondents were aged between 46-55 years.10.23% of the respondents were 25 years and below.

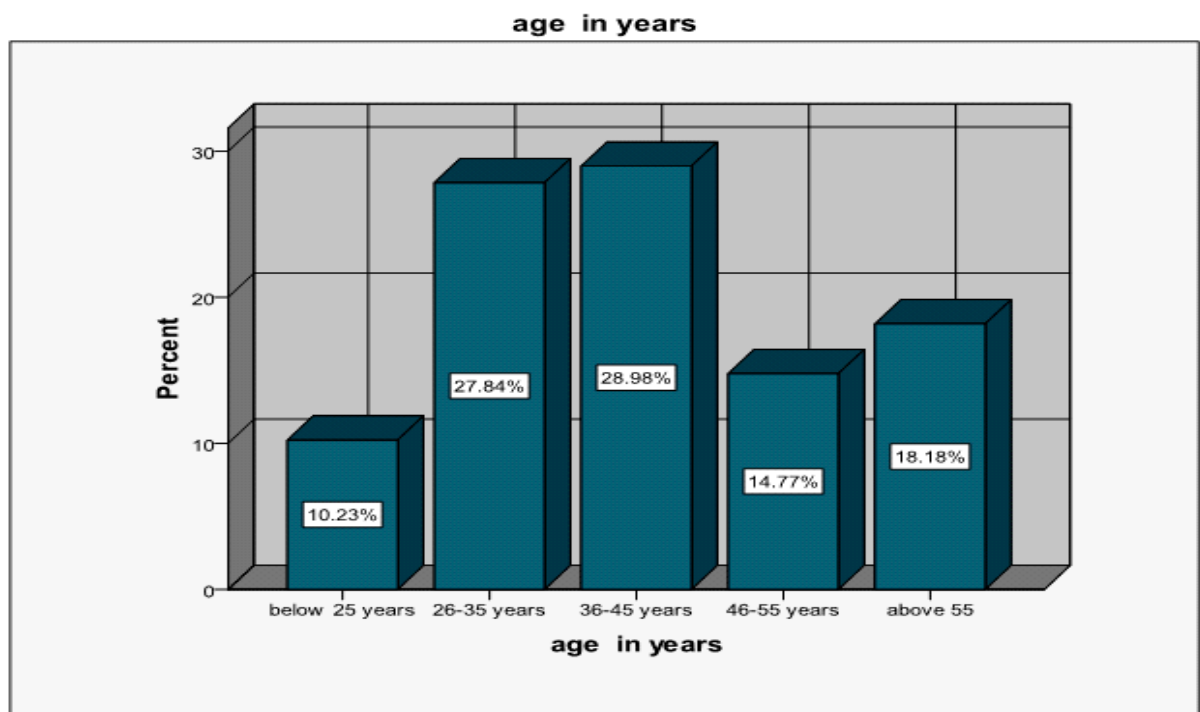


Figure 4.1 Respondents' age

The researcher observed that most of the youth-45 years and below- concentrated in farm activities resulting in quick returns like horticulture farming. The study results indicate that there is a possibility of the farmers in Machakos County to change their

attitudes towards farming especially in adoption of new farming ideas as over 67% of the respondents were aged 45 years and below. An age deemed to change if they are provided with adequate and convincing information as to why they should adopt the new behavior

4.3.3 Education level of the respondent

Education level is key in cognitive and uptake of agricultural information disseminated through different media. The study therefore sought to establish the level of education of the residents in Machakos County. As figure 4.3 indicates, the study results revealed that majority of respondents had primary and below level of education. This accounted for 57.39%. The study further indicated 10.23% had vocational certificate, 20.45% had attained secondary education, 9.09% had post secondary certificate, 2.27% had post secondary diploma and 0.57% had a bachelor’s degree.

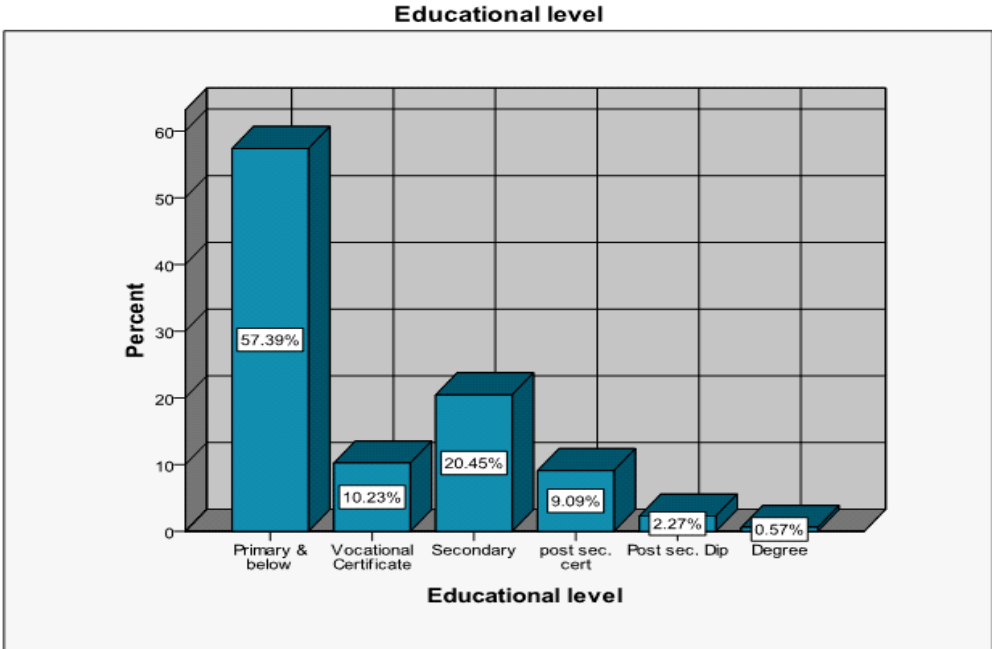


Figure 4.2 Education levels of respondents

57.39% of the respondents’ primary and below level of education indicate the high illiteracy levels which have a correlation with the adoption of best agricultural practices. The use of official languages of Kiswahili and English in the radio or any other medium to pass agricultural messages will not have any impact to a section of such a group who are largely subsistence farmers. This is supported by Orao (2009) who stated that in

most parts of the African continent, the “officially ignored” indigenous languages are spoken by the majority of those with lower levels of education or no education at all. To create agricultural impact on this kind of audience then requires utilization of a medium that uses a language that they can understand and obviously this language is their mother tongue.

4.3.4 Occupation

Occupation of residents of the study area can have an impact on the utilization of the media used in information dissemination and the level of utilization of such information. Therefore the researcher set out to establish the occupation of the area residents under study. The study revealed that farmers in the study area engage in diversified occupations. Of this diversification, majority respondents were subsistent farmers comprising 98.3%. Some farmers, 43.8% were business persons while 2.8% were civil servants as table 4.1 indicates.

Table 4.1 Occupation

Activity	Frequency	Percentage (%)
Subsistence farmer	173	98.3
Business person	77	43.8
Civil servant	5	2.8

Source: Researcher field work 2015

Majority respondents’ taking up subsistence farming as their occupation is an indication that this is the main economic activity for most residents in the county. To improve the welfare of this residents and therefore food security, there is a need for them to be provided with crucial agricultural information and in a timely manner for effective utilization in their farming activity.

4.3.5 Farming activity

According to the study findings, some farmers are involved in more than one farming activities with majority of respondents undertaking subsistence farming forming 92%.

90.9% kept livestock, 71.6% were cash crop farmers, 50% were horticultural farmers, 11.9% exercised agro forestry, and 8.5% exercised fish farming while 6.8% kept bees.

Table 4.2 Farming activities practiced by respondents

Farming activity	Frequency	Percentage (%)
Subsistence farming	162	92.0
Livestock keeping	160	90.9
Cash crop farming	126	71.6
Horticulture	88	50
Agro forestry	21	11.9
Fish farming	15	8.5
Bee keeping	12	6.8

Source: Researcher field work 2015

Majority of horticultural farmers were concentrated at mamba sub location owing to irrigation from water supplied from Thika river. This has been made effective because of farmer cooperative groups and the ready nearby Sophia and Matuu markets as well as export market for these horticultural produce. Respondents in other parts of the study area, as the study indicates in table 4.2, remain largely subsistence farmers because of lack of market for their produce. The respondents, who are largely subsistence farmers indicated they only produce enough for their families owing to the limited family labor, lack of market for their produce and low income which is prohibitive for them to purchase most of the ideal farm inputs.

4.3.6 Period the activity has been undertaken

The study sought to establish the period farmers have undertaken the farming activity which was thought to influence uptake of new farming ideas. As evidenced in figure 4.4, the study revealed that majority farmers have undertaken their farming activity for over 15 years, represented by 42.05%. This is followed by 21.59% of those having farmed between 1-5 years. 6-10 years of farming followed with 20.45% of representation. Those who have been farming for 11-15 years were 14.77%. The study indicated that those who have practiced their farming activity for less than a year to be 1.14%.

period in years the farmer has done the farming activity

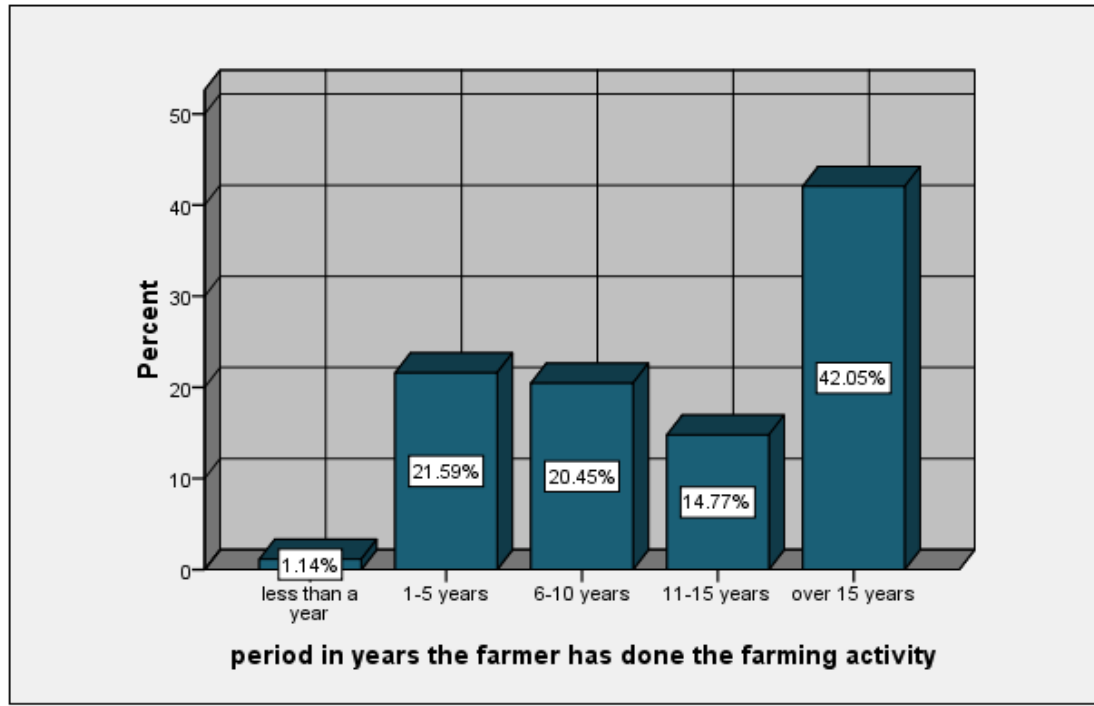


Figure 4.3 Period the respondent has carried out the farming activity

Low income as evidenced by the study results in figure 4.4 has led to high levels of poverty among the respondents. Adoption of new ideas in farming and hence profitable new farming methods would require capital investment. The low income is hence prohibitive to most of the respondents who are cautious in spending it in new farming methods said to be profitable. So, they would want to see the results from others before adopting them-a kind of behavior explained by Rogers (1962) diffusion of innovations theory in its five typologies in the process of adoption. This starts with innovators, early adopters, early majority, late majority, and the laggards. Majority of respondents can be said to be laggards. A fact confirmed by Ndithini and Kithimani agricultural ward officers who reported that farmers in their areas are adopting the new farming methods though in a slow pace.

4.3.7 Respondents income per month

Income level is thought to have an impact on receivership and implementation of ideas gotten from a communication medium. This study therefore sought to establish Machakos county farmers' level of income. According to the study results, 52.84% respondents earn below 5000 from their farming activities per month. 28.98% have an income within 6000-10000, those earning within 11000-15000 and 16000-20000 tie at 5.68%. Those earning within 21000-25000 are 2.84% while those with income from 26 000 and above form 3.98%.

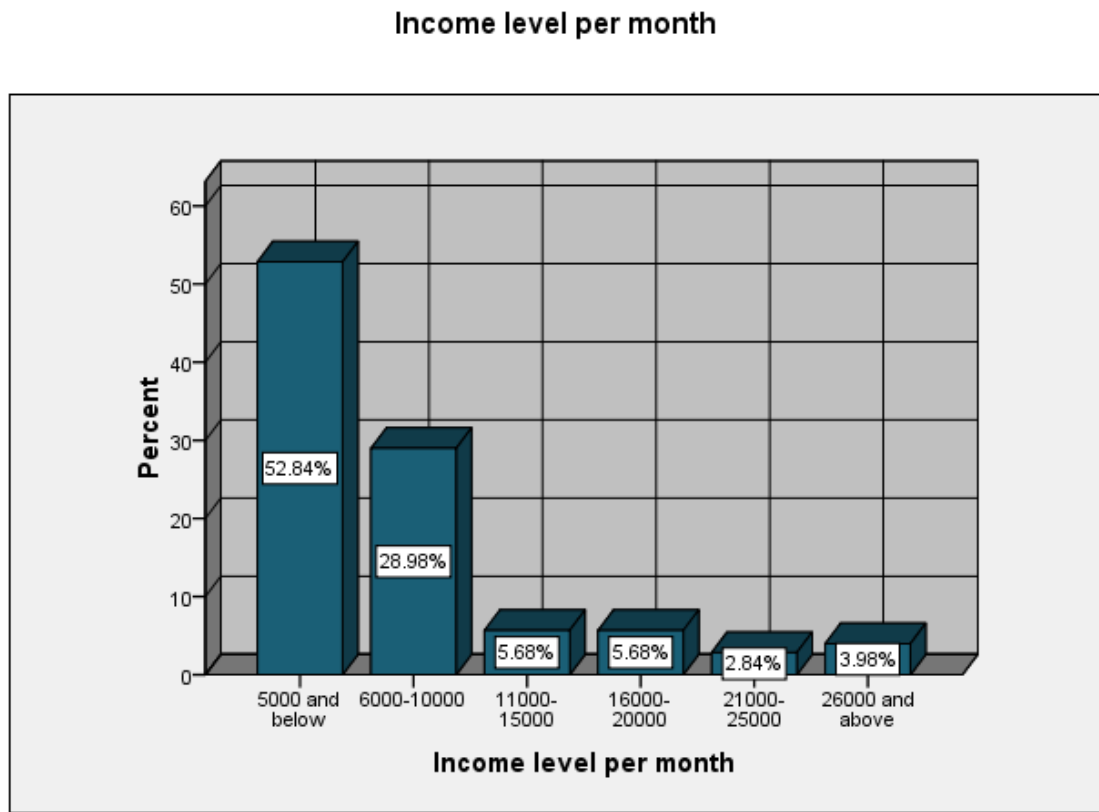


Figure 4.4 Respondents income per month

The high number of residents with low income is corroborated by KARI (2012) and Ngugi (2002) who found that low house hold income as being caused by low application of farm inputs and other inappropriate farming practices, such as poor land preparation, late planting, improper weeding and use of inferior seeds. Low income has had a negative impact to agricultural productivity among the respondents at the study area as

majority cannot listen to radio frequently owing to the fact that they cannot be in a position to regularly replace batteries when they run out. This may have also contributed to slow adoption of new farming practices which may require investing their income. Because of the uncertainty involved, most are reluctant in spending the small income they have and opt for wait and see attitude from the early adopters so that if it is effective, then they can take it up.

4.4 Analysis of farmers’ utilization of commercial vernacular radio

This part analyses the source of agricultural information pertaining the farm activity they exercise, CVR listened to, duration respondents spent listening to radio, the source of radio access, kind of agricultural information gotten from radio listened to, farming activities listened to and put into practice.

4.4.1 Respondents source of agricultural information on farming activity exercised

Source of agricultural information on farming activity exercised is ideal in establishing the contribution of CVRs and food security in Machakos County. According to the study findings, 98.9% of respondents reported to get agricultural information from radio making it the dominant source of agricultural information on farming activity exercised in the study area. The study further indicated that farmer friends are the second in rank as a source of agricultural information at 93.1%.Information shared includes farming methods and prices of farm products. 55.1% of the respondents reported getting agricultural information from extension officers pertaining crop diseases and pests, certified seeds and fertilizer application. 53.4 % of the respondents get agricultural information from Barazas where they are informed of the availability of government seeds and when to collect those, 45.5% respondents reported getting farming information from seminars organized by chemical companies and those that process the said farm produce. Television is a source of agricultural information to 31.8% of the respondents.27.3% got their farming information from newspapers and magazines while 4% from the internet.

Table 4.3 Source of agricultural information on farming activity exercised

Source	Frequency	Percentage (%)
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Radio	174	98.9
Fellow farmers	164	93.1
Extension officers	97	55.1
Barazas	94	53.4
Seminars/workshops	80	45.5
Television	56	31.8
Newspaper/magazines	48	27.3
Internet	7	4

Source: Researcher field work 2015

If the results in table 4.3 were to be discussed in three tiers i.e. from 71% to 100%, 41% to 69% and 40% and below, then it can be said that income, education and time are major determinants to farmers' source of agricultural information. Information from vernacular radio and fellow farmers which are above 90% as sources of agricultural information on agricultural activity exercised are easy and cheap to get, doesn't require much education neither much time to get the information. The second category involves extension officers, chiefs' baraza and seminars. These sources will require time as farmer will need to invite, visit or attend these events hence those who don't have adequate time will not benefit from such sources. The last category involving television which require higher income to purchase and access to power, newspapers and internet will require a high income to purchase/access and a higher literacy to read and operate respectively making it the least sources of agricultural information to farmers in the study area.

However, radio as the major source of agricultural information here is supported by Chapman et al. (2003) indicating radios' effectiveness in improving and sharing of agricultural information by remote rural farming communities. With agricultural extension officers in the region (Ndithini and Kithimani ward) taking third position as the source of agricultural information sighted vernacular radios as playing major role in agricultural dissemination and supplementing their role. Pointing out on the challenges they face like poor infrastructure, lack of transport, lack of facilitation since devolution and the high number of farmers to serve, i.e. extension officer to farmers ratio of 1:2,250

and 1:3000 in Ndithini and Kithimani wards respectively, said radio could have great impact on food security if agricultural programs are broadcasted at the appropriate time for farmers.

Through radio, respondents reported to get agricultural information pertaining agro chemicals and their usage, fertilizers, planting and storage of cereals which are some of the key information needed towards farming practices that will lead to food security. From the study findings, internet may not be appropriate for the time being to be used as a tool of disseminating agricultural messages due low levels of education and high poverty among the residents that may inter the purchase of bundles to access internet for such information.

4.4.2 Commercial vernacular radio listenership

The study sought to establish the listenership of CVRs which may have an impact on food security in Machakos County. The study found that the different radio stations form multiple sources of information to farmers. From the results, the most listened to CVR is Musyi FM by 76.7%. Mbaitu FM followed at 58.5%, Athiani FM was third with 50.6%listenership, County FM had 22.2%, and Mwatu reported 10.8% and Syokimau FM 8% while other stations formed 58.5% of listenership.

Table 4.4 CVR Listened

Radio station	Frequency	Percentage (%)
Musyi	135	76.7
Mbaitu	103	58.5
Athiani	89	50.6
County fm	39	22.2
Mwatu	19	10.8
Syokimau	14	8
Others	103	58.5

Source: Researcher field work 2015

Most farmers depend on Musyi, Mbaitu and Athiani FM stations because of their seasoned journalists' presenters and their strong signal in most parts of the study region.

Poor signal of the Kamba vernacular stations in some parts of the study area and inappropriate broadcast time may have resulted to respondents tuning to other stations which broadcast either in Swahili or kikuyu languages.

4.4.3 Duration spent listening to CVR

The research sought to investigate the duration spent by respondents listening to the CVRs which has a bearing on the information received from radio and which may influence the food security in the county. Though each farmer reported to listen to different radio station, the study findings indicated that both Musyi and Athiani FM had each 1.7% of the respondents listening for over two hours a day while County fm and other stations were each listened to by 0.6% of the respondents. In the category of 1-2 hours listenership in a day, Musyi FM dominated with 52.3% listenership followed by Athiani with 23.3%. Mbaitu FM had 23% listenership while County fm was fourth with 6.3% listenership. Syokimau and Mwatu FM each had a listenership amounting to 0.6% with other stations having 33% listenership under this category.

For a listenership spanning ½ - 1 hour a day, Mbaitu FM had the majority listeners with 13.1% followed by Athiani with 12.5%. Musyi came third with 6.8%, County FM had 1.7%, Syokimau 1.1 % and Mwatu 0.6% listenership while other stations formed 9.7% of the total listenership. For listenership of between 2-4 hours a week, Mbaitu FM dominated with 13.6% listenership of the respondents. Athiani followed with 13.1%, Musyi had 7.4%, County 5.1%, Syokimau 3.4% while Mwatu FM had 0.6% of the respondents tuning in.

Of those who tuned in at least for a ½ hour period in a week, County FM had the majority listeners represented by 9.1% of the respondents. Musyi came in second with 7.9% listening. Mbaitu had 7.4% listening; Athiani 5.1%, Syokimau and Mwatu each had 2.3% while other stations formed 4.5% listenership as table 4.5 indicates.

Table 4.5 Duration spent listening to CVR

Station/ Duration of	Above 2hours a day (%)	1-2 hours a day (%)	½-1hour a day (%)	2-4 hours a week (%)	At least ½ hour a week
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listenership					(%)
Musyi	1.7	52.3	6.8	7.4	7.9
Mbaitu	0	23	13.1	13.6	7.4
Athiani	1.7	23.3	12.5	13.1	5.1
County	0.6	6.3	1.7	5.1	9.1
Syokimau	0	0.6	1.1	3.4	2.3
Mwatu	0	0.6	0.6	0.6	2.3
Others	0.6	33	9.7	7.4	4.5

Source: Researcher field work 2015

Most of those listening for over two hours a day were mostly business people stationed at one place. They reported to stick to one station because of the seasoned presenters and the kind of music played in such stations. Majority who listened for 1 to 2 hours reported to do so between 7.00pm and 9.00pm, the time they are free after farm work and other home chores and before retiring to bed.

4.4.4 Access to radio

The study sought to investigate where farmers' access radio from which may influence the access of information from CVRs. The study indicated that farmers have more than one source through which they access radio. Majority respondents' access radio from radio set representing 96.6%, access from mobile phone was 19.3% while car radio and other sources formed each 1.1% of radio access to the respondents.

Table 4.6 *Radio access*

Radio source	Frequency	Percentage (%)
Radio set	170	96.6
Mobile	34	19.3
Car radio	2	1.1
Others	2	1.1

Source: Researcher field work 2015

Owing to the level of education, especially among majority of respondents aged over 40 years, the main access of radio was through radio set as operating it is easy than mobile

phone of which to access the radio from it requires one who can read which some can't. Majority of the youth reported to access radio through both radio set and mobile phones.

4.4.5 Agricultural information accessed through radio

The study sought to establish the kind of agricultural information radio disseminates to farmers which is crucial in determining whether or not CVRs have any impact on food security in Machakos County. According to the research findings, each farmer accesses more than one type of agricultural information from radio. The dominant agricultural information accessed through radio is about farm inputs accounting for 96%. Information accessed on this is majorly on certified seeds, chemicals on prevention and control of pests and diseases. Land preparation and planting follow at 93.8%, Soil/ water conservation at 89.2%, storage information at 85.6%, farm product markets at 85.2%, control/prevention of crops and animal pests and diseases at 79.5% and livestock feeds and how to feed animals at 35.2%.

Table 4.7 Agricultural information accessed through radio

Agricultural information	Frequency	Percentage (%)
Farm inputs	169	96
Land preparation and planting	165	93.8
Soil/water conservation	157	89.2
Storage information	151	85.6
Farm product markets	150	85.2
Control/prevention of crops/ livestock pests and diseases	140	79.5
Livestock feeds and how to feed animals	62	35.2

Source: Researcher field work 2015

Discussions for this part is combined with the one for section 4.4.6

4.4.6 Agricultural information heard from radio and practiced

The study sought to find out the kind of agricultural information heard from radio and practiced. The study established that usage of farm inputs by respondents as the highest

agricultural information heard from radio and practiced standing at 91.5%.The study also indicated that land preparation and planting as the second activity heard from radio and practiced at 89.8%. Soil/ water conservation was third at 86.4%, control/prevention of crop and animal pests and diseases at 73.3%, storage information at 71.6%, farm product markets at 57.4% and livestock feeds and how to feed animals at 16.5%. Information on chemicals appropriate in control and prevention of pest and diseases on crops and livestock was the common input sited as heard from radio and practiced.

Table 4.8 Listened and practiced agricultural information from radio

Agricultural information	Frequency	Percentage (%)
Farm inputs	161	91.5
Land preparation and planting	158	89.8
Soil/water conservation	152	86.4
Control/prevention of crops/ livestock pests and diseases	129	73.3
Storage information	126	71.6
Farm product markets	101	57.4
Livestock feeds and how to feed the animals	29	16.5

Source: Researcher field work 2015

Comparing agricultural information accessed through radio and what farmers practice from table 4.7 and table 4.8, over 90 percent of respondents used farm inputs, land preparation and planting and soil/water conservation as per the information gotten from radio. This is so because most of the residents are subsistence farmers who farm food crops more than livestock keeping. The low uptake of storage information as compared to the above farm activities can be attributed to a fact that most subsistence farmers produce less, attributed to poor usage of these farm inputs as Ndithini ward agricultural officer commented, and sell it immediately after harvesting so as to meet other basic needs hence no much is left for storage. On the low practice of information gotten on farm product market, most residents who are subsistence farmers are not in any farming cooperatives hence being exploited by middle men especially on cereals and fruits who

buy direct from their farms. Livestock farming hasn't been taken seriously in the area and this explains why there is low listenership of such programs and hence uptake of related information.

4.5 Commercial vernacular radio and food security

This section comprises of the analysis on respondents source of food security, the kind of food security information gotten from radio and practiced, source of market food price information and level of satisfaction by market information delivered by CVR station.

4.5.1 Source of food security information

Source of food security information was ideal in partly establishing the impact of CVRs on food security in Machakos County. The study results indicated that though the respondents had multiple sources of food security information, majority got it from radio representing 96.5%, followed by fellow farmers' at 78.4%. Other sources included extension officers at 46%, chief baraza at 41.5%, television at 34.7%, field days at 34.1% printed literature at 31.3% and internet at 1.7%.

Table 4.9 Source of food security information

Source	Frequency	Percentage (%)
Radio	170	96.5
Other farmers	138	78.4
Extension officers	81	46.0
Barazas	73	41.5
Television	61	34.7
Field days	60	34.1
printed literature	55	31.3
Internet	6	1.7

Source: Researcher field work 2015

Radio especially the CVR dominated as the source of food security information because of its nature to overcome illiteracy, distance and other geographical barriers. Food security information reported from radio included the price of different agricultural farm

products, livestock and livestock products. The CVR presented this information mostly in the form of commercials where they highlight on the benefits of the product to the human health and the company that has processed the product.

4.5. 2. Food security information gotten from radio

The kind of food security information disseminated by radio was important in determining the impact of CVRs on food security in the county. According to this study, majority respondents practiced farming diversification based on information gotten from radio. This was represented by 91.5%, followed by storage at 89.2%. Other food security information from radio included nutritional education at 83% and market food availability at 76.1% as indicated in table 4.10.

Table 4.10 Food security information gotten from radio

Food security information	Frequency	Percentage (%)
Farming Diversification	161	91.5
Storage	157	89.2
Nutritional education	146	83
Market food availability	134	76.1

Source: Researcher field work 2015

In Musyi FM’s agricultural programs presented in the month of July and August 2015, in terms of farming diversification, they had featured farming of yams, sugarcane, keeping of dairy cows, chicken as well as green house farming where vegetables are grown to give the farmer quick returns. On storage, the station brought commercials on new storage sacks and chemicals for preserving cereals.

4.5.3 Practiced food security information gotten from radio

The study findings revealed that majority of respondents, 90.3% have put in practice farming diversification after getting that information from radio. Other information heard from radio and practiced included storage at 84.1%, market food availability at 78.4% and nutritional education at 59.7% as shown in the table below.

Table 4.11 Practiced food security information gotten from radio

Food security information	Frequency	Percentage (%)
Farming diversification	159	90.3
Storage	148	84.1
Market food availability	138	78.4
Nutritional education	105	59.7

Source: Researcher field work 2015

The high rate of uptake of farming diversification and storage can be attributed to the high level of information disseminated pertaining farming diversification and storage as the researcher found out from the agricultural related information disseminated by Musyi FM in the month of July and August 2015. This is as presented in the discussions under table 4; 10 on practiced food security information gotten from radio.

4.5.4 Source of market prices

An item was included in the questionnaire to seek information on the source of market food price information. The study indicated that respondents' peers were the major source of market food price information representing 92% of the total, followed by radio at 91.5%. Other sources were by visiting the market at 86.9%, television at 26.1%, newspapers/magazines at 21.6% and social media at 3.4%. Table 4; 13 simplifies this information.

Table 4.12 Source of market food prices

Source	Frequency	Percentage (%)
Farmer friends	162	92
Radio	161	91.5
Visit market	153	86.9
Television	46	26.1
Newspapers/magazines	38	21.6
Social media/internet	6	3.4

Source: Researcher field work 2015

The high rate reliance on peers, according to respondents is because some market prices of farm products announced on radio are exaggerated and few trust it. Others indicated

that information given by different agricultural radio programs concentrates on production and fails in provision of information on market availability for farm produce. The radio market reports don't cover some of the markets neighboring the farmers hence the low trust. This can also be attributed to dependency theory of mass media where some farmers are depended on the radio and other media sources. These farmers then pass the information they have acquired to their fellow farmers following the two step flow theory.

4.5.5 Level of satisfaction

The study sought to investigate the satisfaction level of farmers pertaining market information gotten from radio. As indicated in figure 4.5, the study findings revealed that majority respondents were satisfied with market information delivered by radio representing 67.61%. 15.34% reported to be very satisfied, 14.77% less satisfied, 1.7% not satisfied while 0.57% were not decided.

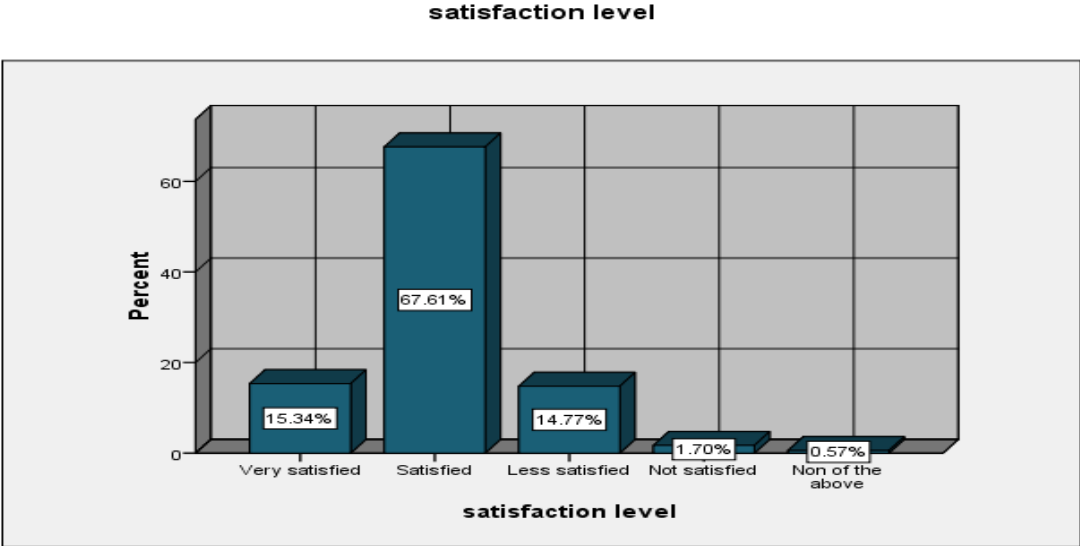


Figure 4.5 level of satisfaction

4.6 CVR and challenges faced in improving food security

This section comprises the challenges respondents in the study area face while relying on CVR as a source of agricultural information and suggestions they indicate if adopted will solve some of the problems.

4.6.1 Challenges faced while relying on CVR as a source of food security information

The study sought to establish challenges farmers face while relying on CVRs as their main source of information on food security which was important for this study. The study findings indicated that the greatest challenge is the inappropriate broadcast time of agricultural related programs representing 84.7%. Others were reported to be power problem at 75.6%, poor signal at 56.8% and language barrier at 2.3%. This is as shown in table 4.13.

Table 4.13 Challenges faced while relying on CVR as a source of food security information

Challenge	Frequency	Percentage (%)
Inappropriate broadcast time	149	84.7
Power problem	133	75.6
Poor signal	100	56.8
Language barrier	4	2.3

Source: Researcher field work 2015

Vernacular commercial radio stations being driven by profits, cannot afford to air their own sponsored agricultural programs at prime time, which is taken up by paid sponsors who broadcast sponsored programs beneficial to them. The station sponsored agricultural programs are broadcasted during off pick hours that attract few listeners hence less impact. Such programs are ‘*uimi mwailu*’ (ideal farming) and “*uimi wa matuku aa*’ (modern farming) aired between 10 am and 11am for 30minutes on Tuesdays and Thursdays respectively at Musyi FM. The other challenge is poor signal leading audiences to tune to other radio stations broadcasting in other languages that they may not understand. The 4% language barrier is as a result of members from other

communities who have bought land, settled in the region and started farming activities recently.

4.6.2 Solution to challenges facing farmers relying on CVR for agricultural information

To solve problems related to agricultural information delivery, the study findings indicated that majority of the respondents preferred CVR stations broadcast agricultural programs from 7.30pm to 9.00pm, representing 81.3%. Other respondents wished the agricultural program be discussed as from 7.00 am to 8.30 am representing 51.7%. Those wishing agricultural programs be broadcasted as from noon to 2.00pm are 4%, while improvement of radio signal stand at 53.4%.

Table 4.14 Solution to challenges facing farmers relying on CVR for agricultural information

Solution	Frequency	Percentage (%)
Broadcast agricultural programs from 7.30pm to 9.00pm	143	81.3
Broadcast agricultural programs from 7.00 am to 8.30 am	91	51.7
Broadcast agricultural information at lunch time	7	4
Improve on signal	94	53.4

Source: Researcher field work 2015

The 81.3% prefer agricultural programs be broadcasted from 7.30pm to 9.00pm because majority of the farmers are women and by 7.30 pm they are done with the house chores after days farm work and at such a time they can concentrate listening to radio. Some of the farmers start their farming activities from 9.00am so they would wish the agricultural programs broadcasted from 7.00am to 8.30am.

4.7CVR and farmers information needs

The section comprise analysis of respondents information needs, how they access the information, other information needs, consequences in failure to access such information and what to be done to access such information.

4.7.1 Farmers information needs

The study sought to establish the different kinds of farmers' information needs which were important in determining the contribution of CVRs on food security in Machakos County. According to the study findings, farmers had diversified information needs. 100% respondents were in need of information on market prices for their farm produce. 99.4% were in need of information on both market prices of other agricultural products they don't produce and new farm inputs in the market. 98.9% of the respondents needed information both on profitability of different agricultural ventures and application of farm inputs. 98.3% needed information about where they can access farm inputs from. The study also indicated that 97.7% respondents wanted marketing information while 96.6% of them needed information on where to access farm credits as table 4.15 indicates.

Table 4.15 Farmer information needs

Information needs	Frequency	Percentage (%)
Market prices for farmers agricultural produce	176	100
Other agricultural produce market prices	175	99.4
New farm inputs	175	99.4
Profitability of different agricultural ventures	174	98.9
Application of farm inputs	174	98.9
Availability of farm inputs	173	98.3
Marketing information	172	97.7
Access to credit facilities	170	96.6

Source: Researcher field work 2015

Market for farm products has been the largest challenge for farmers and this is evidenced by the 100% need of market price information by farmers. The high rate need of new farm input information and application procedure through the CVR is because majority cannot understand information on the labels that is written either in Kiswahili or English language. The oral nature of radio and broadcasting in vernacular language will enable them understand the usefulness of farm products and how they can apply them.

4.7.2 Source of information needs for farmers

The study sought to establish where farmers get information to satisfy their different information needs pertaining different farming activities which are crucial for food security in the study area. On the source of farmers' farm product market prices, 98.9% respondents which are the majority got this information from radio. 61.4% got this information from other farmers. Traders provided this information to 46% of the respondents. 22.7% got farmers farm product market prices from television. 10.5% got this information from agricultural extension officers, 15.9% from chiefs' baraza, magazines and newspapers provided this information to 10.8% of the respondents, farmer field days provided farmers farm product market information to 6.8% of the respondents while internet was a source of this information to 1.7% of the respondents. On agricultural marketing information, 75.6% of respondents got this information from radio. Other farmers were a source of this information to 24.4% of respondents. 26.1% got it from traders, 9.1% from television, 4.5% from agricultural extension officers, 6.3% from chiefs' baraza, 4% from magazines and newspapers, and 2.8% from field days while 0.6% got it from the internet.

Pertaining source of information on market price of other agricultural products not farmed by the respondent, 90.9% of the respondents got this information from radio. 20.5% from other farmers, 54.5% from traders, 16.5% from television, 6.3% from agricultural extension officers, 8% from chief baraza, 8.5% from magazines and newspapers, 2.8% of respondents got market prices of other agricultural produce during farmer field days while internet provided this information to 1.1% of respondents with this information.

On profitability of different agricultural ventures, majority of the respondents reported to get this information from radio. This was represented by 79%. 43.2% got the information from other farmers. 27.8% reported to get this information from traders on agricultural related products. 14.8% got this information from television, 5.1% from agricultural extension officers, 5.7% from chiefs' baraza, 5.7% from magazines and newspapers, 3.4% during farmers' field days and 1.1% from the internet.

As shown in the diagram below, the study indicated that 83.4% of the respondents get information pertaining availability of farm inputs from radio, 33.5% from other farmers. 27.8% from traders on agricultural related products. 14.8% got this information from television, 9.1% from agricultural extension officers, 7.4% from chiefs' barazas, 7.4% from magazines and newspapers, 1.7% during farmers' field days and 1.1% from the internet.

On new farm inputs information need, radio was leading as the source for 90.3% of the respondents. 49.4% got information from other farmers. 52.8% got this information from traders on agricultural related products. 17% got this information from television, 7.4% from agricultural extension officers, 4.5% from chiefs' barazas, 5.7% from magazines and newspapers, 1.7% during farmers' field days and 1.1% from the internet. Concerning utilization/application of farm input information need, reported to get this information as follows; radio was the major source for 88.1% of the respondents. 46% of the respondents got the information either from other farmers or traders on agricultural related products. 17% got this information from television, 5.7% from agricultural extension officers, 5.1% of respondents got the information from either chiefs baraza or from magazines and newspapers, 2.3% got this information during farmers' field days while 1.1% got it from the internet.

On information pertaining source of credit, radio was the major source with 46.6% respondents reporting to get that information from radio. 32.4% got it from other farmers. 10.2% reported to get this information from traders/ financial institutions, 7.4% got this information from television, 4% from agricultural extension officers, 1.1% from

chiefs'barazas, and 1.7% from magazines and newspapers while 2.3% got this information during farmers' field days.

Table 4.16 Source of information needs for farmers

Information Type/ Source	Farmers farm product market prices	Agricultural Marketing information.	Market price of other agricultural products	Profitability of different agricultural ventures	Availability of farm inputs	New farm input	Application/ utilization of farm inputs	Access to credit facility
Radio	98.9	75.6	90.9	79	83.4	90.3	88.1	46.6
Other farmers	61.4	24.4	20.5	43.2	33.5	49.4	46	32.4
Traders	46	26.1	54.5	27.8	27.8	52.8	46	10.2
TV	22.7	9.1	16.5	14.8	14.8	17	17	7.4
Extension	10.5	4.5	6.3	5.1	9.1	7.4	5.7	4
Baraza	15.9	6.3	8	5.7	7.4	4.5	5.1	1.1
Magazines/ Newspapers	10.8	4	8.5	5.7	7.4	5.7	5.1	1.7
Field days	6.8	2.8	2.8	3.4	1.7	1.7	2.3	2.3
Internet	1.7	0.6	1.1	1.1	1.1	1.1	1.1	0

Source: Researcher field work 2015

From these research findings, it's evident that radio is the key source of information that the farmers need to excel in their farming activities. The vast reach, orality and using vernacular language make radio the most ideal communication tool for dissemination of agricultural information. Farmers' need of oral delivery of messages is evidenced by farmers being the second most preferred source of information followed by traders whom can provide the information farmers need face to face using a language that he understands. Magazines/newspapers and internet require literate people and money to access them on daily bases hence making them the least popular source of agricultural information for subsistence farmers who are also poor. Lack of information on where to access credit from has made farmers to be slow in embracing new farming methods that can lead to food security.

4.7.2 Farmers other information needs

The study sought to investigate other information needs that farmers might be in need of a part from the ones listed by the author which could be crucial in understanding the

causes of food insecurity in Machakos County. The study results indicated that majority of the farmers would need information on cooperative formation in order to exploit the markets accounting for 50.6% of the total respondents. 18.2% are in need of information on the ideal chemicals and certified seeds. 15.3% of the respondents want to be updated on weather, 6.8% were in need of information on common maize and orange diseases, their prevention and cure. 5.1% were in need of information on insurance cover for their farming activities while 2.3% wanted information on exotic breeds of dairy cows, pigs, layers and information on proper bee keeping.

Table 4.17 Farmers' other information needs

Other information needs	Frequency	Percentage (%)
Effective farmers cooperative formation	89	50.6
Effective chemicals and certified seeds	32	18.2
Weather information	27	15.3
Common diseases in oranges and maize	12	6.8
Insurance cover on farming activities	9	5.1
Exotic breeds for cows, Rabbits, pigs layers and bees	4	2.3

Source: Researcher field work 2015

Marketing farm produce has been a challenge to many farmers when they venture into the market as an individual rather than a group as Ndithini ward agricultural extension officer pointed out, many farmers will stand to benefit from their agricultural activities if they are in cooperatives which can enable them sale their produce in bulk as well as be able to negotiate for better prices. Most sources of agricultural information concentrate on delivery of production messages and little about markets. This has seen some farmers get discouraged in forming such cooperative as the prices being offered by companies they approach are way below the middle men price and they get the farmers product in credit worsening the situation. Therefore credible information on how to form strong cooperatives for farmers will be ideal. As the deputy head of Musyi FM pointed out, there is no any insurance company that has ever shown interest of advertising/publicizing their products to cover farmers in Machakos County and other

dry areas. This is as a result of the crop failure that has been witnessed there over the years. Majority farmers have been duped to buying fake farm inputs especially chemicals and seeds due to lack of adequate information on where to access the genuine ones and features spotted by the certified products.

4.7.3 Consequences of lack of other farmers information needs

The study findings pointed out that 96.6% of the respondents incurred losses due to lack of the above information.3.4% reported loss of morale to farm such products while 0.6% reported break up of existing farmer cooperatives due to lack of the information in table 4.17.

Table 4.18 Consequences of lack of other information needs

Consequences	Frequency	Percentage (%)
Losses	170	96.6
Loss of morale to farm such product	6	3.4
Breakup of existing farmer cooperatives	1	0.6

Source: Researcher field work 2015

4.7.4 Solution to the farmers needs

Research findings indicated that to resolve other needs of the farmers, 36.4% of the respondents would want information from experts on farmer cooperative formation. 13.5% of the respondents indicated that they would want farmers who have used the said effective chemicals to be hosted in the CVR agricultural programs. 28.6% would want the agricultural programs be allocated more airtime to cover more on different agricultural product markets.16.7% want information on the certified seeds outlets broadcasted. 3.1% want information on weather and beneficial seeds for such weather conditions while 4.7% want information broadcasted on how to insure farm activity.

Table 4.19 Solution to the farmers needs

Other farmer needs	Frequency	Percentage (%)
Broadcast experts information on farmer cooperative formation	64	36.4
Extend agricultural programs to cover more information on different farm product markets	55	31.3
Broadcast the authorized outlets for certified seeds	32	18.2
Host farmers who has used the effective chemicals in the agricultural programs	26	14.8
Broadcast procedures on how to insure farm activity	9	5.1
Broadcast weather information and the more beneficial seeds for such weather condition	6	3.4

Source: Researcher field work 2015

Information on cooperative formation for farmers would save majority of farmers and farmer groups who are exploited by some traders by selling to them ineffective farm inputs. Farmers trust what their fellow farmers have used and found effective. Hosting these experienced farmers in the radio will help in convincing farmer listeners of the need to embrace a new farming innovation.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the research findings which respond to the study questions which are; does farmers' use of commercial vernacular radio improve their agricultural production strategies? What is the contribution of CVR stations towards food security in Machakos County? What challenges do CVR stations face in an effort to improve food security? And what are the farmers information needs addressed by CVR in Machakos county? The summary is derived from analysis and discussion done on chapter four. Then the summary forms the basis for conclusion and recommendations there off.

5.2 Summary

The findings of this study, which was based on commercial vernacular radio and food security in Machakos County, are in support to the existing literature. The results indicated that most rural residents earn their living from subsistence farming with females being the majority. Most of the residents are illiterate and poor having primary and below level of education and earning an income less than shillings 5000 in a month, which are some of the factors hindering agricultural information flow and hence adoption of new farming strategies to achieve food security in Machakos county.

5.2.1 Farmers and commercial vernacular radio stations

According to the study results, radio dominated as a source of agricultural information on farm activities exercised by the respondents in Machakos County followed by fellow farmers. The farmers in the county listen to radio for an average of 1-2 hours a day with Musyi FM dominating as the most listened CVR station in the study area followed by Mbaitu and Athiani FM respectively. Other vernacular stations including County, Mwatu and Syokimau FM respectively were the least listened.

The county residents also tuned to other non Kamba vernacular stations with majority accessing radio from radio set followed by mobile phones while access through car radio

and others means was the least. Though radio, farmers reported getting agricultural information such as farm inputs, land preparation and planting, soil and water conservation, storage, farm product markets and control and prevention of crop and livestock pest and diseases. Livestock feeds and how to feed animals was the least information accessed through radio.

Agricultural information about farm inputs was the most information gotten from radio and practiced followed by land preparation and planting. Other information that was heard from radio and practiced included soil/ water conservation, storage, control and prevention of crop and livestock pest and diseases, farm product markets, livestock feeds and how to feed animals. Livestock feeds and how to feed animals is the least received agricultural information from radio and practiced.

5.2.2 Commercial vernacular radio and food security

On the second objective, seeking to establish whether CVR stations contribute towards food security in Machakos County, the study findings indicated that radio is the leading source of food security information followed by other farmers/peers. Other sources of food security information included extension officers, baraza, television, seminars, newspapers and internet. The internet formed the least source of food security information among the respondents.

Of the information gotten from radio pertaining food security, farming diversification dominated followed by food storage. Nutritional education was third while market food availability was the least information accessed through radio. Of this information gotten from radio, farming diversification dominated as the most practiced food security information. This is followed by storage and market food availability respectively while nutritional education is the least practiced.

According to the study results, other farmers/peers are the dominant source of market food price information followed by radio. The farmers also get this information by visiting the market, from television and print media. The least of the respondents get this information from social media. The study revealed that most farmers are satisfied with market information delivered by radio.

5.2.3 Commercial vernacular radio and challenges faced in improving food security

On the third objective which sought to identify challenges farmers go through while relying on CVR stations to improve food security, farmers identified inappropriate broadcast time, power problem and poor signal are the hindrance to smooth receivership of agricultural information. To solve such problems, most farmers prefer agricultural programs to be broadcasted from 7.30pm to 9.00pm, followed by those who wish such programs to be broadcasted from 7.00am to 8.30am while the least want this programs done at lunch hour(between noon to 2.00pm). Others would wish to see the signal for CVRs improved.

5.2.4 Commercial vernacular radio and farmers information needs

On the fourth objective seeking to establish farmers information needs that are addressed by CVRs in Machakos County, the study found that all farmers are in need of information about market price for their agricultural produce. Other information needs sought by the farmers in the area included market price of other agricultural products they don't produce, new farm inputs, the profitability of different agricultural ventures and application of farm inputs, marketing information and availability of agricultural credit facilities in that order.

Pertaining the source of information need on farmers product market prices, majority respondents got it from radio followed by other farmers. Traders came in third. Extension officers were distant seven out of the nine sources of this information. Internet was the least source.

On source of information about agricultural product marketing information, radio was leading with followed by traders and other farmers respectively. Chiefs' baraza and extension officers came at position fifth and sixth with respectively out of the nine sources for this information. Internet was the least source.

Radio is the main source of information about market prices of other agricultural products the farmers don't produce. This is followed by traders and farmers respectively. Extension officers are seventh source while internet is the least sited source.

On level of profitability on different agricultural ventures, radio was the major source about such information followed by other farmers and traders respectively. Television was the fourth while extension officers were in position sixth out of the nine sources cited. On information about availability of farm inputs, radio was the major source with followed by other farmers and traders respectively. Extension officers were in position five.

Pertaining information about new farm inputs, majority farmers got this from radio followed by traders and other farmers respectively. Extension officers were in position five. Radio was also the main source of information about farm input application followed by other farmers and traders. Extension was fifth position. On information about access to credit, radio dominated followed by other farmers, traders/ agencies from financial institutions respectively.

On other information needs, majority respondents indicated that they needed information on cooperative formation in order to exploit markets as well as ideal chemicals, updates on weather and certified seeds. The respondents revealed that lack of this information lead to losses and loose of morale in farming such kind of crop.

5.3 Conclusion

Conclusion is derived from the summary of the study findings.

5.3.1 Farmers and commercial vernacular radio stations

CVR stations are the major source of agricultural information to farmers in Machakos County pertaining different farming activities they exercise. Because radio has no geographical barrier, it can pass the information at once to many people provided they can access the radio signal. Its orality nature, easy to operate and able to be listened to while performing other tasks make it the most ideal source of agricultural information for majority illiterate and poor residents who do subsistence farming for survival.

Musyi FM is the most listened CVR by farmers in Machakos County because of its strong signal in most parts of the county and its seasoned presenters. However, inappropriate broadcast time and poor signal among CVR stations broadcasting in

kikamba language in some parts of the county make farmers in the county tune to other non Kamba broadcasting radio stations.

Farmers from Machakos county listen to radio for an average period of between 1-2 hours a day. Though they can carry their radio set to their gardens and listen as they work, owing to high poverty level, they prefer switching it off during working hours to preserve the batteries so as to serve them for a number of weeks. Hence majority listen to radio when they are resting.

Most farmers in the county access radio from radio set. This is so because radio sets are cheap, easy to operate and can use dry cells as source of power. Electricity power is out of reach to most of the Machakos county rural subsistence farmers and accessing radio from mobile phones or streaming from the internet is prohibited by their low income and high illiteracy levels.

Major agricultural information accessed through radio by Machakos farmers include farm inputs, land preparation and planting, soil water conservation, storage, farm product markets and control and prevention of crop and livestock pest and diseases. Much of this information is on farming activities rather than livestock as most farmers exercise subsistence farming where they grow cereals. Farmers in the region don't mind about animal feeds as they tether or graze them on their lands and worry about control of ticks only.

5.3.2 Commercial vernacular radio and food security

Radio is the major source of food security information followed by other farmers. The major agricultural information gotten from radio and put into practice by farmers in the county is on farming diversification and storage of their cereal harvests. This is because the subsistence farmers farm cereals more than they keep livestock.

On market prices, Machakos farmers trust their fellow farmers more than market prices gotten from radio. This is because some of the market price reports from radio are exaggerated and some don't cover the nearby markets that farmers are able to reach.

5.2.3 Commercial vernacular radio and challenges faced in improving food security

Inappropriate broadcast time of agricultural programs by the CVR and poor signal are the major hindrance to effective dissemination of agricultural messages and hence adoption to end food insecurity among farmers in Machakos county.

5.2.4 Commercial vernacular radio and farmers information needs

Farmers in Machakos County are all in need of market price information regarding their farm produce. This is because much of the information provided to them is on how to improve their farm yields and no market information is provided in the process.

5.4 Recommendations

The researcher identified a number of aspects that can be adopted by the commercial vernacular radio stations, researchers, the county and national government in order to improve food security in Machakos County and other parts of the country. These include;

CVR stations broadcast major agricultural programs in the evening starting from 7.30pm to 9.00pm because at such a time almost all farmers are relaxing at their homes and can attentively listen to all agricultural information targeting them and their agricultural ventures without divided attention.

CVR stations broadcasting in kikamba language improve their signal in all areas they intend to cover. This is to ensure that all farmers in such areas are able to clearly get the agricultural information being disseminated to them.

CVR stations host farmers who have used the effective farm inputs in their agricultural broadcasts as they are trusted than the traders of those products. They should also involve all other agricultural stakeholders in their agricultural program productions.

CVR stations increase the number and duration for agricultural programs to cover more agricultural activities and different farm product markets. With more time and a number of days in a week allocated for agricultural programs, farmers in the county will get more information on different agricultural products and their available markets.

Farmers join farmer groups and cooperatives where they can discuss information gotten from radio for effective uptake. These will help the farmers understand the agricultural information better and even secure more markets and better prices for their products.

All seed producing companies package their seeds in transparent polythene bags. This will help farmers identify the certified seeds from the counterfeit ones by looking at the seed features before purchase.

Government offer support in broadcasting of agricultural programs in different commercial vernacular radio stations. This can be done through offering subsidies or tax waiver to those media houses broadcasting agricultural programs so that they can broadcast these agricultural programs at the appropriate time for the listeners.

County governments should facilitate extension so as to supplement the information already delivered through radio to farmers in different parts of their wards. This should be done by having transport allowances being allotted in the budget allocations.

Government and other private companies producing farm inputs have a shop out let near farmers. Through this, farmers will have an ease access as well as protect them from counterfeit products.

5.4.1 Recommendation for a further study

This study, as a result of limited time and resources concentrated on two administrative sub-locations in Machakos County and one case of commercial vernacular radio. Therefore, for a study that is to give a true picture of how things are in the whole country, there is a need for extensive comparative study to be done in different parts of the county and country and involving several vernacular radio stations to establish the impact of CVR in improving food security in Machakos county and the country as a whole.

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APPENDICES



Appendix 1 Map of Kenya and the 47 Counties

MACHAKOS DISTRICT: LIVELIHOOD ZONES

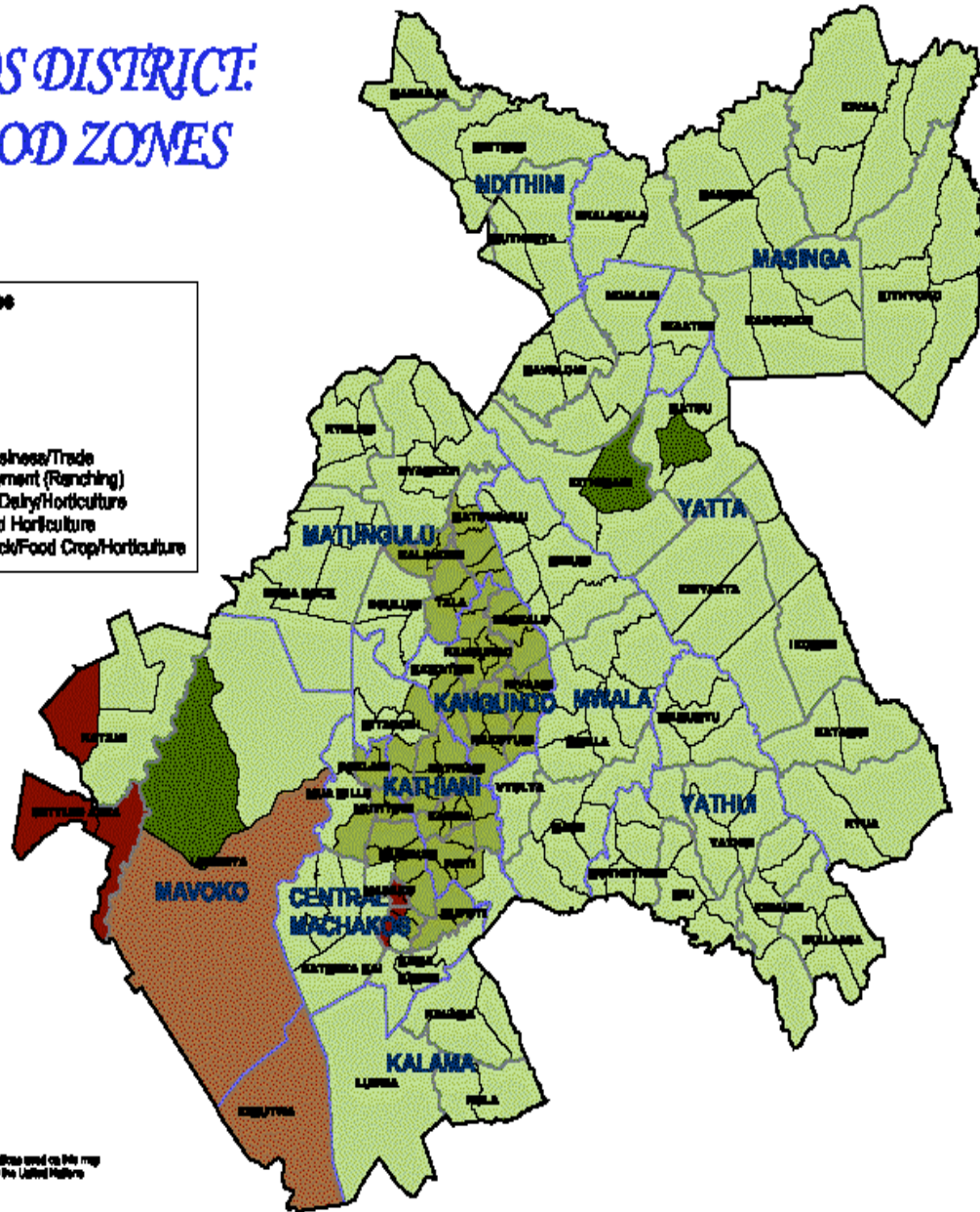
Legend

Administrative Boundaries

- District Boundary
- Division Boundary
- Location Boundary
- Sub Location Boundary

Livelihood Zones

- Formal Employment/Business/Trade
- Formal/Informal Employment (Ranching)
- Mixed Farming: Coffee/Dairy/Horticulture
- Mixed Farming: Irrigated Horticulture
- Mixed Farming: Livestock/Food Crop/Horticulture



The boundaries and names shown and the designations used on this map do not imply official endorsement or approval by the United Nations.
Map by MPPHAM Kenya, February 2002

Appendix 2 Map of Machakos county- the study area.

Appendix 3 introduction letter

University of Nairobi
School of Journalism & Mass communication
P O BOX 30197 NAIROBI – 00100.

Dear Sir/Madam,

I am a master's student at the University of Nairobi school of Journalism and mass communication undertaking a research project on commercial vernacular stations and food security in Machakos County: A case of Musyi FM.

Kindly, I request your opinions regarding this subject. The information collected will be treated with outmost confidentiality and will be used only for educational purposes. Your participation in the study will be highly appreciated.

Thank you in advance.

Michael Mwikya Mwangangi
MA student University of Nairobi
ADM NO: K50/69544/2013

Appendix 4 Farmers survey questionnaire

I am Michael Mwikya Mwangangi, a Masters student at the University of Nairobi. The aim of this study is to help in understanding the impact of commercial vernacular radio stations on food security in Machakos County.

I therefore request you to provide the required data voluntarily. Be assured that the data you give will only be used for the purpose of this study and will be treated with extreme confidentiality.

Thank you.

Provide answers to the questions as honestly and precisely as possible.

Tick your preferred answers where applicable

Kindly answer all the questions

Part A; Respondents background information (Tick appropriately)

A1. Sub Location; a) Mananja [] b) Mamba []

A2. Gender; a) Male b) Female

A3. Age;

a) Below 25 b) 26-35 c) 36-45 d) 46-55 e) Above 55

A4. Education level

- a) Primary and below
- b) Vocational certification
- c) Secondary
- d) Post secondary certificate
- e) Post secondary Diploma
- f) Degree
- g) Post graduate certificate
- h) Post graduate diploma
- i) Post graduate degree
- j) Others (specify) _____

A5. Occupation (tick all applicable cases)

- a) Subsistence Farmer
- b) Business person
- c) Civil servant
- d) Medical officer
- e) Agric extension officer
- f) Other(specify) _____

A6. If a farmer, what kind of farming activities are you involved in? (Tick all areas applicable)

- a) Livestock keeping
- b) Subsistence farming
- c) Horticulture
- d) Agro forestry
- e) Cash crop farming
- f) Bee keeping
- g) Fish farming
- h) Other(specify) _____

A7. For how long have you been undertaking these farming activity/activities?

- a) Less than a year b)1-5 years c)6- 10 years d)11-15 years
 e) above 15 years

A8. How much in Kshs. do you generate from your farming activity/ activities per month?

- a) 5,000 and below
 b) 6, 000- 10,000
 c) 11,000-15,000
 d) 15,000- 20, 000
 e) 21000- 25,000
 f) 26,000 and above

Part B: Farmers and Commercial Vernacular Radio

B1. Where do you get agricultural information regarding the farm activity you exercise?

(Tick all areas applicable)

- a) Radio
 b) Agri. extension officers
 c) Fellow farmers
 d) Barazas
 e) seminars/workshops
 f) Television
 g) Internet
 h) Newspapers & magazines
 i) Others (specify)_____

B2. If a) above, which radio station do you listen to; (tick all areas applicable)

- a) Musyi FM
 b) Mbaitu FM
 c) Athiani FM
 d) County FM
 e) Syokimau FM
 f) Mwatu FM
 g) Others (specify)_____

B3. How long do you spend listening to radio?

Radio	Over 2	1-2	½-1	2-4	At least	Never
-------	--------	-----	-----	-----	----------	-------

station/ Duration	hours a day	hours in a day	hour a day	hours a week	½ hour a week	
Musyi FM						
Mbaitu FM						
Athiani FM						
County FM						
Syokimau FM						
Others (specify)						

B4. Where do you access the radio from (tick all areas applicable)

- a) Radio set
- b) Mobile phone
- c) Car radio
- d) Internet
- e) others (specify) _____

B5. What kind of agricultural information do you get from the radio programs you listen to? (Tick all applicable cases)

- a) Land preparation and planting
- b) Soil/water conservation
- c) Farm inputs
- d) Farm product markets
- e) Storage information
- f) Control/prevention of crops/livestock pests and diseases
- g) Livestock feeds and how to feed the animals
- h) Other (specify) _____

B6. Which of the above activities have you put into practice? (Specify)

Part c: Commercial vernacular radio and food security

C1. Where do you get food security information from? (Tick all applicable cases)

- a) Radio(specify)_____
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Other farmers
- g) Internet
- h) Demonstration & field days
- i) Others (specify)_____

C2. If a) in C1 above, what kind of food security information do you get from radio?
(Tick all applicable cases)

- a) Farming diversification
- b) Storage
- c) Nutritional education
- d) Market food availability
- e) Others(specify)_____
- f) None

C3. Which of the above information have you put into exercise?(Tick all areas applicable)

- a) Farming diversification
- b) Storage
- c) Nutritional education
- d) Market food availability
- e) Others (specify) _____
- f) None

C4. Where do you get information pertaining market food prices? (Tick all areas applicable)

- a) Friends
- b) Visit the market to find out
- c) Radio (specify) _____
- d) Television
- e) Newspapers/magazines
- f) Social media
- g) Other (specify) _____

C5. If c) above, how are you satisfied with market information delivered by the radio station?

- a) Very satisfied
- b) Satisfied
- c) Less satisfied
- d) Not satisfied

C6. What would you recommend the radio station to do to provide adequate market information on farm produce to farmers and consumers?

Part D; Commercial vernacular radio and challenges faced in improving food security

D1. What challenges do you face while relying on commercial vernacular radio as your source of agricultural/ food security information? (Tick all areas applicable)

- a) Lack of batteries
- b) Language barrier
- c) Inappropriate broadcast time
- d) Poor signal
- e) Other (specify) _____

D2. What would you wish be done by the commercial vernacular radio stations for effective agricultural information delivery?

Part E; Commercial vernacular radio and farmers information needs

(Tick all areas applicable)

E1. Where do you get information pertaining cost of your agricultural production?

- a) Radio
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Others (specify)_____

E2. Where do you get market and marketing information (handling, transport, storage, processing etc)?

- a) Radio
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Others (specify)_____

E3. Where do you get information on prevailing prices of other commodities?

- a) Radio
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Officers from ministry of agriculture
- i) Others (specify)_____

E4. Where do you access information on new farm inputs in the market?

- a) Radio

- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Officers from ministry of agriculture
- i) Others (specify)_____

E5. Where do you access information on available credit facilities?

- a) Radio
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Officers from ministry of agriculture
- i) Others (specify)_____

E6. Where do you get information on farmers and traders of different farm output and inputs?

- a) Radio
- b) Extension officers
- c) Barazas
- d) Television
- e) Printed literature
- f) Internet
- g) Demonstration & field days
- h) Others (specify)_____

Appendix 5 key informant interview schedule for agricultural officers

I am Michael Mwikya Mwangangi, a Masters student at the University of Nairobi. The aim of this study is to assess the impact of commercial vernacular radio on farmers' food security in Machakos County.

I kindly request you to provide the required data voluntarily. Please be assured the data you give will not be used for any other purpose except for this research.

Thank you.

How long have you been working in this region as an agricultural officer?

How has been the rate of adoption of researched scientific farming methods by farmers in the area?

What is the common challenges farmers face in your allocated region?

What is the ratio of extension officer to farmers in this region?

How effective are the officers in addressing the challenges farmers face?

Do you listen to radio?

Which vernacular commercial radio station(s) do you listen to?

Do this radio station(s) broadcast any agricultural related issues?

How effective are these agricultural programs in addressing farmers' needs in the region?

What do you think should be done to these programs for effective dissemination of agricultural information to farmers?

What would be the impact on farming if this station(s) were to be used in disseminating information that agricultural specialists have?

What would you recommend to be done to this station(s) in dissemination of agricultural information in an effort to improve farmers' food security?

Appendix 6 key informant interview schedule for head of radio Musyi FM

I am Michael Mwikya Mwangangi, a Masters student at the University of Nairobi. The aim of this study is to assess the impact of commercial vernacular radio on farmers' food security in Machakos County.

I kindly request you to provide the required data voluntarily. Please be assured the data you give will not be used for any other purpose except for this research.

Thank you.

Who are your primary target audience?

What is the co- content in your broadcasting?

Are their programs airing agricultural related issues at Musyi FM?

If yes who are sponsors /advertises during this programs

Who are the journalists running agricultural programs? What are their qualifications?
(Academic/experience)

How is the listenership? (How do you measure it?)

How are agricultural program content developed?

What challenges do you face in running/ introducing agricultural programs?

What do you think can be done for your station to be the farmers' station of choice for agricultural information and education?

Is there any assistance you get from the government in promoting agricultural information dissemination?

Appendix 7 code schedule

Coding schedule for content analysis on Musyi FM programs for the days spanning 9th to 15th March 2015

Program code;

Date broadcasted;

Time the program is/was aired;

What is the main topic of discussion in the program (Name and the frequency?)

Are there agricultural related advertisements on the program?

If yes, list the name of the advertised products

Are there agricultural related activities/products recommended on the program? (Name and the frequency)

What is the program format?

Is the program live or recorded?

Does the program have a listener interaction section?

Are there guests in the program?

What is their expertise?

What language do the guests use in the program?

How articulate are the guests in the issues they discuss?

What is the duration of the program?

Who are the sponsors of the program?

Sampled programs

Topic	Program sponsor	Time aired	Format	Recommendations in the program
E.g. Market food prices	Musyi fm	9.00 pm	News	N/A
Improved Maize farming	Kenya seed co.	6.00pm to 8.00pm- monday to Friday	Discussions and phone in	Use pioneer certified maize seeds