FACTORS INFLUENCING UTILIZATION OF AGRICULTURAL RESEARCH FINDINGS AMONG RURAL COMMUNITIES IN KENYA:

A CASE STUDY OF YATTA DIVISION, MACHAKOS COUNTY

MA RESEARCH REPORT

BY

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Research report submitted in partial fulfillment of the requirements for the award of a Master's Degree in Rural Sociology at the University of Nairobi.

UNIVERSITY OF NAIROBI

DECLARATION AND RECOMMENDATION

Declaration

This research report is my original work and has not been presented in this or any other university for any academic purpose.

NAME: KIMEU SILVESTAR KIMANTHI

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SIGNATURE……

DATE……

Recommendation

This research report has been submitted for examination with my approval as the university supervisor.

Prof. E.W Mburugu

Department of sociology and social work

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Signature……..Date……

DEDICATION

I would like to dedicate this research report to my wife Jane Mueni Kimanthi and my extended family for their support and the love they have shown unto me during my period in the University and during the writing of this research project.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to God for His mercies, grace and provision in the undertaking of this research project.

I wish also to thank my Parents Mr. Justus Kimeu Kisulu and Mrs. Elizabeth Mueni Kimeu who have been precious gifts to me. Further, I would like to acknowledge the invaluable contribution of all the respondents (Yatta division extension officer Mrs. Veronicah Kasiu, Matuu and Ndalani and Kithimani Location agricultural officers Mr. Musau and Mr. Nzomo respectively, KARI researchers, all the respondents from Kithimani, Matuu, Ndalani and Mavoloni locations) who voluntarily provided useful information towards the writing of this project.

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I sincerely appreciate your assistances, may God bless you all.

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ACRONYMS

ADB	Africa Development Bank
CBO	Community Based Organization
EAC	East African Community
GOK	Government of Kenya
FARA	Forum for Agricultural Research in Africa
FBO	Faith Based Organization
IFAD	International Fund for Agricultural Development
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KARI	Kenya Agricultural Research Institute
KU	Kenyatta University
KNSB	Kenya National Bureau of statistics
NGO	Non-Governmental Organization
NCST	National Council for Science and Technology
SPSS	Statistical package for the social sciences
UON	University of Nairobi
UN	United Nations
US	United States
WB	World Bank

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ABSTRACT

Agriculture is the backbone of development of rural communities. Generally, agricultural research efforts aim at contributing to existing knowledge and improving the quality of life. Within the study area, most of agricultural researches conducted have mainly majored on assessment of biodiversity and traditional high yield crops. Despite the numerous research efforts made in Yatta division, agricultural production remains low with poverty levels remaining significantly high. The purpose of this study was to establish the factors influencing utilization of agricultural research findings in Yatta Division. The findings of this study are an indispensable tool to different players in the agricultural sector such as; the government in policy formulation, community members in enhancing crop yields, development practitioners in adding to the existing knowledge on utilization of agricultural research findings and researchers in identifying new areas for further research. The study adopted an ex post facto design with the target population consisting of 21,000 small scale farmers, division agricultural officer, division agricultural extension officer, three location agricultural extension officers, and researchers in Yatta division. The sample size was composed of 178 small scale farmers, one division agricultural officer, one division agricultural extension official, three location agricultural extension officers, and four researchers. Cluster sampling was used in selecting a sample of 178 small scale farmers while Judgmental sampling was used in selecting researchers and agricultural offices. Data collected from the field was processed through data cleaning/editing, then categorized and coded to get themes and patterns for further analysis. Analysis was performed by use of SPSS for Quantitative data while relational content analysis was used for qualitative data. The analyzed data was presented by use of narrative reports, pie-chart, tables, percentages and graphs. The study results revealed that poverty accounting for 57.6 (%) of the respondents earning less than Kshs 5,000 and illiteracy at 46.8 (%) were the major factors influencing the utilization of research results in improving crop production. Other significant factors included; female headed households, lack of adequate research findings and language barriers. To enhance utilization of research findings by rural communities, the study recommends the involvement of community members in the generation and consumption of research findings through sensitization using mass media such as the vernacular radio stations, and simple accessible technologies such as mobile phones.

CHAPTER ONE: INTRODUCTION

INTRODUCTION

This chapter consists of the following sections; background information, problem statement, objectives of the study, research questions, significance of the study, scope of the study, limitations of the study, and operational definition of terms.

1.1 BACKGROUND

The rationale of research is to enlarge frontiers of knowledge and contribute significantly to human development (Oduwaiye, et al 2009). According to Court and Young, (2006) research is an indispensable tool that contributes to improvement in the quality of debates in the society through establishing general principles, concepts and identification of problems based on sound argument to guide the development process. Besides, research is important in the solving of concrete problems by providing concrete solutions.

Research no matter how innovative it is, will not make a difference in the lives of the target community unless it is disseminated and utilized in an appropriate and timely manner. Dissemination of research is an important component of the research process which entails, communication of the outcomes of the research to the targeted population (Burns, 2005). It is the process of distributing information or knowledge gathered through research to the consumers by use of various channels. According to Burns, (2005) research utilization refers to the process of synthesizing and using research findings in order to make an impact on or a change in the existing practices within the society. Utilization of research results to a considerable extent depends on proper dissemination of the findings to the relevant consumers.

There is a close link between improvement in livelihoods and transfer of knowledge (Huberman, 1990). Although newer information and communication technologies are now available and have made the access of research results easier, there still remains a large gap between the knowledge produced by the researchers and the one used in practice. According to Anderson, (1992) this gap is attributed to researchers often dedicating much of their time, interest and effort to the production of new knowledge at the expense of dissemination of

new as well as existing research results. Similar opinions are expressed by Kirst, (2000) who notes that, resistance by development practitioners to adopt research results explains some of the barrier to the integration of research results into development activities.

According to the African development Bank, (2011) there exists a wide gap between producers and consumers of knowledge; Research can have an enormous impact on development initiatives than it has to date. The effectiveness of translation of research findings to practice has been shrouded in mystery, with researchers as knowledge producers being unable to understand the failure despite clear and convincing academic dissemination avenues. In addition, development practitioners as knowledge consumers bemoan the inability of researchers to make their findings accessible to and digestible by consumers in good time. World Bank, (2010) notes that, most research undertakings don't begin with identification of key knowledge gaps facing development practitioners, but rather researchers seek questions they can answer with the current methodologies as the basis of their research. Research should be based on a strategic approach that is firmly anchored on key knowledge gaps for development. Existing development gaps should inform the research agenda and not the researcher's disciplinary background or the favoritism of methodologies.

IFAD, (2012) posits that poverty remains significant in the past decades in Africa, East Asia and Latin America, despite significant progress made in other parts of the world. At least 70 per cent of the world's very poor people live in the rural areas and a large proportion of these poor and hungry populations are children and young people. The population of the less developed countries is still more rural than urban with some 3.1 billion people or 55 (%) of the total population still living in rural areas. Nevertheless, with better utilization of agricultural research findings to inform development policies and practices, it's possible to save lives, reduce poverty and improve the quality of life of people in the above regions (Court and Young, 2006). As indicted by ADB, (2011) agriculture supports the livelihoods of over two thirds of the regions' poor and is the main economic mover in the developing countries. The value of agricultural research can only be measured in terms of its contribution to solutions of the farmer and the overall community. It is not enough to do

research, and obtain results; the research results developed must rapidly be transferred to farmers, fields and be adopted.

Improvements in agricultural technology will continue to play a critical role in improving the welfare of rural communities and the general economy of countries especially in African. Given that, economic growth is the best remedy for poverty and that only a handful of countries have managed to attain economic growth without emphasis on agricultural growth, it follows that agriculture is a principal tool in the development of these countries. Cumulatively, agriculture benefits; rural and urban poor through provision of food as well as raw materials for industries, frees foreign currency for the purchase of capital assets, provides markets for industrial sector, reduces poverty through provision of employment and primary food commodities especially to the rural communities. High and sustained growth in agriculture is vital for African countries to accelerate poverty reduction. This is because agriculture has a powerful leverage effect on all the sectors of the economy especially countries within the early stages of development (FARA, 2006).

According to the World Bank, (2010) investments in agricultural research and knowledge generation constitute numerous strategies adopted to promote sustainable and equitable agricultural development in most of the African countries over the years. The focus on agricultural investment has gone through various transformations over the years. In the 1980s, agricultural research focused on strengthening the research supply systems at both the international and national levels. In the 1990s, the focus shifted to improving the links between research, education and the extension services and identification of farmers' needs to inform the research process. The similarity between the two approaches was that, the link between researchers and research consumers remained linear with research knowledge being generated for extension officers who were expected to transfer new technologies and innovations to the farmers at the rural levels. However, the focus has recently changed with the realization that supply and demand for knowledge is far more complex than envisaged in the linear approaches. Research dissemination approaches involving many stakeholders are currently been appreciated as more effective in speeding the use of research knowledge for income generation by research consumers. The newer approaches emphasize on the totality

of the interactions between stakeholders needed to encourage the utilization of research outputs.

According to FARA, (2006) experiences from across Africa indicate that the effectiveness of agricultural technology generation and utilization depends largely on the relevance and responsiveness to farmer's needs. It's currently observed that, the needs of farmers' do not sufficiently drive the orientation of agricultural research and extension of the findings: a fact that reduces the relevance and impact of agricultural research. Often community members view themselves as research subjects who rarely share in the benefit of research proceedings. In some instances, researchers may intend to share their findings with community members, but the structures of their research institutions make it difficult or untenable. The funding institutions further, rarely include requirements for dissemination in their call for proposals and also the careers of researchers and academicians is based on academically oriented dissemination venues such as; peer reviewed publications or journals with little attention on community forums.

This study was carried out in Yatta division in Machakos County, with Matuu, Mavoloni, Ndalani and Kithimani as the administrative locations in the study area. The division has a total population of approximately 91,115 people, with an approximate surface area of 1,059 km^2. Division's poverty index is 56 (%) and literacy rate 60 (%) of the total population. The major economic activity in the area is farming. The area has both small scale farming and few export oriented farming done along the Yatta canal, Athi River and Thika River (Yatta division office).

Just like most of the arid and semi-arid areas in Kenya, Yatta has been a target population for numerous research undertakings, most of which aim at improving living conditions through transformation of agricultural enterprises. Despite the numerous research undertakings there is no complimentary transformation of livelihoods (Yatta division office).

1.2 PROBLEM STATEMENT

Poverty status in sub Saharan region in Africa remains high, with currently 40 per cent of the population living below the poverty line and one in every three people being undernourished despite the potential of agriculture in reducing such margins (Africa development Bank, 2011). Statistics by World Bank, (2010) indicate Kenya's poverty index as high ranging between 44 per cent - 46 per cent a figure which has remained steady for the last six years.

Agriculture is a principal sector in the development of rural communities (FARA, 2006). Improvements in agricultural technologies can play a critical role in improving the welfare of rural communities (World Bank, 2010). In Kenya, several institutions are involved in undertaking agricultural research from both the government and non-governmental institutions. Previous agricultural researches conducted in the area of study include: assessment of biodiversity and traditional high crops by, Dr Onuanga; resilient farming systems by, KARI; soil analysis by, Mac-gill; Mango production and water harvesting among dry areas and evaluation of the effectiveness of greenhouse farming among secondary schools in dry areas by, JKUAT department of agriculture (Yatta agricultural Division office). Generally, these efforts aimed at contributing to existing knowledge and improving the quality of life. In spite of these numerous research efforts most of which are directed towards the rural communities, the levels of poverty and low agricultural production still remain significant.

Research, no matter how innovative it may be, will not make a difference in the lives of the target community, unless it is disseminated and utilized in an appropriate and timely manner (Huberman, 1990). Improvements in livelihoods to a bigger extent depend on; the production, transfer and use of knowledge (Huberman, 1990). Nevertheless, there is arguably a significant gap between research and practice pathway (ADB, 2011). These gaps reflect poor partnerships among stakeholders and poor understanding as well as appreciation of research to practice pathway, a factor which limit the potential socio-economic value of the research work (Anderson, 1992). To reduce this gap between researches to practice, there is a need to investigate the factors that may limit the understanding, appreciation and the use of research findings by the community members. This study therefore, sought to

establish the factors influencing utilization of research findings among Kenya's rural communities.

1.3 RESEARCH QUESTIONS

i. What are the economic factors influencing utilization of agricultural research findings in Yatta division in Machakos County?

ii. What are the socio-cultural factors influencing utilization of agricultural research findings in Yatta division in Machakos County?

iii. What are the political factors influencing utilization of agricultural research findings in Yatta division in Machakos County?

iv. What are the interventions being employed to enhance agricultural research utilization in Yatta division in Machakos County?

1.4 OBJECTIVES OF THE STUDY

1.4.1 GENERAL OBJECTIVE

To assess the factors influencing utilization of agricultural research findings in Yatta division in Machakos County

1.4.2 SPECIFIC OBJECTIVES

i. To examine the economic factors influencing utilization of agricultural research findings in Yatta Division in Machakos County.

ii. To examine the socio-cultural factors influencing utilization of agricultural research findings in Yatta Division in Machakos County.

iii. To examine the political factors influencing utilization of agricultural research findings in Yatta Division in Machakos County.

iv. To establish the intervention being employed to enhance agricultural research utilization in Yatta division, in Machakos County.

1.5 SIGNIFICANCE OF THE STUDY

This study sought to put into perspective the factors that may hinder the effective utilization of research findings among rural communities. The study is instrumental to the government policy makers, and research institutions, Non-Governmental institutions and the rural communities in creating conducive environment and policies to enhance dissemination of agricultural research findings and the improvement of the living standards through research utilization.

Further, the research is helpful in demystifying research among the rural communities to enhance the uptake of agricultural research results as well as laying out new areas for further research that could help in enhancing the understanding of the concept of research utilization.

1.6 ASSUMPTIONS OF THE STUDY

The study was based on the following assumptions;

1. The target respondents are in a position to easily identify the factors influencing utilization of agricultural research findings among the rural communities.
2. The answers given by the respondents were honest responses.

1.7 SCOPE OF THE STUDY

The study was confined to establishing the factors influencing utilization of agricultural research findings within Yatta division, in Machakos County. The target population for the study composed of mainly small scale farmers within Yatta division and sought to seek the views of agricultural stakeholders including agricultural coordination officials, agricultural extension officials, researchers, and community development workers.

1.8 OPERATIONAL DEFINITION OF TERMS

Dissemination	Movement of research findings from the source to the target consumers
Diffusion	Process through which an innovation is communicated through certain avenues over time among the members of a social system
Knowledge creation	Formulation of new ideas or innovations though scientific processes
Knowledge translation	Exchange, synthesis and application of research findings within a complex set of interactions among researchers and knowledge consumers
Knowledge societies	Society primarily driven by information or knowledge
Knowledge	Information or skills acquired through experience or empirical means.
Research	scientific inquiry, involving identification of, understanding and application of knowledge and innovations in practical purposes
Utilization	Application of research findings by the target population
Technology	Application of scientific knowledge into practice purposes

CHAPTER TWO: LITERATURE REVIEW

INTRODUCTION

The literature review has covered three main themes. The first theme focuses on the understanding of knowledge and its generation within contemporary societies. The second theme focuses on explaining the dissemination and utilization of knowledge and its evolution overtime. The last theme focuses on the factors hindering or enhancing knowledge dissemination and utilization as highlighted in the conceptual framework.

2.1 KNOWLEDGE IN CONTEMPORARY SOCIETIES

Over the years, the role of knowledge in the betterment of the society has been an overarching theme. Knowledge can be defined as the capacity for action. The transformation of the prevailing structures of the society through knowledge constitutes the material basis and justification for designating modern society as knowledge societies (Caplain, 1976). Enormous thinkers in the 20th century including Aristotle Plato, Sir Francis Bacon, Henri Saint-Simon, Auguste Comte, Karl Marx, and Max Weber contributed to the belief that the advancement of civilization was interwoven with the advancements in knowledge and its use (Caplain, 1976). Rich, (1979) notes that, a social contract evolved between the producers of knowledge and the society. Knowledge plays such an instrumental role in contemporary societies that, such societies have come to be known as knowledge societies (Caplain, 1976).

Knowledge societies are the results of human action, but often not of deliberate human design. They emerge as an adaptation to evolving needs and changing circumstances of human conduct. The significance of knowledge in the modern society grows in all spheres of life and institutions. Many facets of these contemporary societies increasingly depend on science and technology for their functioning (Caplain, 1976).

2.2 Knowledge Generation

In essence knowledge is not formed in a vacuum, far detached from the outside influences but rather, it's formed in relationship to the surrounding culture and society. Science is not separate from societies; hence developments in the scientific communities are highly linked to societal changes. Despite the overwhelming importance of knowledge in the

contemporary societies, putting knowledge to use has been a universal human problem. The problem of putting knowledge into use has over the years been explained using various ways – for example; as a 'theory - practice gap', as the failure by professionals to adopt 'evidence based practices', as the inability to bring research and technological innovations into the market or generally as a lag between discovery and uptake of research findings (Caplain, 1976).

2.3 Knowledge Dissemination and Utilization

According to Rogers, (1995) knowledge creation and diffusion can be traced back to the European beginnings of social science with Gabriel Tarde's laws of Imitation and early anthropologists known as the British, German-Austrian diffusionists. Backer, (1994) argues that, the roots of knowledge utilization can be traced from the ancient Greeks. In America, knowledge dissemination and utilization can be traced back to the 1920's with studies such as the diffusion of agricultural innovations to farmers and the spreading of new teaching ideas among schools. According to Rich, (1979), the increased funding of knowledge diffusion and utilization by the American government was as a result of recognition by the policy makers that innovation dissemination could contribute to higher rate of economic growth. Further, various institutions especially private institutions were interested in rapidly increasing adoption and extension of their technologies, practices and findings.

It is noted that there has been different waves of knowledge dissemination over the years and that the current focus on knowledge dissemination can be referred to as the third wave related to knowledge utilization. This wave has been preceded by; the first wave which mainly spanned between the years 1920 through to the 1960s, and the second wave which spanned between the periods from 1960 through to the 1980s mainly characterized by large-scale government sponsored dissemination and utilization studies (Backer, 1994). Dissemination of research results among the western countries and in particular the United States has primarily relied on the agricultural extension model which focused on the distribution of research results - 'getting the word out there' (Rogers, 1995). The assumption of this model was that, if the information was available to the consumers and in particular farmers, they would implement the new innovation. Further, the model assumed that knowledge is generally defined objectively, and that everyone would automatically agree

with the new knowledge and adopt it (Lovell, 1971). The agricultural extension model was a top down approach to knowledge utilization which grew manly out of uncoordinated and time competitive activities between different stakeholders. However, as the output of research increased, research results increasingly became unutilized leading to minimal impact on practice and policy.

Once knowledge has been created, the next logical step in the information transfer process is it's dissemination to relevant consumers. According to Lovell, (1971) dissemination can be conceptualized as getting the findings or new ideas out into the public domain, mainly through avenues such as publications, professional journals among others. According to Rogers, (1995) dissemination is the process by which an idea or innovation or finding is communicated through certain channels overtime among members of a social system, while utilization is the process that aims at increasing the employment of knowledge to solve problems and improve the quality of life. Backer, (1994) reiterates that, utilization is the designing of strategies that help to put knowledge into use.

According to Machlup, (1980) the effectiveness of utilization largely depends on the nature of the knowledge. He further draws a distinction between practical and intellectual knowledge and their impacts in utilization. Whereas practical knowledge is useful in the knower's work, decision or actions, intellectual knowledge satisfies the knower's intellectual curiosity. Backer, (1994) affirms that, intellectual knowledge is valued not for the purposes of affecting action but merely for the satisfaction of intellectual curiosity.

Research needs to be specific to the consumers' needs and not just offer general responses (Lovell, 1971). Over the years the evaluation of the effectiveness of knowledge utilization has to a large extend centered on the product and the process views of knowledge dissemination. Such perceptions associate utilization of knowledge to instrumental use where the knowledge of a study induces users to make particular decision that would not have been made otherwise.

2.4 Hindrances to knowledge dissemination and utilization

Research in Kenya is conducted by different institutions comprising of both government and non-governmental institutions. Generally, these efforts aim at contributing to existing

knowledge and improving the quality of life. The utilization of research results depends to a considerable extent on proper dissemination to the relevant consumers. However, there is a significant gap in 'research to practice' pathway, particularly for national research institutions. These gaps reflect poorly effective partnerships among stakeholders and limit the potential socio-economic value of research work. Ultimately, for research to play its role, it must be linked to practice. If research findings are not easily available and usable by the targeted population, they are of limited practical use or importance. Before the consumers mull over change, they must be dissatisfied with the prevailing practices or outcomes which have led to the prevailing problems among such consumers. According to Leung, (1992) in order to take a new view point or adopt a new perception, one need to decide to let go of an earlier view point and also there must be a rationale for the budge in thinking. Rogers, (1995) points out that in applying this concept in the dissemination of research results, if target populations are not in a state of vagueness about the specific quandary, the mere provision of information to the group is not likely to lead to a shift in behavior. Backer, (1994) reiterates that people develop the vigor to revolutionize if they are faced with a 'real pain'.

Successful dissemination and utilization of innovations should pay attention to; the needs of the target consumers, the context in which the research findings are expected to be disseminated and up taken, and the readiness of the target population to adopt the innovations. The matrix of successful research dissemination and utilization should incorporate the interaction between; the targeted consumers, the content of the research findings, the environment within which the dissemination and utilization is undertaken, the medium or channel of dissemination and the source of the information (Backer, 1994).

Over the years, ample research has been undertaken focusing on understanding the institutional based barriers to utilization of research findings. According to Rich, (1979) the breakdown in 'research - practice path' may be explained by a number of factors which includes; limited time and money allocated to dissemination of research, limited dissemination channels, researchers lack the language or skills to present their findings to the communities, and besides research consumers must wait until the research findings get published in journals or seminars, which they may or may not access. More often there are

numerous delays in publications of research findings with some research institutions reluctant to publish their work. Furthermore, there is massive quantity of data produced through research which makes it difficult for the consumers to stay on top of the latest findings. The prevailing academic culture which appreciates academic based activities more than community involvement which is viewed as done by the 'so not good enough' academicians also inhibits research utilization. Often community members view themselves as research subjects who seldom share in the benefit of research proceedings. On the other hand, researchers may intend to share their findings with community members, but the structures of research institutions make it difficult or untenable to do so. The funding institutions further rarely include requirements for dissemination in their call for proposals. In addition, careers of researcher and academicians are based on academically oriented dissemination venues such as peer reviewed publications on journals with little attention on community forums (Caplan, 1979).

According to Duarte and Rice, (1992) Cultural differences may heavily impact on the way in which the potential consumers interact with and perceive research results. Such cultural differences may include; family boundaries, importance of religion, meaning of education and work, decision making styles, local beliefs and response to change. These cultural differences can be clustered in relation to the context, space, time, information flow, local norms and rules. Glaser and Taylor, (1971) posits that, culture places a major influence on the individual, collective groupings as well as the interactions between groups. There has been major emphasizes on, inter-group cultural differences and less insight on intra-group cultural differences. For example, considering rural communities in Kenya it would be fallacious to assume that all the community members prefer to access information from friends ignoring the members who prefer social media and other channels.

2.5 Factors enhancing knowledge Dissemination and utilization

Backer, (1994) elaborates the concept of knowledge dissemination and utilization as encompassing the following facets; knowledge transfer and utilization, technology transfer, sociology of knowledge, organizational change, policy development and interpersonal and mass communication. Knowledge utilization cuts across different disciplines and specialties.

Marshall and Rossman, (1989) explains that, dissemination of research results should be comprehensive and capable of being interpreted and used by the target consumers. More often, consumers complain of the technical language and analogies used to convey messages by researcher. Therefore dissemination of research results should be guided by the following questions; why should the targeted consumers get the research outcomes? What will they make from the research results? And, how will the research products improve the living standards of the consumers?

In examining the different dimensions of research, many researchers have questioned the assumption that the quality of research results influences their utilization. According to Machalup, (1980) empirical reports have found no relationship between research quality and its usage. In addition, Huberman, (1990) reiterates this argument from a number of utilization studies conducted in Switzerland that; poorly conceived and executed studies appear to do just as well as others or perhaps even slightly better since the research staff in the well-designed studies focus on the methodology and less on the dissemination work.

Buchman, (1982) indicates that, one of the major barriers to research utilization lies within the sources and is manifested within the content and the medium of conveyance. Huberman, (1990) further argues that, more often researchers are not acquainted with the values and assumptions they bring to their researches. Researchers operate within the guidelines of their values and assumptions which more often differ from those of the target consumers. Just like knowledge acquisition, the process of conducting and disseminating research findings, is in most instances influenced by researcher's personal experiences and prior knowledge. Researchers who are not familiar with their own biases or do not communicate the same to the target users, risk being biased on their results and thereby compromising the effectiveness of the dissemination processes.

Blasiotti, (1992) suggests that, there is a need for developing a client based research dissemination strategies. In this case, organizational structures can play an important role in improving effectiveness of dissemination. Effective utilization of research results rests upon the knowledge of researchers on the key characteristics of the target consumers. These characteristics include; the target consumers preferred media, suitable form of language,

relevance of the information, readiness to change, level of contextual information needed, capacity to use disseminated information, source of information including trust levels and format of dissemination.

2.6 THEORETICAL FRAMEWORK

2.6.1 Structural Functionalism theory

The structural functionalism theory was formulated by a number of theorists including Auguste Comte and Emile Durkheim. Comte developed functionalism in the 19th century while Durkheim compared society to the human body. The theory postulates a perspective that society consists of different related parts each of which has its own unique purpose or function. The organismic analogy of the theory posits that just as the body is composed of different but interrelated parts critical for its survival; the society too, consists of different components which enable it to survive by depending on each other. The structural functionalism theory can be studied at a macro level to explain the functioning of macro institutions such as; the society, capitalism, NATO, among others, or at a micro level to study specific systems such as the family, agricultural sector, the judicial systems among others. The harmonious functioning of the system depends on the functioning of each of the parts of the society and problems in a single part can disrupt the whole system.

Research coupled with appropriate supportive policies and effective dissemination and utilization can immensely contribute to improving the quality of life and ensuring harmonious functioning of the research to practice system. The key parts or structures of the 'research - practice system' includes; research undertaking to produce relevant results, supportive facilitative policy frameworks and the research consumers. Each of these units has their own distinct functions which are interdependent and wholly contribute to improved welfare.

Non-utilization of research findings or innovations can be explained in terms of the poor relationships between the researcher and its consumer and in particular the policy makers. Currently, there is no harmonization of the function of the different parts/communities of the system social scientists/researchers, policy makers and research consumers living in separate worlds often characterized by different and at time conflicting values, different rewards and language. Social researchers deal with research methodologies while policy makers and research consumers are in general action oriented, basically concerned with obvious and immediate solutions to problems. Inadequate coordination of the different units

and their functions can be explained in that, researchers feel that the misuse of knowledge by political powers tends to widen the gap between the two, while policy makers feel they have unchallenged role of determining the ends of policy. The dysfunction within the system can be explained in terms of failure in communication, or lack of organized efforts to systematically package research knowledge in usable form in the policymaking processes (Caplan, 1979).

To ensure research utilization, there is a need to harmonize the functions of the different parts of the system (researchers, policy makers and consumers).

2.6.2 Diffusion of innovation theory by Everret Rogers

Rogers' 'diffusion of innovation theory', borrows heavily from French sociologist Gabriel Tarde's 'S-shaped diffusion curve'. Tarde explains that, most of innovations adopt a S-shaped rate of adoption. The slope of the S curve illustrates the variance in adoption. Improved adoption would be illustrated with a steep slope (Rogers, 1995).

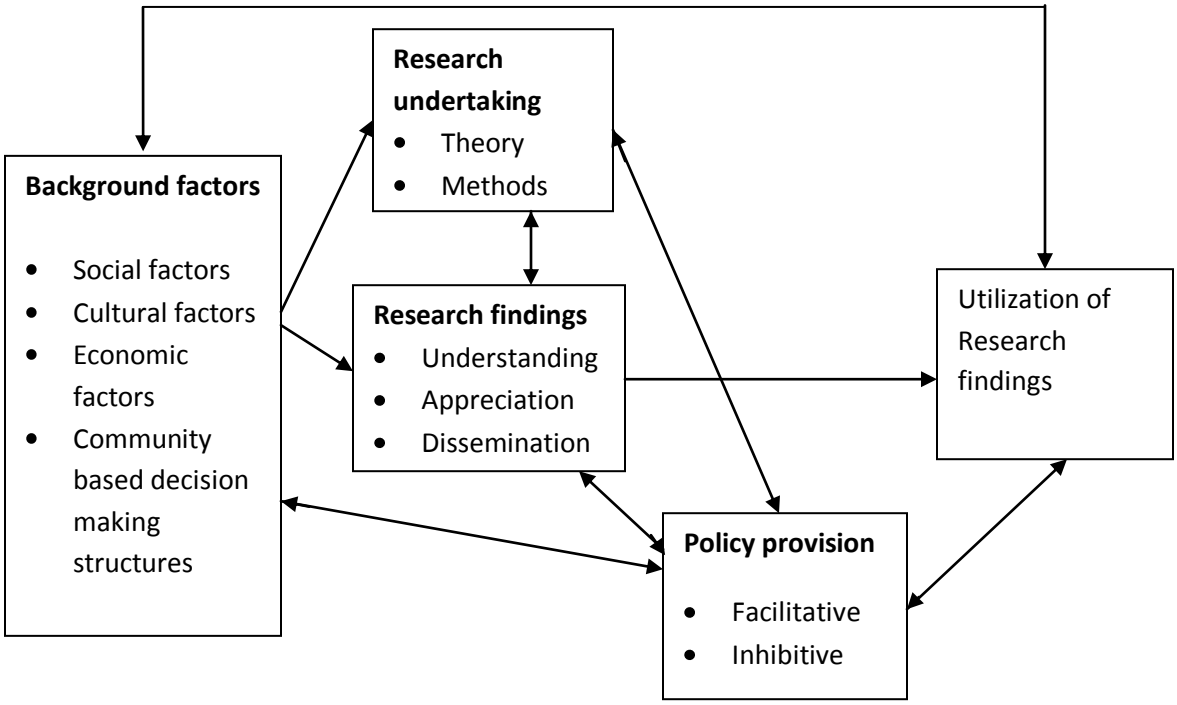
Rogers, (1995) defines diffusion as the process through which an innovation is communicated through certain avenues over time among the members of a social system. Rogers differentiates diffusion from adoption in that; diffusion refers to the spread of new idea within a society (as a group process) whereas adoption relates to uptake by an individual.

Rogers, (1995) describes various elements that are key to the absorption of new ideas - the innovation been communicated, the avenues through which the innovation is communicated, the time that lapses in the communication of the innovation as well as the social system in which the innovation is communicated. Most of the current research undertakings, have focused on the innovation with little emphasizes on the channels of communication as well as the social system within which they are communicated. Diffusion of innovation relates to the process by which a few members of a social system adopt an innovation and there after spreads to other members until all members adopt the new idea. Social systems are characterized by patterns of friendship, norms and values, beliefs, aspirations, advice and communications which exist within members of a social group. These systems critically influence the adoption of new ideas and innovations. For innovation adoption and diffusion to be effective there is need for an understanding of the social system which influence the adoption of new ideas.

2.7 CONCEPTUAL FRAMEWORK

The conceptual paradigm illustrated below is synthesized from the basic arguments of various scholars on this area of study as discussed under the literature review, coupled with the understanding of the researcher. It reflects a model that would ensure efficient production and utilization of research results by paying attention to various societal needs and values in the production as well as the dissemination.

Figure 1: Conceptual framework



Independent variables **Intervening variables** **Dependent Variables**

Interpretation:

The independent variables represent the societal background factors that influence research problem identification and research undertaking as well as the appreciation, understanding and the dissemination of the research results. Observing of the societal background factors may enhance the appreciation and understanding of research results which further influences dissemination. However other confounding variables such as policy provisions by the

government may affect the dissemination and utilization of research results. The background factors represent the independent variables, while utilization represents dependent variables. Policy provisions represent the intervening variables.

CHAPTER THREE: RESEARCH METHODOLOGY

INTRODUCTION

This chapter provides a description of the procedure used in carrying out the study. The sub sections within this chapter include; the research design, site selection and description, the target population, sampling, units of analysis and units of observation, procedure of data collection, methods and tools of data collection, analysis and presentation.

3.1 SITE SELECTION AND DESCRIPTION

The study was undertaken in Yatta division in Machakos County, with Matuu, Mavoloni, Ndalani and Kithimani as the administrative locations in division. The division has a poverty index of 56 (%) and a literacy rate of 60 (%) of the total population. The area comprises of both small scale and export oriented farming along the Yatta canal, and the river banks of Athi River and Thika River (Yatta division office).

Despite numerous Agricultural research undertakings aimed at improving the community's welfare, resident's live hoods still remains low. The selection of the area of the study was based on the growing need to explain the peculiar occurrences within the division that highly affect the utilization of research findings.

3.2 RESEARCH DESIGN

The study adopted an ex post facto research design to assess the factors influencing the utilization of agricultural research in Yatta division, Machakos County. Kerlinger, (1964) points out that an ex post facto research is one in which the independent variable (s) have already occurred and in which the researcher studies the independent variables in retrospect to their possible relations to and effects on the dependent variable (s). According to Ary, Jacobs and Razavieh, (1972) the basic purpose of ex post facto research design is to discover or establish causal relationships among variables. The study of the factors affecting utilization of research findings in rural communities involves practices, processes and conditions that already exist, a fact that makes this research design most appropriate.

3.3 TARGET POPULATION

The target population for this study was 21,000 small scale farmers, government agricultural officers, and researchers in Yatta division in Machakos County. The farmers within the four locations of Yatta division are distributed as follows; Kithimani location 8,575, Matuu location 7,300, Mavoloni location 2,520 and Matuu location 2,605 (Yatta division office).

Table 1: Population distribution per location

Location	Target population	Percentage
Kithimani	8,575	40.8
Matuu	7,300	34.8
Mavoloni	2,520	12.0
Ndalani	2,605	12.4
Total	**21,000**	**100**

3.4 UNITS OF ANALYSIS AND UNITS OF OBSERVATION

Mugenda and Mugenda, (2003) defines unit of analysis as the unit or object about which generalizations are made, while unit of observation refers to unit or the object that are been observed and about which information is systematically collected.

Individual farmers within Yatta division formed the units of observation from which data relating to the factors influencing utilization of research results was gathered, while Yatta division formed the units of analysis from which conclusion relating to the utilization of research results among rural communities in Kenya could be drawn.

3.5 SAMPLE AND SAMPLING PROCEDURE

According to Mugenda and Mugenda, (1999) a sample is a smaller group or sub group obtained from the accessible population. A sample size of 178 farmers was used for the study representing 0.9 (%) of the target population within the division.

Cluster sampling was applied in picking the households by dividing the target population in the division into four clusters of Matuu location, Mavoloni location, Ndalani location and Kithimani location. The total population of 21,000 small scale farmers within the division

was distributed as follows; Kithimani location 8,575, Matuu location 7,300, Mavoloni location 2,520 and Ndalani location 2,605 (Yatta division office). To ensure proportionality in selection of the sample units from the clusters, a sample size of 72 was picked from Kithimani location, 62 from Matuu location, 21 from Mavoloni location and 23 from Ndalani location. Simple random sampling was used to select sample units from each of the clusters to form a proportionate sample.

Table 2: Sample distribution per location in the division

Location	Expected sample per location	Percentage
Kithimani	72	40.4
Matuu	62	34.8
Mavoloni	22	12.4
Ndalani	22	12.4
Total	**178**	**100**

In addition to the above, one division agricultural officer, one division agricultural extension official, and three location agricultural extension officers, were interviewed as key informants. Judgmental sampling was applied in selecting four researchers closely working with farmers in the division.

3.6 METHODS AND TOOLS OF DATA COLLECTION

Data collection was undertaken using the following methods and tools.

Collection of quantitative data

Household Interviews: A household interview refers to an assessment based on a small group of people habitually sharing the same dwelling and with a common or joint budget (Mugenda & Mugenda, 1999). For the purpose of this study, research assistants were used to facilitate the interviews and discussions with household heads within the division. The research assistants used interview schedules in conducting the interviews. The schedules were applied to collect the following information; current farming practices and their

effectiveness, existing researches undertaken within the division, their usage and benefits to the household heads, the hindrance to their usage and possible solutions.

Desk review: Desk review was used in collecting secondary data related to this research. Sources of data included; books, online materials and field reports from individual organization and institutions. Information collected included; demographic data, land size and density, administrative division, assessment of welfare state in Kenya and within its rural communities, review and understanding of knowledge utilization and research utilization, comparative analysis of research dissemination and utilization between different regions, factors hindering and enhancing research utilization.

Collection of qualitative data

Key Informant interviews: Key informant interview refers to an in-depth interview conducted for a non-random group of persons selected on the bases of their expertise or knowledge on specific issue or an organization (Mugenda & Mugenda, 1999). Data from the six government officials and the four researchers was collected through the application of this method. Key informant interview schedules were used in collecting the data. The information collected using the this method included; review of current farming practices and their effectiveness, documentation of existing researches, assessment of the factors influencing research problem identification, levels of research uptake, the resulting contribution of research in farmers aggregate production, factors hindering utilization of research findings and possible intervention measures.

Observation: Observation refers to the systematic description of events, proceedings, artifacts or behavior in a social setting that has been chosen for the study (Marshall & Rossman, 1989). An observation check list was used to collect information relating to; the current farming methods, individual household productivity, existing extension services, economic activities, research institutions and commodities produced within the division. Observations were combined with interviews for follow up and probing.

3.7 VALIDITY AND RELIABILITY OF THE INSTRUMENTS

Validity according to Mugenda and Mugenda (1999) is the accuracy and meaningfulness of inferences based on research results. It is the ability of instruments to measure what they are intended to measure.

A pretest exercise was conducted prior to the actual research. For this purpose one location and division agricultural extension officers, researchers working in the area and five small scale farmers were involved in the exercise. This helped in ensuring that the instruments elicited the type of data anticipated to respond satisfactorily to the research objectives.

Reliability is defined by Mugenda and Mugenda, (1999) as a measure of the degree to which a research tool yields consistent results or data after repeated trials. To test the reliability of the instruments, the researcher employed the split-half reliability method. Lokesh, (1994) states that split half method can be used to determine internal consistency during a pre-test exercise. Split half technique involves splitting the statements of the test into halves (odd and even items) then calculating the Pearson's correlation coefficient (r) between the two halves of the test.

The correlation coefficient obtained above represented the reliability of only half of the instrument. In order to obtain the reliability of the entire instrument, the spearman brown prophecy formula was used.

Reliability of entire test = 2 (reliability of half the test) / 1+ (reliability if half the test).

According to Mugenda and Mugenda, (1999) a high coefficient implies that the items in the instruments correlate highly among themselves and that there is consistency among the items in measuring the concept of interest.

3.8 DATA ANALYSIS AND PRESENTATION

The data collected from the field was processed through data cleaning/editing, then categorized and coded to get themes and patterns for further analysis. Analysis was performed using SPSS for Quantitative data and relational content analysis for qualitative data. The analyzed data was presented by use of narrative reports, pie-chart, tables, percentages and graphs.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

Introduction

This chapter summarizes the discussion of the study findings on the factors influencing utilization of agricultural research findings in rural communities in Kenya.

The main sub topics for the chapter includes findings on; demographic characteristics of the respondents, economic factors influencing agricultural research results utilizations, socio-cultural factors influencing agricultural research results utilizations, political factors influencing agricultural research results utilizations, environmental factors influencing agricultural results utilization and appropriate intervention measures.

4.1 Response Rates

The study engaged a total of 139 respondents against a projected number of 178 respondents. This represents a 78 (%) response rate.

4.2 Demographic characteristics of the respondents

The respondents' demographic characteristics were analyzed based on their age, sex, education level, and marital status, the size of the family, religion and their location of origin within the division.

4.2.1 Age of the Respondents

An item was included in the questionnaire which sought information on the age of the respondents. The study indicated that majority of the respondents were within the age bracket of (26-40) years.

Table 3: Ages of the respondents

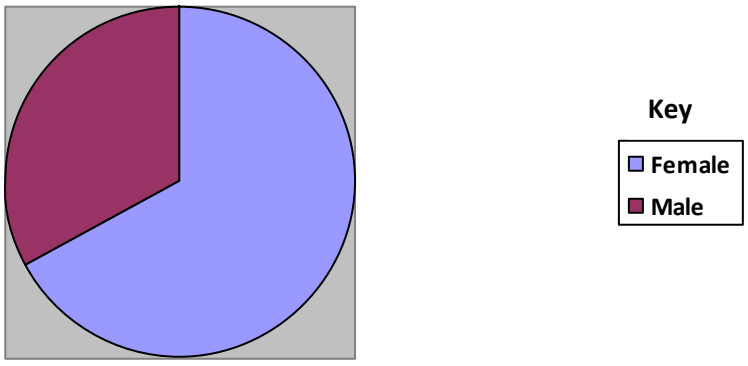
Age bracket (in years)	Frequency	Percent
16-25	24	17.3
26-40	67	48.2
41-60	39	28.1
Above 60	9	6.5
Total	**139**	**100.0**

The study revealed that 17.3 (%) of the respondents were aged between (16-25) years, 48.2 (%) between (26-40) years, 28.1 (%) between (41-60) years and 6.5 (%) above the age of 60 years. The study findings indicated a correlation between the (26-40) class of respondents and their gender. It was observed that, 80 (%) of the respondents in the (26-40) bracket where females. The study further revealed that, 65.4 (%) of the respondents within Kithimani and Matuu locations who engaged in production of horticultural crops were within the age (26-40) years.

4.2.2 Gender Composition of the Respondents

An item was included in the questionnaire which sought information on the gender composition of the respondents. The study indicated that majority of the respondents were females.

Figure 2: Gender Composition of the Respondents



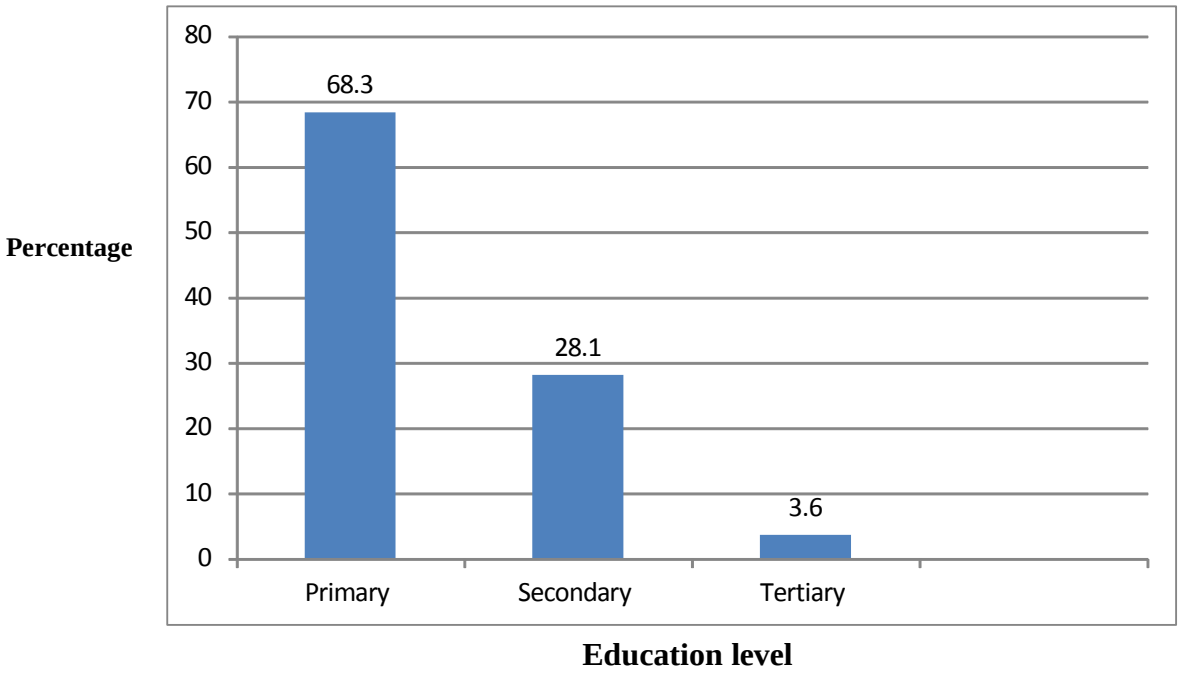
The total number of female respondents was 66.9 (%) while the number of male respondents was 33.1 (%).

Agriculture is a labor and land intensive undertaking which can be influenced by decisions relating to these two factors of production. Due to the nature of land holdings within the division, decisions relating to what to be produced and allocation of labor may highly be influenced by the gender of the decision makers. Thus, the high dominant female gender composition may be correlated to low agricultural productivity within the division.

4.2.3 Educational levels of the respondent

An item was included in the questionnaire which sought information on the educational level of the respondents. The study indicated that majority of the respondents had not gone beyond primary education.

Figure 3: Education levels of the respondents

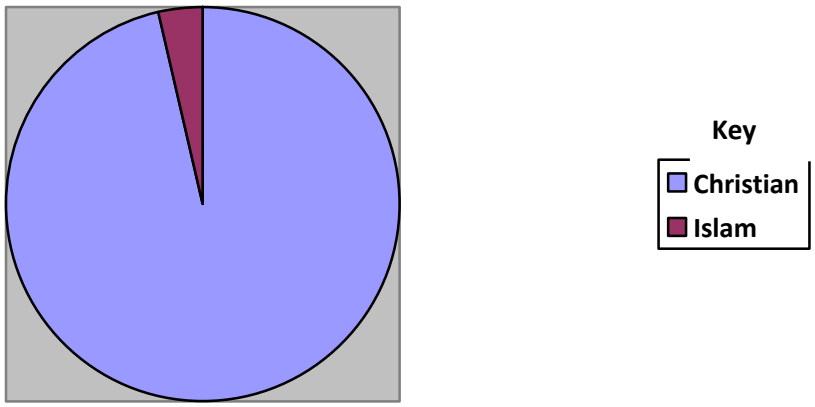


The study revealed that, 68.3 (%) of the respondents had primary education, 28.1 (%) had secondary education while 3.6 (%) had tertiary education. The study further revealed that of 68.3 (%) who had primary education, 46.7 (%) of were females. The findings on educational level and its effect on resource results utilization have been expounded under sub section 4.3.2.1.

4.2.4 Religion of the respondent

An item was included in the questionnaire which sought information on the religious practices of the respondents.

Figure 4: Distribution by religion.

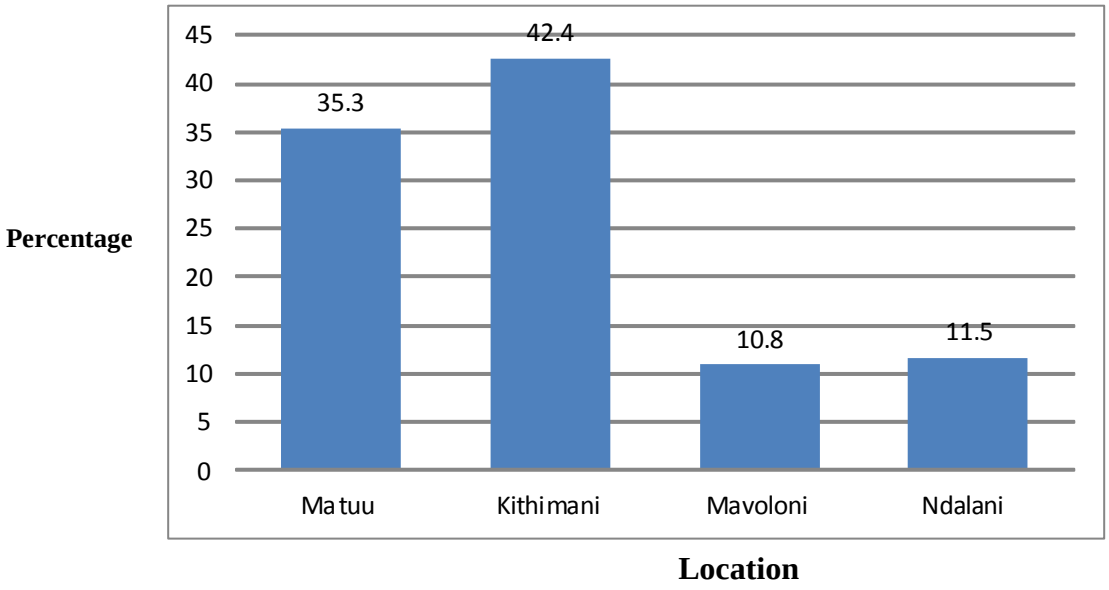


The study revealed that 96.4 (%) of the respondents were Christians with only 3.6 (%) Muslims mainly concentrated in Kithimani location. Agriculture may be influenced by social-cultural and religious practices especially in the choice of crops or produce to be grown and the practices employed in dressing them. According to the study findings, there was a weak and positive correlation with a value of 0.09 between religious practices and research results uptake. Religious practices didn't have a significant effect on the dissemination of agricultural research results within the division. This can be attributed to the fact that the distribution was more or less homogenous with minimal distinctions to draw differences and conclusions.

4.2.5 Dispersion of the respondent within the division

An item was included in the questionnaire which sought information on the dispersion of the respondents within the division. The study respondents were dispersed as indicated in the figure below.

Figure 5: Dispersion of respondents within the location



The respondents were dispersed as follows: 35.3 (%) from Matuu, 42.4 (%) from Kithimani, 10.8 (%) from Mavoloni and 11.5 (%) from Ndalani. The study revealed that 20.6 (%) of the respondents within Matuu location were engaged in production of horticultural crops mainly for export, with 43.1 (%) of the respondents within Kithimani.

4.2.6 Average rate of research usage within the division

The study sought to establish the factors influencing the rate of research utilization among Kenya's rural areas. An item was included in the questionnaire which sought information on the average rate of research usage within Yatta division. The study revealed a very low agricultural research findings utilization rate.

Table 4: Usage of agricultural extension services in the division

Rate of research usage	Frequency	Percent
None	25	18.0
Once in a month	9	6.5
Once in a year	105	75.5
Total	139	**100.0**

The study revealed that 75.5 (%) of the respondents made use of agricultural research results once a year, with 6.5 (%) recording monthly usage and 18 (%) indicating no usage at all.

Farmers producing horticultural produce accessed agricultural information and services mainly on; seeds, pest and diseases control, application of chemicals and fertilizers and, farm growing calendars, more frequently thus accounting for the 6.5 (%) monthly usage. Periodic distribution of farm inputs mainly seeds and fertilizers by either government offices or NGOs accounted for the 75.5 (%) usage on an annual basis. However, the study noted that the ratios distributed freely to farmers were hardly adequate to cater for the farm needs. Some respondents noted that as small as palms' full worth of seeds were a times distributed to farmers.

4.2.7 Main sources of agricultural related information within the community

An item was included in the questionnaire which sought information on the main sources of agricultural related information to community members within the division.

Table 5: Main sources of agricultural related information in the division

Sources of agricultural information	Frequency	Percent
Media	31	22.3
Baraza	8	5.8
Peer groups	23	16.5
Religious institutions	2	1.4
Schools	1	0.7
NGOS	47	33.8
Market places	25	18.1
Agricultural extension officers	2	1.4
Total	**139**	**100.0**

According to the study findings, the main sources of research information and services in the division were identified as NGOs accounting for 33.8 (%), others included the media 22.3 (%) especially the local vernacular radio station, peer groups 16.5 (%) especially women groups and youth groups - sharing personal knowledge and experiences-, with the remaining percentage covering; religious institutions and schools, barazas (organized by the local government administration in collaboration with the locational agricultural office), KARI, and markets especially the buyers of horticultural produce or the sellers of various farm inputs such as seed and chemical companies and the agricultural extension officers.

The study revealed that research results disseminated through the above avenues included information on; marketing of produce 28.2 (%), crop selection 8.3 (%), growing of drought resistant crops and poultry keeping 14.8 (%), farm calendar and seasons 0.7 (%), use of local indigenous knowledge for example, the use of Moringa tree in treating some cash crop diseases 9.6 (%), proper storing of produce 9.4 (%) - for examples eggs to improve their shelve life -, observation and detecting of pest and diseases 15.2 (%), and, appropriate use and application of chemicals and fertilizers, production of local manure & soil conservation accounting for the remaining 13.8 (%).

The factors accounting for the low uptake of agricultural research results and the limited scope of the already used research results are expounded in the following sub topics.

4.3 Analysis of factors influencing agricultural research results utilization

Research findings are not properly utilized in most of the African societies because of a number of reasons. This study aimed at explaining the factors influencing the utilization of research results both through secondary data and primary data collected from the field. The study's research objectives form the layout under which these factors have been discussed.

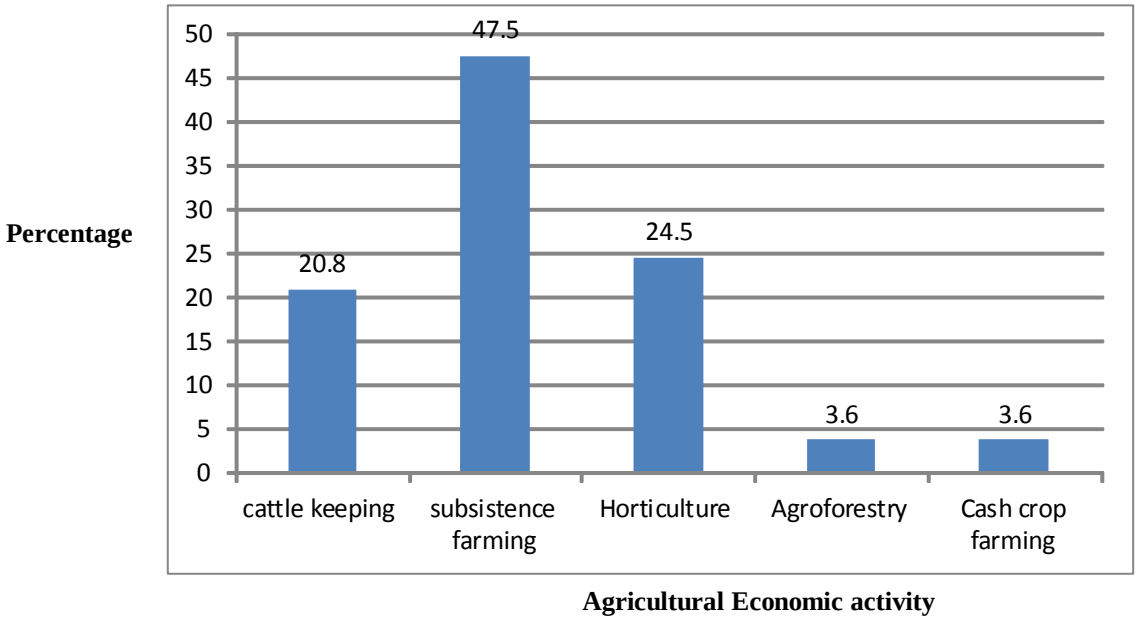
4.3.1 Economic factors influencing agricultural research results utilization

Farmers, agricultural officers, agricultural extension officer and researchers were presented with various items related to economic factors influencing research utilization expressed through questionnaires, interview schedule and key informants guides. The results are summarized under the following sub sections.

4.3.1.1 Main agricultural related economic activities in the Yatta division

This study sought to establish agricultural related economic activities taking place within the division. The findings would be useful in identifying agricultural research results utilization opportunities within the division.

Figure 6: Main agricultural related economic activities within the division



The study revealed that 47.5 (%) of the respondents practiced subsistence farming growing crops such as; maize, beans, millet/sorghum, cow peas, cassava, sweet potato and green grams as well as fruits such as; - paw paws, mangos, oranges, and water melons. 24.5 (%) of the respondents practiced horticulture, 20.8 (%) cattle keeping, 3.6 (%) agro-forestry and 3.6 (%) cash crop farming. All the respondents interviewed within Mavoloni and Ndalani locations were involved in subsistence farming producing both food crops and keeping animals while horticulture was mainly concentrated in Kithimani and Matuu locations. Horticultural production was mainly aided by the presence of Athi River and the Yatta canal which provided water to the famers. Availability of water is significantly seen as affecting engagement in commercial agriculture and subsequently utilization of research results. This growth further can be attributed to the presence of export companies such as Athi river exporters and Chriven agro producers in Kithimani and Matuu locations. High levels of

agricultural research utilization in Kithimani and Matuu areas were observed, in comparison to the other areas.

The spectrum of the agricultural economic activities may not be a true reflection of the levels of agricultural research uptake. This is because; the knowledge can be applied at different rates in different levels. The study noted that, most farmers practice subsistence farming producing only enough for their family needs; such production has minimal expenditures and heavily relies on the societal prevailing practices relating to such production.

4.3.1.2 Average income levels

The study sought to establish the average income levels from agricultural based economic activities within the division per month.

Table 6: Distribution of respondents on basis of monthly income

Income per person per month	Frequency	Percent
Less than 5000	80	57.6
5,000-9,999	33	23.7
10,000-19,999	21	15.1
Above 20,000	5	3.6
Total	**139**	**100.0**

The study revealed that 57.6 (%) of the respondents earned less than Kshs 5,000 from their agricultural based economic activities. 23.7 (%) of the respondents earned between Kshs 5,000 and Kshs 10,000 while 15.1 (%) earned between Kshs 10,000 and Kshs 20, 000 and, 3.6 (%) earning above Kshs 20,000.

As illustrated above, low income level is noted as a major barrier with 57.6 (%) of the respondents earning less than Kshs 5,000. This can be linked to high poverty levels, a factor leading to low research utilization at 75.5 (%) of the respondents accessing research extension services or findings once every year (*see* Table 4). This is further supported by Rogers, (1983) who developed a typology of four categories of adopters of knowledge -

innovators, early adopters, early majority, late majority, and laggards-. The laggard's resistance to adoption of new research results maybe rational in his/her view point due to their limited resources. Their strenuous financial status forces them to be extremely cautious in adopting anything new.

4.3.1.3 Main practices by farmers to improve the productivity of the agricultural based economic activities

An item was included in the questionnaire which sought information on the methods employed by the respondents in improving their income levels from their agricultural based economic activities within Yatta division.

Table 7: Measures to improve productivity of agricultural activities

Measures to increase incomes	Frequency	Percent
Attending trainings/seminars	60	43.2
Agricultural extension services	27	19.4
Merry go rounds/CBOS	41	29.5
Micro credits	11	7.9
Extensive farming	0	0
Total	**139**	**100.0**

The study revealed that 43.2 (%) of the respondents relied on trainings/seminars as the way of improving the performance of their agricultural economic activities. The influx of Non-governmental organizations played the role of improving the livelihoods of the locals mainly through organizing trainings or seminars to train farmers on various practices. However, the study revealed that farmers didn't learn to apply research results at the first instance (of sharing the agricultural research findings) but over repeated trainings and through seasons. However, most of the training avenues by various institutions lacked the repetitive aspects thus reducing their effectiveness. This conclusion was drawn from a comparison between a KARI program and business alliance against chronic hunger (BAACH) a NGO program, where repeated presence of BAACH and frequent documentation of the progress of the farmers yielded improved results as compared to KARI.

It was observed that, 19.4 (%) of the farmers relied on agricultural extension services in improving the productivity. The main services assessed by the locals from agricultural extension services mainly included provision of seeds and fertilizers to the farmers, although the study indicated that such supplies were always in small quantities not enough for the farm needs. The extension offices had a wide range of information but available through 'access on request' bases mainly done by large scale farmers who frequently visited the extension offices. The inability of the extension officers to reach out frequently to the farmers reduced the effectiveness of this method.

It was noted that, 29.5 (%) relied on organizing themselves into merry go rounds or CBOs with high dominance of youth and women groups. Most of the respondents were organized into groups with 'Tukilanie', 'Uumwe wa aamwaitu' and Kenworks initiative been examples of groups identified in Kithimani location and Maiuni youth group and Mutauni women group been examples of groups identified within Matuu location. A few of the groups and individuals, 7.9 (%) also relied on micro credit institutions such as KWFT to access financial services to expand their activities. The groups were vital in enhancing the capacity of single farmers when working together in; raising capital and produce, sharing knowledge and, accessing markets especially in the case of horticultural producers through visitations by groups. According to the study findings, groups were mainly influenced by strong leadership with the leaders been the prime beneficiaries. This created a sense of dependency where majority of the members relied heavily on their leaders for the functioning of the group - the withdrawal of such leaders lead to the collapse of such groups (a case of Kakatanio self-help groups whose two influencing leaders joined Kenworks initiatives)-. None of the respondents interviewed engaged in large scale or extensive farming.

Although trainings and seminars were dominant way of improving agricultural productivity, the study identified various factors that hinder the effective use of knowledge gained through seminars - if reversed could improve the gains to the farmers-. This included; ignorance, resistance to diverge from the routine and habitual way of engaging in economic activities, small land holding, low income levels, poor leadership and distrust among the members when marketing produce in groups, lack of individual or group initiatives,

exploitation by middle men, lack of follow up by the trainers for correction or commending, and conflict between cheap traditional practices and the modern ways.

4.3.1.4 Challenges encountered in the use of research results

An item was included in the questionnaire which sought information on the main barriers on research utilization within Yatta division.

Table 8: Distribution by main barriers to research utilization

Barriers to research utilization	Frequency	Percent
Inadequate capital	48	34.5
Inadequate awareness	14	10.2
Unavailability of land	8	5.7
Unavailability of extension services	30	21.5
Poor communication channels	39	28.1
Total	**139**	**100.0**

The study revealed the following major challenges hindering utilization of agricultural research findings as outlined above in order of importance to the respondents as; inadequate capital accounted for 34.5 (%), poor communication channels accounted for 28.1 (%), unavailability of extension services 21.5 (%), inadequate awareness for 10.2 (%), and unavailability of land accounted for 5.7 (%).

The study revealed that 34.5 (%) of the respondents indicated that inadequate capital formed the major barrier to research utilization. This can be linked to (Table 6) where 57.6 (%) of the respondents earned less than Kshs 5,000 from their agricultural related activities making capital a key issue in utilization of research findings. Most agricultural innovation and inputs such as seedlings and fertilizers retailed at high prices hence unaffordable to most of the farmer (For example a 50 kg of Diammonium Phosphate (DAP) was costing Kshs 3600, CAN Kshs 2600 and NPK Kshs 3,500 with the recommendable application rates per acre of between two 50kg bag fertilizers).

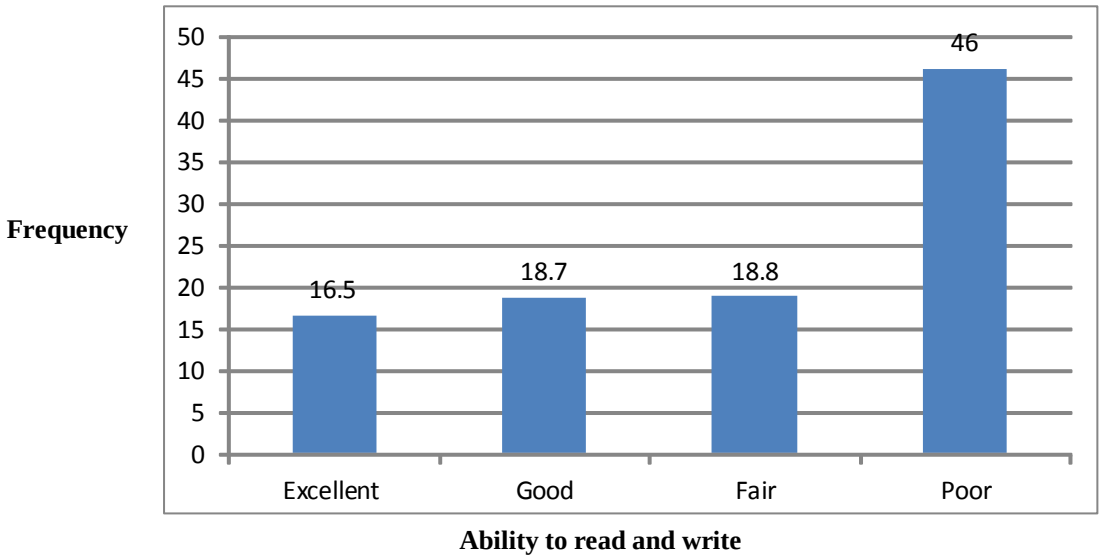
4.3.2 Socio-Cultural factors influencing agricultural research results utilization

Socio-cultural factors mainly consist of social institutions such as; the family and religious institutions, values, beliefs, mores and norms. Farmers, agricultural extension officers and researchers were presented with various items related to socio-cultural factors influencing research utilization and expressed their views through questionnaires, interview schedules and key informants guides to determine the major barriers to research uptake.

4.3.2.1 Literacy levels

Literacy levels of the proprietor affect the productivity of any enterprise. An item was included in the questionnaire which sought information on the literacy levels in Yatta division.

Figure 7: Distribution of respondents according to literacy levels



The study revealed significant number of people who had poor reading and writing skills accounting for 46.8 (%) of the responses, followed by 18.8 (%) fair, 18.7 (%) good and 16.5 (%) rated as excellent.

In relation to agricultural productivity and the use of agricultural research results, literacy means more than just be able to read drug labels or pamphlets. Literacy refers to both the cognitive and social skills which determine the enthusiasm and the capacity of farmers to gain access to, comprehend and make use of agricultural research results in ways that

promote and enhance their livelihoods. Literacy is broader than just farmer-behavior oriented communication and is paramount in empowering farmers to address environmental, social-cultural, economic and political factors that determine agricultural productivity.

The study noted a positive strong correlation value of 0.87 between low education levels and the low agricultural productivity within the division. Literacy levels influence the types of crops grown or animals reared and their management or husbandry. For example, appropriate application of Chemical and fertilizers, understanding of the farm calendar, identification of pest and diseases.

Looking at health, effects of illiteracy on households may be illustrated by an experience of the researchers with some of the respondents. Some respondent producing horticultural produce noted that they would not use chemicals such as Dimethoate for their horticultural crops but they popularly applied them in their locally consumed crops such as Sukuma wiki since no ban prohibited such chemicals.

4.3.2.2 Individual based challenges in the use of research results

Research utilization can be rated both from an individual level as well as from the society level. An item was included in the questionnaire which sought information on the main individual based barriers to research utilization within the division. The study revealed that poverty forms the highest challenge to access of research results.

Table 9: Individual based barriers to research utilization

Individual barriers to usage of research findings	Frequency	Percent
Illiteracy and ignorance	36	32.3
Altitude	7	5.1
Language barrier	16	11.5
Gender disparity	6	4.3
Poverty levels	65	46.8
Total	**139**	**100.0**

The study revealed that 46.8 (%) of the respondents rated poverty as the main individual based barrier to research utilization, illiteracy and ignorance formed 32.3 (%), individuals attitude 5.1 (%), language barrier 11.5 (%), and gender disparity 4.3 (%).

According to the study findings poverty and ignorance accounted for a big share of this problem. Most of the respondents reported they didn't have a specific reason why they had not translated the information into tangible output rather they would see to it with time. Some noted they were used to selling their produce locally and selling to high markets may take some times. The study noted habit and routine formed a big hindrance.

4.3.2.3 Society based challenges in the use of research results

An item was included in the questionnaire which sought information on the main society based barriers to research utilization within the division.

Table 10: Society based barriers to research utilization

Societal barriers to research findings usage	**Frequency**	**Percent**
Cultural practices	44	31.7
Poverty levels	90	64.7
Religious practices	0	0
Family influence	5	3.6
Total	**139**	**100.0**

The study revealed that 64.7 (%) of the respondents perceived poverty as the main society based barrier to research utilization. Cultural practices contributed 31.7 (%) and family influence 3.6 (%).

Research utilization is not simply getting the word out to the consumers but rather getting the word used by the consumers. Most of the farmers especially within rural communities are poor and may not be in a position to make use of new agricultural innovations often associated with high cost.

Rogers, (1983), identifies laggards as localite and often near isolates in social grouping. Their main reference point is the past and their major decisions are often made in reference to previous generations. Cultural practices form a uniformed way of doing things within the society. It unifies the practices of different community members and inhibits the introduction of any new ideas. This may explain the continued production of specific crops or reliance on specific agricultural activities despite their low production. In addition, productivity within most of the rural communities is not just attributed to the efforts of the farmers but also to the 'will of gods'. This may provide a way to accept all outcomes by farmers without a deliberate effort to improve. Further, Persons of different cultural backgrounds have varied ways of obtaining information and trust varied sources of information. Some communities prefer networks of family and friends while others are open to agencies and institutions in accessing their information. Failure to recognize such diversities in the dissemination of research findings may have varying results from different communities.

Family decision making structures also, have a profound effect on the functioning of the members. Gender biasness in decision making was observed with men dominating in making major decisions in the family and community. Though majority of the farmers were women, owing to the dominant male effect in decision making, most of the decisions relating to farm production may have being influenced by the absent males most of whom have moved to the urban areas.

4.3.2.4 Information related challenges in the use of research results

Communication of research is important in transforming livelihoods. However, any barriers to communication or information sharing may highly affect the dissemination process. An item was included in the questionnaire which sought information on the information related barriers to research utilization within the division. The study revealed that unavailability of information forms the biggest information related challenge to research use.

Table 11: Information related challenges to research utilization

Information related barriers to research findings usage	Frequency	Percent
Language barrier	25	17.9
Unavailability of information	68	48.9
Poor communication channels	46	33.2
Total	**139**	**100.0**

The study revealed that 48.9 (%) of the respondents rated unavailability of information as the main information based barrier to research utilization. Language barrier between farmers and the source of the information mainly government extension officer or suppliers of farm inputs formed 17.9 (%) and, poor channels of communication forming 33.2 (%).

According to Blasiotti, (1992) agricultural research results are numerous and available to those who seek them. However they are not widely accessible to a majority of the small scale farmers especially within rural communities. There is critical distinction between the availability (which basically refers to availability of scholarly journals or availing of the final research report upon request) and accessibility, which refers to the ease and the simplicity with which farmers can comprehend and use the research findings.

Ramon, (2008) posits that, the breakdown in 'research to practice path' can be explained through a number of factors. There is limited time and money allocated to dissemination of research, limited dissemination channels and often, researchers lack the language or skills to present their findings to the communities. Besides, research consumers must wait until the research findings get published in journals or seminars, which they may or may not access. Based on the study findings, the dominant research results familiar to the respondents within the division were on the drought resistant seedlings, fertilizers assessed through the local extension services, drought resistant crops such as banana and millet, and sorghum introduced by KARI, chemicals, seeds, mechanizing equipment and fertilizers introduced by the private sector and the NGOs.

4.3.3 Political factors influencing agricultural research results utilization

Political factors define the decision making structures in a society. Farmers, agricultural extension officer and researchers were presented with various items to capture information related to political factors influencing research utilization and expressed them through questionnaires, interview schedule and key informants guides.

4.3.3.1 Main sources of information within the community

Farmers rely on a number of sources to access various forms of information. An item was included in the questionnaire which sought information on the main sources of information to community members within the division.

Table 12: Main sources of general information for community members

Sources of information	Frequency	Percent
Government officials	33	23.7
Community leaders	59	42.4
Religious leaders	6	4.4
Peer groups	11	7.9
Field extension officers	1	0.7
NGOS	29	20.9
Total	**139**	**100.0**

The study revealed that the main source of information for community members was community leaders accounting for 42.4 (%), with government officials accounting for 23.7 (%), religious leaders 4.4 (%), peer groups 7.9 (%) field extension officers 0.7 (%) and 20.9 (%) from the NGOs.

Generally government officials, NGOs and community leaders formed the popularly used sources of information within the division. The study on this subject was only limited to establishing methods popularly used in accessing information, but it was behold the scope of this study which was to establish the utilization levels of the information accessed. This would have provided an opportunity to make comparison between utilization of agricultural

information and any other information and where possible identify any uniqueness which can help in better agricultural research uptake.

The three information sources (government officials, NGO and community leaders) can be employed by researchers and extension officials in their dissemination activities. Since NGOs have been utilized within the division with varying successes, their current limitation can be solved to expand the pace of dissemination while the use of related government offices and community leaders can be applied in future.

4.3.3.2 Problems associated with agricultural extension services as a source of information

An item was included in the questionnaire which sought information on the problems associated with agricultural extension services as a source of agricultural based information within the division.

Table 13: Main problems associated with agricultural extension services

Challenges facing by agricultural extension services	Frequency	Percent
Unsuitable communication channels	83	59.7
Inadequate time and resources allocation to researchers for dissemination	6	4.3
Language barrier	45	32.4
Researchers perceiving community members as inexperienced	5	3.6
Total	**139**	**100.0**

The study revealed that the main problems associated with agricultural extension services as; unsuitable communication channels (such as the use of journals, books, audio visuals materials, conferences and forums-occasionally not accessible to the local poor) representing 59.7(%). Other challenges included; inadequate time and resources allocation to researcher for dissemination accounting for 4.3 (%), use of research jargon/technical

language accounted for 32.4 (%) and researchers perceiving community members as inexperienced accounting for 3.6(%) of the responses.

4.4 Intervention Measures

4.4.1 Role of the government in improving access to agricultural information

An item was included in the questionnaire which sought information measures perceived to be suitable in enhancing research results uptake in the division.

Research no matter how innovative it may be, it will not make a difference in the lives of the target community, unless it is disseminated and utilized in an appropriate and timely manner. Successful dissemination and utilization of innovations should pay attention to the needs of the target consumers, the context in which the research findings are expected to be disseminated and up taken as well as the readiness of the target population for uptake. The matrix of successful research dissemination and utilization should incorporate the interactions between the targeted consumers, the content of the research findings, the environment within which the dissemination and utilization is undertaken, the medium or channel of dissemination and the source of the information (Backer, 1991).

4.4.2 A summary of the current practices in agricultural research utilization within the division, their weaknesses and intervention measures

According to the study findings, one of the challenges encountered in the dissemination of research findings by research institutions and the government was noted to be language barrier. Dissemination of research findings should not only focus on availing information to the farmers but rather enhancing the consumption of the information. According to the study findings, majority of the division and location extension officers (four of the six extension officers) understood the local language although two of them where from outside the division. KARI's researchers and liaison officers - the only research institution in the larger Machakos district - are basically recruited from outside the district. Recruiting local community members as dissemination officers, who have a good understanding of the local characteristics and a mastery of the local language, would be key in effective dissemination of research information. Further, increasing the number of the extension officers from the current six to march the increasing needs of the farmers would ensure effective outreach.

The tools and avenues used for dissemination of research findings by the government were mainly through; visitations, trainings and seminars - mainly done in collaboration with NGOs-, distribution of reading materials, and working with established local community based organizations. Demonstrations, within and outside the division were methods occasionally applied by KARI. According to the study findings, there is need to employ more effective means of dissemination to compliment the already available methods. The visitations by the location extension officers should be increased and the data base of current farmers within the division kept and frequently updated. Trainings and seminars should be accompanied by a follow up on individual farmers, to identify the successes and the limitations of the trainings for future growth. Further, local based training centers should be set up within the communities to ease the access of information and seeking of clarification by the farmers. Such center can be stocked with current agricultural research findings and farm calendars suiting the local communities.

The study revealed that most of the available agricultural research publications were either in Kiswahili or English. Domestication of the publication to local languages should be undertaken to enhance access to information. Further, the study noted that the media was popularly used by sellers to market their produce and by NGO. The government and research institutions that are the custodians of information should make use of the media often, especially the local vernacular radio station which have a wider audience to pass relevant agricultural information. The main barriers to the expansion of the scope of the currently used dissemination channels were noted to be limited financial resources. There is a need for the government to increase financial resource needed in the dissemination of research results. Further, the study revealed that most funding to research institutions didn't have a dissemination budget component and often relied on local budgets or other likeminded organization for the dissemination of information. According to the study findings, use of local community based organizations such as Kenworks initiative was found to be the most effective way of reaching large numbers of farmers. However, this approach was limited in the sense that, it benefited a few elite farmers at the expensive of the poorer and less illiterate members. It is evident that there is need to develop more appropriate methods of reaching farmers which pays attention to their unique characteristics. Use of

demonstrations should be popularized because it enhances the confidence of the farmers and can act as a point of reference for follow ups. Further, setting up of permanent information desk at market places and during market days should be popularized.

Although this study was limited to only establishing the factors influencing the utilization of agricultural research findings by rural communities, the study also revealed the need to avoid the use of the 'tool box approach' in the undertaking of research. Researchers rarely involve community members in their research and often use specific methodology in undertaking their research. There is a need to identify local problems and develop scientific solutions for them. Development of strong relationships between community members or farmers, researchers and extension officers is critical in communication of findings, identification of appropriate dissemination tools in respect to the peculiarities of different communities, and also help to tackle the keys problems affecting different communities. However, the study noted the low literacy levels as a huge barrier to the adoption of this matrix in agricultural research and dissemination. This can be solved overtime with improving education levels and especially through focusing on adult education.

Although there were various financial services provided by different institutions such as the commercial banks, youth and women funds, and government in collaboration with commercial banks such as the Juhudi Kilimo among others, the study revealed low levels of awareness among the farmers/respondents on the available financial services. Only the Kenworks initiative group had made use of the youth fund and the Equity bank Juhudi Kilimo services. Poverty formed the biggest challenges to the utilization of research results. Over 64.7 (%) of the respondents attributed their low uptake of research results to the high cost of the modern technologies in comparison to their low income. The study noted the need to make use of the available information dissemination avenues within the community such as; the media, local leaders, markets, schools, religious institutions, government offices to sensitize farmers on the available financial services. The study sought to establish the awareness levels on the youth and women funds and only 23.7 (%) of the respondents had heard about the fund and only 5.9 (%) had made an effort to access the fund with varying successes.

The study revealed that dissemination of agricultural research results didn't make use of modern technologies apart from the radio stations. With the influx of mobile phones and their increasing use, there is need to adopt modern technologies such as mobiles, internet and the social media to disseminate research results. However, this approach needs to be accompanied by appropriate sensitization and further research to identify its manner of adoption and application within rural communities.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMEDATION

Introduction

This chapter covers a summary of the document and conclusions drawn from the study as well as recommendation based on the research study findings and suggestions for further studies.

5.1 Summary of the key findings

This study sought to establish the factors affecting the utilization of agricultural research findings among rural communities. The researcher was guided by four research questions which sought to establish the economic, social-cultural and political factors influencing the utilization of agricultural research results as well as their probable remedies.

The major challenges facing farmers within the division was noted to be low income levels with 57.6 (%) of the respondents earning less than Kshs 5,000 per month with only 16.5 (%) of the respondents earning Kshs 10,000 to Kshs 20,000. Low income formed the biggest barrier to the access of agricultural information among the farmers in the division. The respondents engaged in various practices to increase their incomes from their agricultural related activities. Such practices included; attending trainings and seminars, organizing themselves into groups such as the youth groups or women groups, financial support from micro credits and relying on agricultural extension services.

The study revealed that 46.8 (%) of the respondents rated poverty as the main individual based barrier to research utilization, followed by illiteracy and ignorance accounting for 32.3 (%). At societal level, poverty constituted 64.7 (%) of the responses followed by cultural practices constituting 31.7 (%). Most of the farmers especially within rural communities are poor and not in a position to make use of new agricultural innovations often associated with high costs. Cultural practices form a uniformed way of doing things within the society. It unifies the practices of different community members and inhibits the introduction of any new ideas. This may explain the continued production of specific crops or reliance on specific agricultural activities despite their low production. In addition, productivity within most of the rural communities is not just attributed to the efforts of the farmers but also to the 'will of gods'. Literacy refers to both the cognitive and social skills

which determine the enthusiasm and the capacity of farmers to gain access to, comprehend and make use of agricultural research results in ways that promote and enhance their livelihoods. The study revealed that 46.8 (%) of the respondents were unable to read and write. The study revealed that availability of agricultural research results within the division was highly limited. Unavailability of research results formed a barrier to research utilization coming second to availability of capital and awareness.

The study established the predominant channels of accessing information within the division as community leaders accounting for 42.4 (%), with government officials accounting for 23.7 (%), religious leaders 4.3 (%), peer groups 7.9 (%) field extension officers 0.7 (%) and 20.9 (%) from the NGOs. NGOs formed the most preferred means of communicating agricultural research results with the media, peer groups and the market and sellers forming the other preferred avenues.

Key intervention measures include;

- Recruiting local community members as dissemination officers, who have a good understanding of the local characteristics and a mastery of the local language.
- Increasing the number of the extension officers
- Employ more effective means of dissemination to compliment the already available methods
- Trainings and seminars should be accompanied by a follow up on individual farmers, to identify the successes and the limitations of the trainings for future growth
- Domestication of the publication to local languages should be undertaken to enhance access to information
- There is a need for the government to increase financial resource needed in the dissemination of research results
- Development of strong relationships between community members or farmers, researchers and extension officers is critical in communication of findings

5.2 Conclusion

From the study findings it can be concluded that the key factors influencing the utilization of research results include female headed households, illiteracy, poverty, availability of research finding and their accessibility in a consumable language. The average farmer within the division was a female, who could not read and write and the income levels are less than Kshs 5,000. Poverty and illiteracy formed the major barriers to research results utilization. Further the available agricultural research results were highly limited to only those services farmers can access with minimal income such as free distribution of seeds and fertilizers. Low level of awareness on agricultural research findings was noted among the farmers. Researchers and extension officers relied on a small spectrum of information dissemination tools/avenues only reaching small proportion of the farmers.

5.3 Recommendation

Several aspects were identified in the study which should be adopted by the community members, researchers and government and any other stakeholders in order to increase research use among rural communities. The following recommendations were made by the researcher:-

a. Organizing community members into groups to enhance their access to agricultural services.

b. Encouraging collaboration with county governments to improve levels of education with special attention on adult education.

c. Integrating community leadership and relevant government officials in dissemination of agricultural research results.

d. Sensitization of farmers on available financial services since poverty and lack of capital formed the biggest barrier to research results utilization.

e. Creating a good working relationship between the farmers, extension officers and the researchers to complement each other.

f. Capacity building and empowerment to enhance self-reliance and reduce dependency on the government to meet most of the community needs relating to agriculture.

g. Make use of technology especially; mobile technology and the local radio station to reach bigger population especially the youth.

5.4 Suggestions for further study

Further study is recommended in the following areas;

a. The effectiveness of modern technologies in the dissemination of agricultural research results in rural communities.

b. Evaluate the effective of the financial services available currently to rural farmers.

c. Climate change and its implication on agricultural productivity

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APPENDICES

APPENDIX 1: INTRODUCTION LETTER

UNIVERSITY OF NAIROBI
DEPARTMENT OF SOCIOLOGY & SOCIAL WORK
P O BOX 30197 NAIROBI – 00100.

Dear Sir/Madam,

I am a master's student at the University of Nairobi undertaking a research project on the factors influencing the utilization of research findings among rural communities within Yatta division Machakos County.

I kindly request you opinions regarding the said 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 appreciated.

Thank you in advance

Kimeu Silvestar Kimanthi
MA student University of Nairobi
ADM NO: C50/67824/2011

APPENDIX II: INTERVIEW SCHEDULE FOR COMMUNITY MEMBERS

I am Kimeu Silvestar Kimanthi, a Masters student at the University of Nairobi. The aim of this study is to help in understanding the factors that affect the levels of research results usage among rural communities in Yatta Division in Machakos County.

I kindly request you to provide the required data voluntarily. Please be assured that the data you give will not be used for any other purpose except for the purpose of the research and will treated with extreme confidentiality.

Thank you.

Instructions

- ✓ The information you provide will be treated with confidentiality
- ✓ Provide answers to the questions as honestly and precisely as possible.
- ✓ Tick where applicable

Section A: Background information

1. Age

   16 – 25 years ☐ 26 – 40 years ☐ 41 – 60 years ☐ above 60 years ☐

2. Sex

   Male ☐ Female ☐

3. Education level

   a) Primary ☐ b) Secondary ☐ c) Polytechnic ☐ college ☐

   University ☐

4. Marital status

   Single ☐ Married ☐ Divorced ☐ Separated ☐

5. Number of children

   0 – 2 ☐ 2-5 ☐ 5 – 8 ☐ above 8 ☐

6. Religion

   Christian ☐ Islam ☐ Hindu ☐

   Others (Specify) ……..…

7. Location
    a) Kithimani location ☐
    b) Matuu location ☐
    c) Mavoloni location ☐
    d) Ndalani location ☐

Section B: Issues related to research utilization

Part I: Economic factors influencing agricultural research results utilization

a) For how long have you lived in this community?

    a. Less than one year ☐ 1-3 ☐ 4 - 5 ☐ Above 5 years ☐

b) What are some of the agricultural related economic activities practiced within this community?

    a) Cattle keeping ☐
    b) Subsistence farming ☐
    c) Horticulture ☐
    d) Agro forestry ☐
    e) Cash crop farming ☐
    f) Other (specify) ……..

c) Of the agricultural based economic activities identified above, which one are you engaged in? ……..

d) How much do you earn/make per month from this activity

    a) Less than 5000 ☐
    b) 5000 -10,000 ☐
    c) 10,000 – 20,000 ☐

d) 20,000 – 40,000 ☐

e) Above 40, 000. ☐

e) What do you do to increase your income from the economic activity?

a) Attending trainings/seminars ☐

b) Agricultural Extension services ☐

c) Merry go round/CBOs ☐

d) Micro credits ☐

e) Extensive farming ☐

f) Others (specify) ……

f) If you have ticked b) above, how often do you make use of Agricultural extension services?

a) Weekly ☐ b) Monthly ☐ c) Once a year ☐ d) Annually

g) List the agricultural extension services you have used in the last two years.

a) ……..

b) ……...

h) What are some of the challenges you experience in the use of research findings?

a) Unavailability of land ☐

b) Inadequate capital ☐

c) Poor communication channel ☐

d) Inadequate awareness ☐

e) Unavailability of extension services ☐

f) Other (specify) ……

Part II: Socio-cultural factors influencing agricultural research results utilization

a. How would you evaluate your ability to read and write?

a) Excellent ☐ b) good ☐ c) fair ☐ d) poor ☐ e) very poor ☐

b) As an individual, what challenges do you experience in the use of research findings?

a) Illiteracy ☐

b) Attitude ☐

c) Gender disparity ☐

d) Language ☐

e) Poverty levels ☐

f) Ignorance ☐

g) Cultural practices ☐

h) Others (specify)…….

c) What challenges would the society in general pose towards the use of research findings?

a) Religious practices ☐

b) Cultural practices ☐

c) Poverty levels ☐

d) Family influence ☐

e) Others (specify)……..

d) What are the challenges you encounter in accessing information on research findings?

a) Language barrier ☐

b) Communication breakdown ☐

c) Unavailability of information ☐

d) Use of inappropriate technologies ☐

e) Others (specify) …….

Part III: Political factors influencing agricultural research results utilization

a) Name some of the people you would consult for information within your community?

a) Government officials ☐

b) Community leaders ☐

c) Researchers ☐

d) Religious leaders ☐

e) Peer groups ☐

f) Field extension officers ☐

g) NGO ☐

h) Others (specify) …….

b) Of the people listed above, who makes decisions in your community concerning agricultural development matters?

a. ……

c) Where do you get information concerning agricultural development?

a) Media ☐

b) Barazas ☐

c) Peer groups ☐

d) Religious institutions ☐

e) Schools ☐

f) NGO ☐

g) Market places ☐

h) Agricultural Extension officers ☐

i) Others (specify) ……..

d) What are some of the challenges you experience with agricultural extension services as a source of information?

a) ....…….

b) ……

e) What are some of the challenges faced by the above mentioned institution in delivering the information to you?

a) Poor channels of communication ☐

b) Inadequate time and resource allocation to researchers for dissemination ☐

c) use of research jargons (Technical language) ☐

d) Conflicting data from difference sources ☐

e) Perceiving community members as inexperienced ☐

f) Others (specify) …….

Part V: Intervention measures

a) How would like the government to help you in accessing information concerning development of your economic activity?

   a. …….

   b. …….

b) What assistance would you require as an individual to access agricultural information better?

   a. ……

   b. ……

c) How should the society change to enable better use of research findings?

   a. ……..

   b. ……..

d) What do you think will be the right measures to reduce communication problems in use of research findings?

   a. ……

   b. ……

e) How should the institution you access agricultural information from, change to enable better access?

   a. ……..
   b. ……..

f) List any other measures that may improve the use of research findings in this division

   a. ……
   b. ……

APPENDIX IV: KEY INFORMANT SCHEDULE FOR RESEARCHERS

I am Kimeu Silvestar Kimanthi, a Masters student at the University of Nairobi. The aim of this study is to assess the factors influencing the utilization of research findings among rural communities in Yatta Division in Machakos County.

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

Thank you.

Instructions

- ✓ The information you provide will be treated with confidentiality
- ✓ Please do not write your name in the questionnaire
- ✓ Provide answers to the questions as honestly and precisely as possible.
- ✓ Tick your preferred answers where applicable
- ✓ Kindly answer all the questions

Section A: background information

1. Sex ……
2. For how long have you performed your duties ……..

Section B: Issues related to research utilization

Part I: Economic factors influencing agricultural research results utilization

1. List the researches you have undertaken within the Yatta division?
    a. ……..
2. Factors influencing the identification of agricultural research problems?
    a. ……..
3. Relationship between the community and the researchers?
    a. ……..
4. Availability and accessibility of agricultural research findings to community members?
    a. ……

5. Current means/ways of disseminating research results to community members
    a. ……..…
6. Problems associated with the current means of dissemination
    a. ……..
7. Levels of research findings utilization by the community members?
    a. **.....**

Part II: Socio-cultural factors influencing agricultural research results utilization

8. Individual barriers to research results usage?
    a. ……..
9. Community barriers to research results utilization?
    a. **.....**
10. Barriers related to information technology in research results utilization?
    a. ……

Part III: political factors influencing agricultural research results utilization

11. Current research dissemination avenues and their effectives
    …….
12. Major sources of agricultural information ……..
13. Challenges associated with such agricultural extension services as sources of information ……..

Part V: Intervention measures

14. Assistance to individual to access agricultural information better?
    ……
15. How should the society change to enable better use of research findings?
    ……..
16. What do you think will be the right measures to reduce communication problems in use of research findings?
    ……
17. Other measures to enhance research use.
    ……

APPENDIX V: KEY INFORMANT SCHEDULE FOR GOVERNMENT EXTENSION OFFICIALS

I am Kimeu Silvestar Kimanthi, a Masters student at the University of Nairobi. The aim of this study is to assess the factors influencing the utilization of research findings among rural communities in Yatta Division in Machakos County.

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

Thank you.

Section A: Background information

Please indicate your gender …….

For how long have you performed your duties in this division? .....

Section B: Issues related to research utilization

Part II: Economic factors influencing agricultural research results utilization

1. What are the major economic activities within the division?
   i. ……
2. What are the average income levels within the community? ……..
3. How many small scale and large scale farmers are within Yatta division?
   i. Small scale farmers …….
   ii. Large scale farmers ……..
4. How do farmers increase their farm productivity in this division?
   ……
5. How do you compare the rate of research utilization for the last four years?

Year	Rate of research utilization
2009	
2010	
2011	
2012	

6. What is the relationship between community members and researchers or extension officers?

   Poor ☐ Fair ☐ Good ☐ Excellent ☐

7. How many agricultural researches have been undertaken in this division/location in the past three years? ……

8. How have the researches helped to improve farm productivity? ……..

Part II: Socio-Cultural factors influencing agricultural research results utilization

9. What challenges do individuals experience in the use of research findings?

   i. . ……..…….

10. What challenges would the society in general pose towards utilization of research findings?

    i. ……

11. Challenges in accessing information on research findings?

    i. …….

Part III: political factors influencing agricultural research results utilization

12. Sources of information within the community ……..

13. Challenges in relying on the above mentioned sources to improve economic activities ……

14. Are there special factors that may hinder the utilization of research results in the area?

    i. ……

Part IV: Intervention measures

15. List the government initiatives to enhance agricultural productivity within the division?

    i. ……

16. List measures that can be employed to improve research utilization?

    i. …….

17. Assistance to individuals to access agricultural information better?

    ……

18. How should the society change to enable better use of research findings?

    ……..

19. What do you think will be the right measures to reduce communication problems in use of research findings? ……..……

20. Other measures to enhance research use

    ……

APPENDIX VI: OBSERVATION CHECKLIST

1. Observable extension services in use (evidence from records)

    i. …….

2. Presence of extension officers and offices

    i. ……

3. Research institutions

    i. ……..

4. Variety of commodities produced by farmers

    i. ……

5. Main economic activities within the division

    i. …….

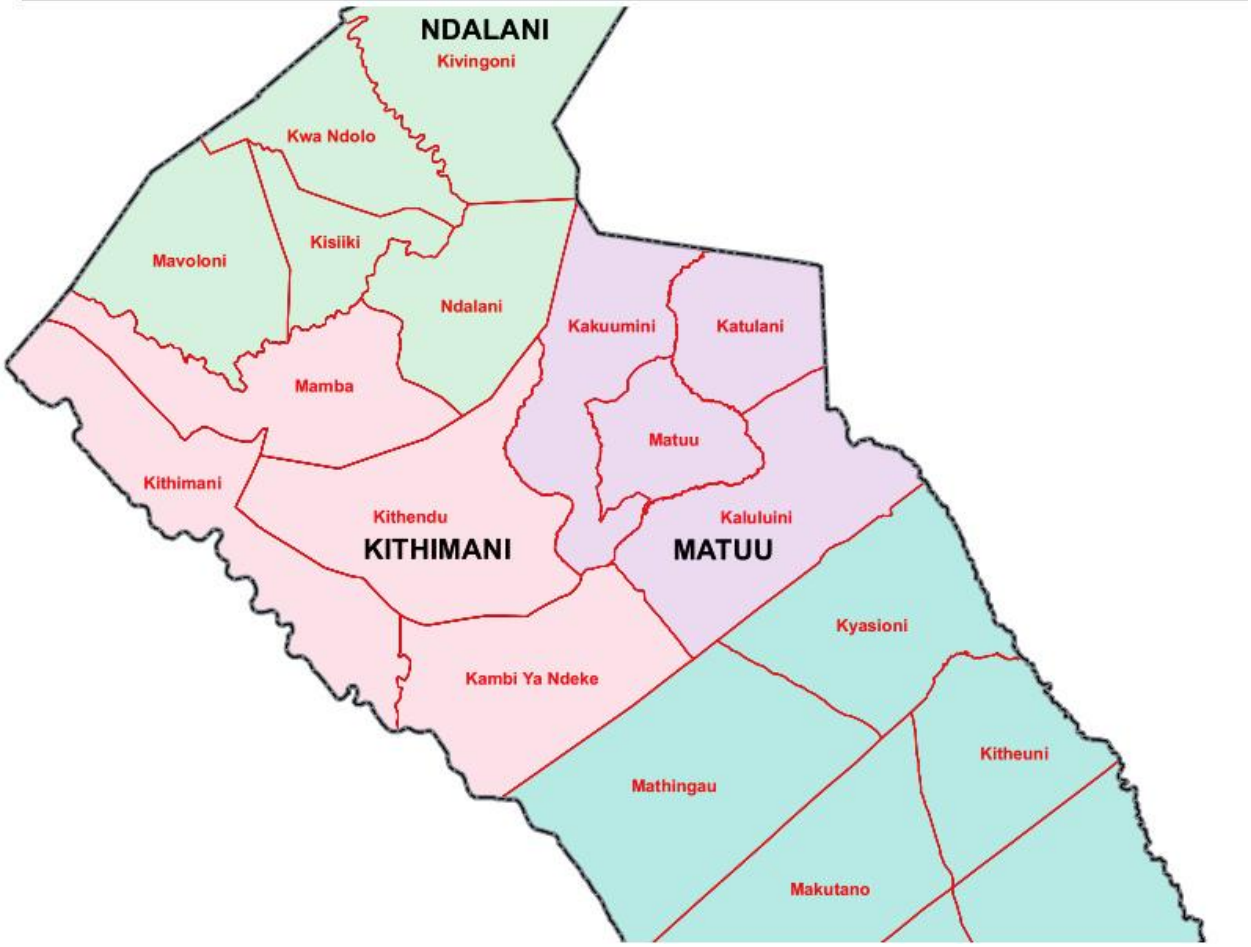
6. Size of land under cultivation

    i. …….

7. Location's/division's farm yield per acre

    i. …….

APPENDIX VI: MAP OF YATTA DIVISION



Source: http://www.flickr.com/photos/albertkenyaniinima/7832061190/sizes/l/in/photostream/