ROLE OF PARTICIPATORY COMMUNICATION IN POVERTY REDUCTION AMONG SMALL SCALE FARMERS IN KENYA: A CASE STUDY OF IRISH POTATO FARMERS IN KURESOI NORTH SUB-COUNTY

KOECH, MOSES KIPKORIR

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DECLARATION

This is my original work and has not been submitted for the award of any other degree in any other institution.

Signature…….....Date.....

Koech Moses Kipkorir

This project has been submitted with the full knowledge and approval of my Supervisor

Signature…….....Date.....

Dr. Ndeti Ndati

School of Journalism and Mass Communication, University of Nairobi

DEDICATION

To my parents, Peter and Alice Too for ensuring that my siblings and I went to school and grandpa, Kipsoi Araap Tanui for his great value of education.

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ABSTRACT

This study sought to find out the role of participatory communication in poverty reduction among small scale Irish potato farmers in Kuresoi North Sub-County in Kenya. The objectives of the study were to establish knowledge levels of new farming methods among the farmers, how they access this knowledge, the challenges they face in accessing it, the most appropriate communication channels to them and the role of participatory communication in poverty reduction among these farmers. This study was guided by three theories: Social Cognitive Theory, Information Processing Stage Theory Model and Diffusion of Innovations Theory.

An exploratory research design was used in this study. Non-probability sampling procedures were used in the study. Using convenient sampling, 6 groups each with 6 participants were chosen for focus group discussions which were guided by an interview guide while 8 key informants were purposively sampled and interviewed with the guide of interview schedules. In total, 44 participants were sampled in the study.

The study found that lack of smooth flow of information from various stakeholders in the Agricultural sector to the farmers was responsible for poor yields hence poverty among small scale Irish potato farmers in Kuresoi North Sub-County. It also established that other factors such as poor infrastructure and lack of proper marketing strategies were major contributors of poverty among the farmers.

This study gives several recommendations, the major ones being that more agricultural officers be employed and facilitated in the Sub-Counties to help dispense information. Secondly, that savings and credit co-operative societies be established to assist farmers in marketing of their produce.

This study recommends that longitudinal studies be conducted to establish the extent to which participatory communication can reduce poverty. Secondly, further investigations should be done on how the use of word of mouth by peers and neighbors amongst small scale farmers can be incorporated into communication strategies aimed at improving information flow among small scale farmers.

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ABBREVIATIONS AND ACRONYMS

ADC- Agricultural Development Corporation

ASK- Agricultural Society of Kenya

CAN- Calcium Ammonium Nitrate

DAP- Di-Ammonium Phosphate

FAO- Food and Agriculture Organization

FGDs- Focus Group Discussions

GDP- Gross Domestic Product

GoK- Government of Kenya

IFAD-International Fund for Agricultural Development

KARI- Kenya Agricultural Research Institute

MDGs-Millennium Development Goals

NGOs-Non-Governmental Organizations

SACCOs-Savings and Credit Co-operative Societies

TSP- Triple Super Phosphate

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Participatory communication can be defined by first understanding the meaning of the term “communicate”. Rosengren, (2000:1) writes that to communicate means “to share” or “to make common” information. Sharing information and making it common within Agriculture falls under the larger field of Development Communication. Servaes, (2008: 15) defines development communication as:

> “…the process of intervening in a systematic or strategic manner with either media (print, radio, telephony, video, and the Internet), or education (training, literacy, schooling) for the purpose of positive social change. The change could be economic, personal, as in spiritual, social, cultural, or political.”

Participatory communication, as part of development communication, is based on the right of individuals to speak out collectively without anyone prescribing for them what they should say (Freire, 1983). Bessette (2004) also captures this by stating that participatory communication is planned dialogue amongst different actors in development agenda and it involves interpersonal and mediated communication around a common goal.

Of importance to proponents of participatory communication is safeguarding the target community or population’scultural identity. This, according to Servaes & Malikhao (2005), enables communication to originate from the people and move upwards to other actors, making the target community to gain a sense of ownership of solutions to their development issues.

Lagerwey, (1990) posits that people cannot be coerced or manipulated to develop themselves. The impetus for their change must come from within them and they must be willing to participate and be involved in issues that affect their lives, the key to this being through education while the tool is communication. The role of participatory information flow in social and material wellness of small scale rural farmers cannot be gainsaid as a number of studies carried out on this have demonstrated (Obinne, 1994). When the local communities participate in the communication processes, a sense of democracy ensues and the various actors in development agenda play a role. The notion of ownership of ideas and solutions to problems becomes "multidimensional" (Servaes & Malikhao, 2005: 93).

Africa, being overly reliant on agriculture cannot develop if the 65% of its labour force employed in this industry remain poor and underfed (Africa Agricultural Status Report, 2013). Servaes, (2008) examines poverty as a product of four things: poverty as a mindset, poverty as lack of resources, poverty as lack of human rights and poverty as lack of access. As lack of access, he argues that the rural poor do not get the relevant information and hence lack awareness about legal information in land use, reforms and legislations, transparency issues on resource allocations for agricultural undertakings and so on.

Agricultural information influences agricultural productivity (Mostak, 2012). Farmers, Mostak argues, are able to make decisions for instance about livestock and their management, capital, labour and so on based on the information they get access to. The World Bank (2007) also recognizes that information is important in accelerating growth and innovation in Agriculture. Rural farmers, it states, need up-to date information on a

regular basis regarding all agricultural sectors and issues. Lack of information about current market trends for instance, could place a farmer at a difficult position when negotiating the price of their farm produce.

New agricultural methods, farmer support mechanisms, new seed varieties and so on can only come to the knowledge of the farmers through this information being cascaded down to them (Aina, 1991). Based on these observations, communication has a role to play in poverty reduction by acting as a vehicle through which other interventions are channeled thus making it critical to development (Rogers, 1976).

Farming systems in Sub-Saharan Africa are facing a major decline in food production despite a large labour force upwards of 65% of the entire population and whose efforts account for a paltry 32% contribution to the GDP (Africa Agricultural Status Report, 2013). In Kenya, for instance, the agricultural value added GDP decreased from 29.09% to 23.13% between years 2000 and 2011 (Africa Agricultural Status Report, 2013).

Glendenning, Babu & Okyere (2010) posit that the ever dwindling agricultural land occasioned by land subdivision and lack of clear land use policies, changes in climate, increased degradation of the environment, unknown market opportunities and so on, make the future of agriculture in African countries bleak, unless provision of timely and relevant information to farmers is done.

The percentage of people who live on less than 1.25 dollars a day, and who are referred to as ‘the poor’ in Sub –Saharan Africa stood at 51.5% in 1981, which translated to 204.9 million people (World Bank, 2007). Generally, the percentage of those who are poor has been gradually decreasing with 48.7% recorded as being poor in the year 2010 down

from 59.4% equivalent to 330 million people in 1993. Though there is a decline in the percentage of the poor in Sub-Saharan Africa, the actual number of the poor has been increasing steadily and it is expected to reacha projected figure of about 413.7 million people in the year 2010 (World Bank, 2007).

The gateway to eradicating the entrenched poverty and hunger as espoused in the United Nations' Millennium Development Goals (United Nations, 2010) lies in reducing economic vulnerabilities of citizens in the face of ongoing economic crises. This in turn has the ability to reduce crime and positively impact on the attainment of the remaining MDGs. Agriculture has been identified as one of the key fronts in reducing poverty in the developing world (Servaes, 2008; DFID, 2005; Grewal, Grunfeld & Sheehan, 2012). The primary challenges faced in agricultural undertakings include harsh climatic conditions for instance long absence of rain, poor soils and lack of agricultural land that can support substantive agricultural activities among others (Christiaensen & Demery, 2007).

To make the most out of the ever dwindling agricultural land and other resources like water, small scale rural farmers must adopt agricultural practices that require lesser resources but give high returns within a short time (Chemonics International Inc., 2010).

The World Bank Kenya Economic update (Africa Agricultural Status Report, 2013) estimates poverty rate in Kenya to be between 34% and 42%, with the majority of those who are poor living in rural areas. Since Kuresoi North Sub-County is a rural area, it has a share of this statistic. Geographically, it lies in the North Western part of Nakuru County and adjacent to the Mau West Forest Complex. The topography is one of hills and valleys, and forms part of the former White Highlands that rise to about 2400 metres

above sea level. It receives upwards of 1800 milliliters of rainfall annually (Jaetzold et.al, 2011). This area also has rich agricultural soils that support agricultural production but majority of its population remains poor (IFAD, 2010). This fact, therefore, necessitated this investigation to find out how participatory communication can be applied to improve agricultural production and ultimately improve the living standards of small scale farmers, with a focus on those engaged in growing Irish potatoes in Kuresoi North Sub-County in Kenya.

1.1 Problem Statement

For many years, farmers in Kuresoi North Sub-County in Nakuru County have continued living in poverty. Kenya's Central Bureau of Statistics (CBS) (Government of Kenya, 2003) places Kuresoi's poverty rate at between 34% and 44%. This is despite the presence of climatic conditions suitable for agricultural production in this area, rich soils and a ready market for farm produce (IFAD, 2010).

Thelack of direct proportionality between fertile agricultural land, sufficient rainfall and ready market for farm produce on the one hand and better agricultural production hence better living on the other is a puzzle that necessitated this study.

Tufte and Mefalopulos, (2009) argue that participation and participatory communication are the answers as to why there were failures in many development projects that were aimed at improving the welfare of the world's poor in the 1970s and 1980s. The limited involvement of the local stakeholders ensured that their problems were not contextualized. There were differences in the perceptions of the major problems afflicting the poor. Participatory communication therefore, Tufte and Mefalopulos (2009) add, is an

important tool in ensuring that the failures of the pastdevelopment projects are not repeated.

In view of the above, this study focuses on participatory communication as the missing link between rich agricultural resources in Kuresoi North Sub-county and the high poverty rate in the area. Through the engagement of all the stakeholders, Tufte and Mefalopulos (2009) conclude, participatory communication reduces poverty, social exclusions and ensures that developmental objectives are owned by more players hence making them sustainable.

1.2 Objectives of the study

1.2.1 General Objective

This study aimed at establishing the role of participatory communication in poverty reduction among small scale Irish potato farmers in Kuresoi North Sub-County in Kenya.

1.2.2 Specific Objectives

This study had the following specific objectives:

i. To establish the levels of knowledge of new farming methods among small scale Irish potato farmers in Kuresoi North Sub-County.
ii. To find out how Irish potato farmers in Kuresoi North Sub-County access information on Irish potato farming.
iii. To find out the challenges that Irish potato farmers in Kuresoi North Sub-County face in accessing Agricultural information.
iv. To establish the most appropriate communication channels among Irish potato farmers in Kuresoi North Sub-County.
v. To establish the role of participatory communication in poverty reduction among small scale Irish potato farmers in Kuresoi North Sub-County.

1.3 Research Questions

This study was guided by the following research questions:

i. What are the knowledge levels of new farming methods among small scale Irish potato farmers in Kuresoi North Sub-County?
ii. How do small scale Irish potato farmers in Kuresoi North Sub-County access information on Irish potato farming?
iii. What challenges do small scale Irish potato farmers in Kuresoi North Sub-County face in accessing Agricultural information?
iv. What are the most appropriate agricultural information channels among small scale Irish potato farmers in Kuresoi North Sub-County?
v. What role does participatory communication play in poverty reduction among small scale Irish potato farmers in Kuresoi North Sub-County?

1.4 Justification

This study sought to investigate how participatory communication can be used to reduce poverty among small scale Irish potato farmers in Kuresoi North Sub-County in Nakuru County. The findings of this study can help the farmers in this region in the following ways: first, they get to know what impact agricultural information may have on their agricultural productivity. They are also be able to have a wider scope of understanding of the challenges they individually and collectively face in accessing agricultural information.

Policy makers in the Ministry of Agriculture at the national level may also benefit from the findings by getting knowledge on how agricultural information channeled through a

participatory communication model affects farmers' productivity. The Ministry of Agriculture, Livestock and Fisheries in the County Government of Nakuru may also use the findings of this study to come up with targeted intervention measures for instance communication strategies to help farmers in the area of study to improve production of Irish potatoes and probably other crops as well. Other counties can also benefit from the findings by incorporating aspects of the findings that may help their rural farmers to increase their agricultural production.

Researchers and academicians in the field of Agricultural Communication can use the findings of this study as a benchmark for future investigations into the role of participatory communication in poverty reduction in areas with rich biodiversity. The gaps that maybe noted from this study will form a basis for further studies within this field, in Kuresoi North Sub-County of Nakuru County or in other regions with high biodiversity.

The findings of this study may also set the agenda in institutions that teach Agricultural Education or those charged with developing curriculum in the field of Rural Agriculture as far as the role of participatory communication in agricultural production is concerned. Other stakeholders like Agricultural extension officers, NGOs and agro-enterprises that deal with agricultural inputs or farm produce get to know and perhaps exploit the strengths and/or gaps in the farmers' knowledge on agricultural information and capitalize on this to achieve their different goals.

Farmers and other actors in the Agricultural sector stand to gain, one way or the other, from the findings of this study. This therefore justified the committing of resources and time in carrying out this study.

1.5 Scope and Limitation of the study

This study geographically covered Kuresoi North Sub-County of Nakuru County only. It was limited to the role of participatory communication in poverty reduction among small scale Irish potato farmers. Other factors responsible for poverty in the area of study, and which could be employed in poverty reduction, were not investigated by this study. The period within which this study was conducted was July through August and the generalizations arrived at were informed by the information gathered during this period.

This study was carried out in Kuresoi North Sub-County of Nakuru County. Chances are, therefore, that the findings are limited in application to areas whose climatic conditions are not different from those of this area. This study was also faced with limitations of time since understanding the seminal contribution of participatory communication in improving agricultural productivity as far as Irish potato farming is concerned, requires the beginning of data collection from land preparation, seed selection, weeding, harvesting and marketing. This implies that by the time this study began, farmers had already planted their seeds, weeded their crop and were now harvesting. Planting, weeding and mounding sessions are normally done around March through June. Data on this segment, which would have possibly added more insights to the study, was therefore not obtained.

The period covering the study, which was in the month of August, was characterized by long rains and generally cold weather within the region. Majority of dirt roads in Kuresoi North Sub-County were impassable then. This made getting participants for focus group discussions limited to those who were found in clusters that almost madeup the required number which was then engaged in FGD.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews different scholarly materials that have been written on the role of participatory communication in poverty reduction with a bias towards small scale farmers. Books, journals, periodicals and online materials among others have been reviewed. This section also reviews some theories relevant to the research objectives which were used as guides in the investigation. Gaps in previous research in aspects like methodology, scope and so on have also been reviewed.

2.1 Empirical Review

The role of communication in development has been around for many years although its place in socioeconomic, political and cultural development began in the 1960's (Moemeka, 1994). Skeptics have however questioned its relevance in developed countries. Despite this skepticism, Moemeka (1994) argues that communication is an ingredient without which development in social and economic fronts would be hard to achieve.

Participatory communication in the field of agriculture plays a very important role in transmitting messages with the intention of changing farmers' behavior (Agwu & Adeniran, 2009). It does so through involving the farmers in the communication process, as stated by Servaes and Malikhao, (2005). In their study on agricultural extension services as sources of agricultural information, Muyanga and Jayne (2006) acknowledge that communication plays an important role in agricultural production.

Of significance in the analysis of the role of communication in poverty reduction among small scale farmers is their preference for certain information sources and channels. Oriakhi and Okoedo-Okojie (2013) present farmers in Edo State of Nigeria's preferences for agricultural information sources through conducting of research using interviews to collect their data. Factors such as accessibility and level of understanding of the information sources, they report, inform these preferences. Below is a review of the various scholarly arguments in the field of Agricultural Communication with an emphasis on how participatory communication can be employed in poverty reduction.

2.1.1 Agricultural information

Information regarding agricultural activities is important to farmers if maximum benefits are to be obtained from agriculture. There has to be a collaborative effort of information flow between the various stakeholders and farmers (Kalusopa, 2005; Siyao, 2012). Different scholars have tackled the subject of agricultural information by interrogating the various issues surrounding it. The types of information, their sources and accessibility have been extensively discussed by Rees et.al (2000). The sources of information as cited in a study conducted by these scholars include the different media (print, electronic, new media and so on), agricultural extension officers, peers and neighbors, agricultural inputs stockists, local meetings or *barazas* among others.

The types of information as identified by Rees et.al (2000) include operational skills, awareness skills and technical information. Of the three types of information identified, technical information was found to be minimally dispensed yet mostly sought after by farmers. Farmers, Rees et.al (2000) argue, need information on combating diseases

affecting their crops or livestock, where to get certified seeds, what type of seeds to plant in a given region or soil type and so on. An important factor in agricultural productivity raised in this study is the fact that most farmers seek technical information as opposed to other types of information. Further in their findings, Reese et.al (2000) point out that agricultural extension officers are the major source of agricultural information to farmers.

Inasmuch as Kalusopa (2005), Siyao (2012) and Reese et.al (2000) advocate for enhancement of collaborative information flow as well as segmentation and prioritization of information types required by farmers respectively, they have not factored in farmers' literacy levels. It is one thing to accept the fact that information and its flow is critical to social and economic change, and quite a different thing to know what knowledge gaps there are in the targeted population. To facilitate a collaborative flow of information between the farmers and the information sources, say for instance the extension officers, proper channels of communication that are accessible, cheap and user friendly have to be employed (Oriakhi & Okoedo-Okojie, 2013). This paper is therefore at variance with scholarly presentations by the likes of Kalusopa (2005), Siyao (2012) and Rees et.al (2000) as far as the linear ideology of information flow is concerned but appropriates the arguments advanced by Oriakhi and Okoedo-Okojie (2013) on collaborative model of information flow.

To understand how agricultural information flows among small Irish potato farmers in Kuresoi North Sub-County of Nakuru County can aid in poverty reduction, and based on the arguments of the above scholarly arguments, the objectives of this study were based

on both the collaborative and segmentation aspects of information flow as well as the Socio-Cognitive and Information Processing attributes of the individual farmers.

2.1.2 Challenges in accessing Agricultural information

Access to Agricultural information in rural areas has been studied by several scholars and the challenges thereof documented. Ellen, (2003) groups the challenges into psychological, societal, intellectual and institutional categories. Ellen argues that psychological challenges occur when an individual does not believe that the problems they have can be solved by accessing information. This entrenches status quo since, as Lagerway (1990) puts it, people cannot be coerced to develop themselves. There has to be an intrinsic motivation for people, and in this case small scale rural farmers in Kuresoi North Sub-County, to better their lives. Societal factors, Ellennotes, impede the availability of resources needed to satisfy information wants of a given society, while institutional challenges arise from information centres or sources not willing to share their knowledge with the populace.

Poor communication and infrastructural development can also hinder the delivery of information to farmers (Ellen, 2003; Masuki et.al, 2010). Cogburn and Adeya, (1999) opine that stakeholders in rural development for instance the government must invest in communication infrastructure which is considered weak in African countries. They further hold that in this era characterized by globalization, infrastructural development in communication is indispensable if social and economic development has to be realized. This is in agreement with what Mtega and Malekani (2009) posit.

Arguing from a model-specific point of view, they look at the challenges faced by telecentres or information provision centres in Tanzania in providing information to rural and peri-urban folks. According to them, telecentres have been found to provide the necessary linkages between the various stakeholders in rural development but that they have had challenges as far as the relevance of the information provided is concerned. Relevance of information is a product of participatory communication since farmers have a chance to define their information needs (Servaes & Malikhao, 2005). This means that the churning out of irrelevant information in Tanzania's telecentres points out to top-down information flow as opposed to lateral collaborative model of information flow.

The cost of information dissemination is also a challenge. Williamson (1998) notes that printing materials such as pamphlets, purchase of books, investment in photocopiers among other information dissemination materials and channels can prove to be financially burdening. This therefore reduces the quantity and quality of accessible information by farmers.

Gender-based attitudes barriers have also been identified as responsible for stifled access to agricultural information especially by rural womenfolk. The society discriminates against women in agricultural educational matters, as they are left behind to mind domestic chores (FAO, 1998). This can explain why during the data collection process, few women were available for FGDs conducted.

Kibett, Omunyin & Muchiri (2005), argue that Agricultural extension officers play an important role in disseminating agricultural information to farmers because they are considered to already possess the information or they can easily get it for onward

transmission to farmers. When these officers are few and have to cover large areas of jurisdiction with sometimes thousands of farmers, they add, many of the farmers end up not getting information or getting very limited information.

Formal education, as argued by Aina (2006) forms the key linkage between information resources and their access by farmers. Illiteracy can greatly impede access to agricultural information. Aina further states that illiterate farmers may not be able to read printed materials and other publications for instance on the internet just as they may also fail to access agricultural resources in mobile telephone applications, thereby losing out on otherwise easily accessible information.

Majority of scholars mentioned here focus on factors other than the farmers themselves as being the challenges to agricultural information access. In these arguments, the farmer is not brought out as information seeking being but rather, as an almost inert receptor of information. Factors like inadequate extension officers and infrastructure, illiteracy and gender-based challenges among others do not dwell on a reward-based approach, where farmers actively seek information either as individuals or groups so as to improve their livelihoods via improved agricultural production.

2.1.3 Role of communication in poverty reduction

Many scholars have debated on the role of communication in reducing poverty and concluded that information is important in advancement of rural agriculture (Soola, 1988), which in turn increases productivity. Xu (2001) brings in China's perspective on the role of communication in agricultural production and improvement. China, according to Xu, turned around its agricultural sector through the improvement of its agricultural

information flow. The agricultural sector has different players: farmers, buyers, transporters and so on who need to be in constant communication amongst themselves to enhance the gains from the enterprise. This communication can be one-on-one or through mediated channels of communication.

In the Kenyan agricultural sector scenario, studies have focused on the role of agricultural extension services in improvement of agricultural production mainly among small scale rural farmers. Muyanga and Jayne (2006) and Agwu and Adeniran (2009) for instance stress the importance of agricultural extension as a medium of availing the necessary information for increased agricultural productivity. These scholars hold that communication is vital as far as the small scale rural farmers' ability to earn more from their farming is concerned.

An informed farmer has information concerning rainfall patterns, soil types, fertilizers to be used, modern farming technologies, available markets, and farm produce storage methods and so on. Through information therefore, farmers are able to make informed choices be they production-specific or market related (Soola, 1988). The search, assessment and appropriation of information should lead to a change in the lifestyle of those seeking it (Matovelo, 2008). The point of divergence this study has from other studies conducted as far as the role of communication in poverty alleviation is concerned is its focus on participatory aspect of communication in general without necessarily being limited to specific communication media or channels. Based on the positive role of communication in agricultural production as held by different scholars, farmers in

Kuresoi North Sub-County stand to improve their Agricultural production if they access and apply relevant agricultural information.

2.2 Theoretical Framework

This was guided by three theories: Social Cognitive Theory, Information Processing Stage Theory Model and Diffusion of Innovations Theory.

2.2.1 Social Cognitive Theory

Bandura's Social Cognitive Theory, which is an offshoot of behaviorism, holds it that people learn from each other through observing, imitating or modeling others while at the same time being guided by their proactive, self-regulating, self-organizing and self-reflective nature (Bandura, 2009). People, Bandura argues, will observe a certain action and adopt it if it results in a desired behavior. People also tend to imitate successful models in a given field. In applying this model to this study, it can be posited that the presence of one or few successful farmers in Kuresoi North Sub-County of Nakuru County changes the way other farmers conduct their own farming through appropriating those behaviors they deem highly productive.

Bandura, (1971) further adds that the perceived or real rewards or punishments attracted by actions taken by one person will either serve as a deterrent or a motivation to others. When a farmer in Kuresoi North Sub-County plants their crops according to the required standards and reaps abundantly, the study established, other farmers are likely to use the

same method of planting in the next season with the hope of realizing equally good yields.

2.2.2 Information Processing Theory-Stage Theory Model.

The Stage Theory Model of Information Processing Theory approach holds it that human minds process information via application of logical rules and strategies (Atkinson & Shiffrin, 1968). For a problem to be solved, the theory states, critical information about it must be encoded and together with whatever useful prior knowledge already stored, this information will then be used in coming up with a strategy to deal with the problem. The Stage Model Theory holds it that storage of information occurs in three stages namely: sensory memory, short term memory and long term memory. For information to transition into short term memory, Huitt (2003) gives two conditions that must be satisfied. One is that the information must have an interesting feature and secondly, it must activate a known pattern. Information that gets into the short term or working memory lasts between 15 to 20 seconds and if repeated severally later, it will last up to a limited time of 20 minutes. The second shortcoming of this memory is that information can only be processed in units of between 3 and 7 at a time in what is called ‘chunking’ (Miller, 1956).

Information that has been chunked is then pushed to the long term memory where it can be stored for many years. As information is stored in this memory, Huitt, (2003) mentions that it can be organized into several structures like declarative memory which has semantic and episodic memories.

Semantic memory includes principles, and different strategies employed in problem solving or learning while episodic memory information is that which forms personal experiences and stories. Further, information can be organized into procedural memory that deals with how things are done and also into images.

Through this theory, how farmers in Kuresoi North Sub-County are able to retain the agricultural lessons given to them through the different channels can be explained. The level of complexity of agricultural innovations relayed to the farmers, whether there is any frame of reference and the familiarity of the language used may affect the way farmers in the area of study store and ultimately retrieve this information for application in the day to day farming activities (Atkinson & Shiffrin, 1968).

2.2.3 Diffusion of Innovations Theory

This theory seeks to explain how innovations, new ideas, products or methods of doing things are received and appropriated by a population (Rogers, 1995). Diffusion of Innovations Theory focuses on four key areas: the invention, its spread (diffusion), the time it takes to spread and finally its consequences (Rogers, 1995).

Different people adopt innovations differently. There are those who come up with the ideas, herein called innovators, then there are early adopters of the innovations who precede another group called early majority. Late majority then follow suit, leaving the laggards at the tail-end of the adoption of innovations process (Rogers, 2003).

This summary of adopter types serves to explain why it may take a while for ideas or information to diffuse within the farming community in Kuresoi North Sub-County. New Agricultural innovations relayed to the farmers in Kuresoi North Sub-County early enough and using the appropriate channels may increase agricultural productivity. Secondly, based on this theory, if a large number of small-scale farmers in the area of study are laggards or late majority and therefore do not adopt agricultural innovations as fast as they should, their agricultural productivity will remain low making it hard to reduce poverty among the farmers in the region.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section outlines procedures that were employed in data collection. It contains the research site and study population, the research design that was used, the population sampled, the sampling techniques, data collection and presentation methods and research tools to be used.

3.1 Research Site

This study took place in Kuresoi North Sub-County. This area is located in the Western part of Nakuru County and borders Kericho County on the Western and Northern sides in the larger Molo region.

3.2 Study population

The targeted population was both males and females of above 18 years of age and who were already engaged in farming activities within Kuresoi North Sub-County.

3.3 Research Design

This study employed an exploratory research design. This research design examines the research problem and offers insights into it without necessarily solving the problem in question. The flexibility of this design best fitted this study in that it allowed for the free flow of information and discovery of new knowledge, leaving room for further research. In exploratory research design, if the researcher is confronted by new ideas or insights,

he/she should be ready to change their direction as necessitated by any new information obtained (Saunders et. al., 2007). Kothari, (2004) writes that research procedure in exploratory research design is flexible and allows for amendment of aspects of the study due to the likelihood of discovering new aspects of the phenomena being studied.

3.4 Sample Size and Sampling Techniques

3.4.1 Sample Size

This research study sampled 8 key informants who were engaged in in-depth interviews and 36 participants who were engaged in Focus Group discussions making it a total of 44 participants.

3.4.2 Sampling Techniques

Non-probability sampling techniques were used in this study. Direct selection of participants who had the characteristics required for the study was done. The key informants in the study were purposively sampled while participants in the focus group discussion were conveniently sampled.

The key informants who were selected purposively included the following: The area Agricultural extension officer, the Minister in charge of the Ministry of Agriculture, Livestock and Fisheries in Nakuru County Government, two location chiefs within Kuresoi North Sub-County, three prominent farmers and one official from KARI.

Six groups of six participants each were selected using convenience sampling based on age, gender parity and geographical proximity with each and other engaged in focus group discussions.

3.5 Data Collection Methods

Qualitative data collection methods were employed in this study. They are in-depth interviews and Focus Group Discussions.

3.5.1 In-depth Interviews

In-depth interviews were employed in data collection using an interview schedule. Interview method, as stated by Strauss & Corbin (1990), enables striking of rapport with the participants thereby enabling the researcher to easily win their trust. This in effect becomes a necessary ingredient for the participants to freely express themselves and it also enables both verbal and nonverbal aspects of communication from the participants to be captured. This in turn makes it possible for holistic capturing of the responses from the sampled participants (King & Horrocks, 2010).

Eight key informants were interviewed for about fifty minutes each. To direct the interview process, an interview schedule was used. An interview schedule is a list of questions that are asked in an interview process (Kothari, 2004). The participants' views were recorded using an audio-recording device and field notes also taken.

3.5.2 Focus group Discussions

Focus group Discussions as a method of data collection involves engaging a group of up to 12 participants in a sitting thereby enabling collection of data from a fairly big number of participants at a go (Immy, 2005). This study engaged six focus groups of six people each from three out of four wards in Kuresoi North Sub-County. The participants were sampled using convenient sampling based on their having the desired characteristics required like age, whether they were farmers and their area of residence. To direct the discussion, an interview guide was used in data collection. The researcher moderated the discussion to ensure that all the participants got time to contribute and also to ensure that the discussion did not veer off from the questions in the objectives of the study.

3.6 Data analysis and Data Presentation Methods

Data analysis is the process used by a researcher to reduce data into a story and its interpretations (LeCompte & Schensul, 1999). Qualitative data analysis and presentation methods were used in this study. To enhance this process, Qualitative Data Analysis (QDA) Miner Lite software was employed. The analysis was grounded in an interpretivist perspective because of the negotiated meaning of social realities that obtain from qualitative studies. The data collected in the forms of field notes as well as audio recordings from this study were analyzed using thematic analysis.

Thematic analysis deals with identifying, analyzing and reporting of themes in a given data. It further interprets the various aspects of the topic of research (Braun & Clarke, 2006). The data obtained were assigned code names, categorized and ultimately arranged

into post-selected thematic areas. Key and recurrent themes in the data were then identified, noted down then concretized around the objectives of the study.

3.7 Ethical Considerations

Research in Social Science is guided by ethical standards that must be adhered to. These considerations include those that cover the researcher, the subjects of research and those that relate to the research procedure used (Mauthner, 2002). Misuse of privileges and plagiarism issues relate to the researcher while privacy and confidentiality relate to the subjects. Assurance of anonymity, care not to inflict psychological or physical harm to the subjects and informed and voluntary consent were adhered to in this study. Consent was obtained from the key informants and the participants in the FGDs to be audio recorded. Personal information that could breach the anonymity of the participants was never asked. All participants were assured that the information they gave was meant solely for an academic study and would not be used outside of it. A letter of introduction from University of Nairobi's School of Journalism was obtained before the commencement of the study.

Research aims at making knowledge available to all without concealing its findings. The findings from this study have been made available as required. Utmost academic honesty has been adhered to through proper citation of the sources consulted before, during and after data collection.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter deals with the findings of the research, the interpretations thereof and discussions in relation to the objectives of the study. Data was obtained through conducting key informant interviews and focus group discussions. Thereafter, it was analyzed to identify the role of participatory communication in poverty reduction among small scale Irish potato farmers in the research site.

The data was obtained from conducting a total of eight key informant interviews which covered officials from KARI, Ministry of Agriculture, Livestock and Fisheries in the County Government of Nakuru, area chiefs as well as three prominent farmers in the area of study. More data came from six focus group discussions conducted in three wards within the Sub-County.

The findings have been organized thematically into five key areas according to research objectives on knowledge levels of farmers, information access and challenges thereof, appropriate communication channels as well as the role of participatory communication in poverty reduction.

4.1 Knowledge levels of new farming methods

Knowledge levels of new farming methods remain wanting in Kuresoi North Sub-county. This study found out that while there were elements of knowledge of new farming

methods among some of the sampled farmers, majority of them though had little or no knowledge. Those who had did not obtain the information from an authority in the field of agriculture. While Rees et.al, (2000) found that agricultural officers were the major source of information to farmers, this study established that peers and the few successful farmers formed the bulk of the sources of new farming methods in all the three wards. And even so, some of these sources attributed their knowledge to trial and error that had been perfected through time and reinforced by agricultural radio programs in *Kass Fm*, a local radio station that broadcasts in Kalenjin majorly in counties within the Kenyan Rift Valley and online. This discovery is in tandem with what Rees et.al (2000) report in their findings on the types of information farmers needed. They argue that farmers need technical information the most. They need information to combat diseases, to identify types of seeds to plant as per different soil types and so on. This calls for prioritization and segmentation of information types dispensed to the farmers as argued by Siyao (2012) and Kalusopa (2005).

One prominent farmer mentioned that if the instructions of the manual for a given chemical used in protecting potato plants from extreme cold indicated that he should use 50 grams per a 20 litre *knapsack* sprayer, he would use 100 grams and since there was no visible negative effect on the crop, he had adopted this formula for managing cold in all his potato farms. Factors like literacy levels could have affected how the farmers chose to overuse chemicals and also fail to use protective gear while spraying their potatoes.

The issue of cost as stated by Williamson, (1998) was also noted to be at play as farmers argued that it would be too expensive for them to seek information in Agricultural shows and colleges within the larger Nakuru County.

The arguments presented by Oriakhi & Okoedo-Okojie (2013) on farmers' preference for information sources may explain why the application of the new farming innovations and techniques especially the use of chemicals to control pests and extreme weather conditions among Irish potato farmers in Kuresoi North Sub-County was found to be rudimentary. The sources, which are other farmers and reading of manuals, are cheap and easily accessible. In the absence of professional and reliable sources of information, farmers may resort to trial and error methods as found out in the study.

Social Cognitive Theory was found to play a key role in transference of new farming methods among the farmers, hence influencing how potato farming was carried out by these farmers. Majority of the sampled farmers used imitation and role models in their farming. The knowledge propagated however was widely mentioned by some farmers as not dependable since it mostly emanated from trial and error. When asked how he got new information on potato farming, the above mentioned prominent farmer, said:

> *I read instructions from the manuals in various chemicals and fertilizers. If the instructions indicate that 50 grams should be used for to prevent the effect of coldness, I use 100 grams instead.*

Considering that this was a prominent farmer whose farming techniques were copied by several other farmers in several villages, it is evident that new knowledge about management of cold and diseases among the small scale Irish potato farmers was misapplied. Since communication plays an important role in agricultural production as

Muyanga& Jane (2006) posit, the compounded effect of wrong information is poor crop amongst many farmers.

The availability of many choices of chemicals in the agro vet shops across the Sub-County presented farmers with another problem. Majority of them could not read and internalize the compositions of the various chemicals before choosing the best for management of diseases and cold in potato crops. Knowledge of the existence of preventive and curative chemicals in potato farming then did not present as a lacking but the lack was in the directions of use.

One farmer complained that they had been "bombarded" with a lot of chemicals that they did not know which ones were good. Two factors come into interplay here: the absence of dependable information sources as well as information apathy. The apathy as the study found out, is greatly attributed to the lack of marketing structures as well as poor road network within Kuresoi North Sub-County. Cogburn and Adeya, (1999) say as much; that the government and other stakeholders in rural Agriculture must invest in communication infrastructure for socio-economic growth to be realized.

At least one farmer in each of the focus group discussions conducted said that even if they applied themselves to getting new information, they were still going to be poor because there were middlemen who would buy their produce at throw away prices. This was mainly occasioned by the dirt roads in Kuresoi North Sub-County not being pliable especially when there were heavy rains. In the absence of sound frameworks from the national and county governments, farmers' sense of self belief and usefulness in

contributing further to the Agricultural sector goes down as evidenced by the responses to the questions below:

Q: Who are the stakeholders-(those who assist you) in your farming?

P5: There are no stakeholders.

P6: That is where there's a problem. We do not have any stakeholders here. In other crops like tea for instance, there are directors and so on. In potato farming, the only stakeholder I know is the broker who '*brokers me thoroughly'*. Even in marketing, we don't have anyone to tell us the quantity with which we can sell the potatoes. You find different bag sizes. There's no direction.

Q: Have you heard about KARI, ADC, and Ministry of Agriculture in your County Government as stakeholders in your Agriculture?

P1: They are far from us.

P2: We just hear about them. We don't get any assistance from them.

While the participants currently engaged in farming said they used fertilizers in their potato farms, wrong fertilizer use due to lack of directions on the right quantities to be applied was mentioned as a challenge. This was prominent because of financial as well as knowledge gap reasons. Two fertilizer types: DAP and CAN were mentioned as the ones being used by the farmers sampled. DAP was primarily used during planting and few farmers-the prominent ones only, said they applied CAN as top dressing. Neither the prominent farmers nor the other farmers knew the approved kilograms of fertilizer to be used per acre of potatoes. The average number of kilograms per acre of potatoes according to what farmers in at least two focus groups as well as all the prominent farmers *"had heard"* was 200 kilograms of DAP. This lack of apt knowledge also

extended to the soil PH in their farms. One of the chiefs said of farmers within his location:

"*Only two farmers around here have tested their soil. For the rest, they continue farming until the soil becomes totally unproductive."*

Both the farmers who had tested the soil on their farms had ended up planting trees after the soil was found to be too acidic to support any crops.The rest of the farmers did not know what the PH scale of their soil was and they had continually used DAP which had turned the soil acidic and "*sick*" according to the Agricultural Officer in the area. Traditionalism and being averse to change was cited as the bane of better agricultural production. An official from the Ministry of Agriculture corroborated this with the view that:

"Our people are hooked to DAP and they won't listen to us. We advocate for the use of TSP because the soil is acidic."

The levels of understanding of new farming methods were also a concern for the ministry of Agriculture in the County Government of Nakuru. Majority of farmers in Kuresoi North Sub-County were described as using *"trial and error"* methods of farming because they "*tend to think that farming is for everyone"*. The import of this statement is that while there could be new information out there, the basics of engaging in small scale farming are far from being mastered by the farmers. Farmers need to have some background information about farming in general before being made to make sense out of new methods of farming. The suggestion here is no more than a call for basic training on matters agriculture before farmers can be expected to actively seek information on new farming methods. This means that the Ministry of Agriculture which is charged with

assisting farmers better their Agricultural production ought to raise awareness among the farmers that Agriculture, just like any other profession, requires training.

4.2 Access to Information

In accessing information, there were two issues that played out during data collection. These are sources of information, which dictated the availability of the information and channels of accessing this information which dictated its accessibility.

4.2.1 Sources of information

This study found out that the extent of access to information depended on the sources of information. People, especially other farmers, were mentioned as the primary source of information by most of the participants. Some of the responses from two prominent farmers on the sources they get their agricultural information from were as follows:

Q: Where do you get your agricultural information?

PF1: Basically, I get information from people who are doing the same thing as me [*buying and selling of livestock*]. But I also get information from the radio. There are good programs I normally listen to.

PF2: I read instructions from the manuals in various chemicals and fertilizers. I also visit Agricultural Shows and other successful farmers. But mainly, I learn through continued practice of farming.

Those engaged in FGDs also had responses to their sources as follows:

Q: How do you access information relevant in your farming of potatoes?

P1: I see what other people do and try too.

P2: We use role models like Tesot and Arap Sang (Large scale farmers in Keringet area of Kuresoi South Sub-County).

P3: We use freestyle; we just plant.

P4: You just do it your way. There are no Agricultural officers.

P5: There is nobody who gives us information.

P6: I learn from other farmers what they have learnt through their trial and error.

Another group too had this to say:

Q How do you get information about farming of potatoes?

P1: We just plant.

P2: We use the radio at times.

P3: We copy from people whose crops do well.

P4: We read from instructions on chemicals used in spraying potatoes.

P5: We get it from agro vet shops.

From the quoted examples of responses on sources of information accessed by the farmers, it is evident that both the prominent farmers and the other participants engaged in this study have other farmers as their sources of information. This augurs well with the arguments advanced by Oriakhi & Okoedo-Okojie (2013) on the preference of sources of information. They point out that sources of information that are easily accessible, cheap and user friendly are preferred. However, it was noted that even without much prodding, the prominent farmers interviewed mentioned that they used more than one source of

information. Despite this observation, this study did not further pursue whether the multiple sources of information resulted in better agricultural production from the prominent farmers or that their being successful farmers predisposed them to more sources and channels of information.

Information sources with the exception of radios, for instance pamphlets, posters, TVs; ASK Shows were sparingly mentioned by the farmers sampled while the internet, journals, and books were never mentioned at all. The probable explanation for this is the issue of cost, which according to Williamson (1998) is quite burdening financially to the farmers. It may also be as a result of the literacy competence among the farmers.

Literacy, especially formal education among the farmers has been identified by Aina (2006) as a linkage between information resources and their access by farmers. The unpopular sources of information may not have been popular on account of the poor infrastructural and communication development in the area of study, which, as noted by Masuki et.al (2010) and Ellen (2003), hinder the delivery of information to farmers. The sources found to be unpopular with the sampled farmers however formed the main sources that were advocated for by officials from the Ministry of Agriculture who were interviewed. This showed that the absence of collaborative information flow led to the stakeholders in the Ministry of Agriculture prescribing the sources they deemed best to the farmers without engaging the very farmers so as to understand their needs. While there was knowledge of the existence of Agricultural colleges like Baraka in Molo, few farmers were affirmative they had accessed information from the college.

4.2.2 Channels used to access information

Several channels of accessing information were cited by the participants with a majority saying that they heard from their successful peers. There were however other farmers who indicated that they had no channels of getting information. This implies that these farmers never sought information or did not participate in any social discussions on matters agriculture and just planted their seed their own way. Without intrinsic motivation in such farmers, it is difficult to change their living standards because, as Lagerway (1990), says that people cannot be coerced to develop themselves. In one of the FGDs, some participants had these to say on how they access agricultural information:

P1: I copy what someone else does. If I see their crop doing well, I ask them how they planted it and the chemicals they used and I also follow suit.

P2: It is *trial and error*. Sometimes the crop does well, sometimes it fails.
P3: There is no information I get. I just do it *freestyle*.

Informal gatherings especially during evening hours at the shopping centres formed the bulk of the channels that farmers got informed. Word of mouth in these gatherings was the main channel through which information was shared. Visual outlook of crops in the neighbors' farms was quoted as a factor that prompted some farmers to ask the owners of the crop what seed type, chemicals and so on they had used. The study also found out that after harvesting, farmers who needed seeds would scramble to buy harvested potatoes that had been healthy looking while still growing at the farms, storing and using them as seeds later.

Bandura's Socio Cognitive Theory, which holds that people learn through modeling and imitation (Bandura, 1971), was found to be greatly at play among the farmers. The sampled farmers indicated that they learned from their peers mostly through modeling. Their imitation howeverdid not consider other factors that contribute to healthy looking crop and bumper harvest, for instance fertilizers and the right quantities to be used, curative and disease preventive chemicals as well as soil type.

Radio and TV use as channels of information were found to be sparingly used among the farmers. During both the FGDs and key informant interviews, observational learning coupled with spreading of information via word of mouth among the farmers were prominently mentioned. These channelsare cheap, free and/or readily available, which could explain why they were common among the participants.

Other channels that were mentioned especially by the chiefs included schools, where they relayed the information to the teachers for it to be announced to the pupils who would then transmit it to their parents who are small scale farmers. This channel was meant to inform the parents about upcoming *barazas* through which officials from the Ministry of Agriculture would come to train them or pass any other pertinent information. Village elders and church pastors were also noted as key channels through which information relating to agriculture was relayed to farmers.

4.3 Challenges of accessing information

Challenges to information access were many and diverse. For better analysis, these challenges have been categorized into those that are attributable to the farmers themselves and those that are as a result of other stakeholders' failures.

4.3.1 Farmers' individual characteristics

Information apathy was found to be a setback to farmers' ability to leverage on the existing information to improve their agricultural output. The major reason for this apathy was that there was lack of goodwill and sound legal structures from the governments both at the national and county levels to safeguard the welfare of the farmers and protect them from unscrupulous middlemen.

Ignorance was also cited as a major challenge to information access by farmers. A Ministry official put this in perspective, that *"out of ignorance, people don't come for barazas"* and that there was selective exposure to information where *"people dismiss the source of information because they don't like such sources, especially if they* [the sources] *are leaders like me."* Knobloch-Westerwick (2014) defines selective exposure as "any systemic bias in selected messages that diverges from the composition of accessible messages." Political leanings and partisanships therefore blinded some farmers to the value such information sources would have added to their agricultural productivity.

The selective exposure and farmers' apathy were found to have created a cyclic poverty situation. The resignation that some of the farmers sampled in this study had only meant that other factors held constant, they would remain poor for longer periods. The dependency syndrome where farmers waited for a *"miracle"* to happen as one of the area chiefs pointed out was very common among farmers in his area of jurisdiction. For instance, when meetings or *barazas* were called, few farmers showed up. But when the chief announced that there would be free beans or maize being shared out at the chief's camp, a multitude of people came for the freebies such that armed guards had to be called into manage the large numbers.

This pointed to a social problem where people fail to actively apply themselves to bettering their lives but waiting for a miracle either from the government or other parties. This social blockage of agricultural information flow was also reinforced by the failure of farmers to use their children who had gone to school even up to class 8 to read them the basic instructions for instance on directions for use of chemicals used to spray crops.

Poverty also emerged as a cause and product of poor access to information by the small scale farmers sampled in Kuresoi North Sub-County. That there was widespread poverty meant that few could afford to buy TV sets where they could watch programmes or even get time to follow programmes on the radio since, as is wont to happen, they were busy trying to put food on the table. This leads to little information appropriated by the farmers thereby bringing forth a poor harvest which again entrenches poverty.

4.3.2 Stakeholders

Other stakeholders in the field of agriculture in Kuresoi North Sub-County were cited by farmers as absent and therefore a letdown to their agricultural endeavors. Many of the farmers both in the FGDs as well as key informant interviews did not know of any stakeholder(s) and those who knew said they were not accessible. Considering that these stakeholders for instance the Ministry of Agriculture through the Agricultural or field officers formed key repositories of agricultural information (Oriakhi & Okoedo-Okojie, 2013), farmers were left to their own devices in matters information. Even then, the number of trained officers was too small and this was pointed out by the Minister in charge of the Ministry of Agriculture Livestock and Fisheries in the County government of Nakuru. On how the Ministry ensured information flow, the response went thus:

> *We use barazas to disseminate this information. We don't have enough teachers. Many farmers don't come to barazas because of different commitments. A quarter of the farmers may come. Those who come may not be beyond 30% and the information they are given may not reach the absent farmers in the way you want because it is now the third person delivering it. There is information breakdown. Information may not get to the right people at the right time.*

Large seed multiplying companies like ADC were also mentioned to be discriminating against small farmers as one of the farmers in an FGD stated that whenever they went to buy seeds at one of the ADC go downs in Molo, they were told that the ready seeds belonged to *"mkubwa fulani"or* "a certain big man". The established farmer, they added *"would plant even three times before selling us the seeds which should already be ready for disposal."*

How information flows from say Kenya Agricultural Research Institute to the farmers via the Ministry of Agriculture also came into focus during the research. KARI, as the study established, was not in any way under any obligation to disseminate information directly to the farmers as its mandate was basically research and subsequent advice to the Ministry of Agriculture and other parties who would in turn be charged with cascading the information for consumption by the farmer. This would be done through Agricultural or field officers.

Poor funding of the Ministries of Agriculture at both the County level and the perennial underfunding from the national government was blamed for the sparing and often muzzled information flow to the farmers. For instance, while the County Government of Nakuru had invested in employing Agricultural officers, the said officers lacked means of transport to go around the wards training farmers and offices as well. The motorcycles

provided were not being fueled by the ministry thereby making it difficult for the officers to deliver.

Lack of training materials like flipcharts, pens and notebooks further entrenched the wanting state of Agricultural information dispensation by the officials who at the time of the interview had been waiting for their salaries for two months. Employee motivation therefore affected the assistance that farmers would have received from the nearest source of credible information they had.

Information alone may not be the perfect antidote for a lackadaisical approach towards better agricultural production by farmers in Kuresoi North Sub-County. The stakeholders may have to deal with issues that include delivery of better infrastructural facilities to the region.

4.4 Appropriate communication sources and channels

In all the Focus Group Discussions and key informant interviews conducted, there was a general agreement on the most suitable communication channels to be used if farmers were to receive adequate skills. Foremost was the use of practical aspects like establishment of demonstration plots within villages as well as the establishment of an agricultural college within the Sub-County to act as a repository for information that farmers would visit from time to time to hone their skills.

The preference of demonstration plots was because farmers wanted to follow the process, ask questions and implement what they had learnt while at the same time using the demonstration plots as control experiments. They also wanted to track and understand good agricultural practices from land preparation, seed choices, fertilizers used all the

way through harvesting. When asked which method they preferred, one group had the following as their responses:

Q: Which methods of communication do you propose to be used to deliver information to you?

P1: There should be demonstration plots to help us know how to do things practically. That way, we shall understand.

P3: The ministry of agriculture should hire field officers for us so that they can teach us how to do farming properly.

P4: They should use politicians. If the area Member of Parliament or Members of County Assemble bring the information, many people will attend and they will get the information. Chiefs are known here to call for meetings on security and cattle rustling so people don't attend their meetings.

And yet another group had this to say:

Q: How should this knowledge (on good agricultural practices in potato farming) come to you?

P1: Soil should be tested first. Once soil has been tested, the agricultural officers should come to a farmer who is able, like me I have a tractor. Then I will plough the land and once ready they should call people and they all come with the requirements and we plant. Then they come during weeding and people should see how it is being done all the way through harvesting.

P2: Exactly. This old man has spoken well.

P3: That practical one is tick *kabisa*

P4: Radios are not good nowadays because they are being used for marketing by companies. As such demonstration farms are the best options

P5 With the help of agricultural officers, there should be rotational demonstrations, say this person's farm today, then another one, then another as farmers come and keep learning. We don't need big parcels of land for this. Only a small area is required. So you as the farmer also try in your farm so that when the control crop is ready, we compare the yields.

From these observations, vicarious learning emerged as the best avenue through which farmers in Kuresoi North Sub-County could get the information they needed for better agricultural returns.

4.5 Role of participatory communication in poverty reduction.

This study found out that there was a general preference of participatory communication to other forms of communication by the participants. In the Focus Group Discussions, some of the responses that were given include the following:

Q: In light of the technological innovations across the world, what is the ministry doing in terms of making these advancements reach the farmers?

PF2: We are now coming up with other things like clinics just like any other for human beings. Farmers are able to come with their infected plants.

Q: If there was participatory communication, where the stakeholders come and you join hands in a direct communication with the farmers, do you believe you will be assisted in your farming**?**

PF1: Yes. It would be very important. I will be able to be given answers to my issues immediately.

Based on the responses of the farmers engaged, participatory communication can work well if it is used within practical explanations context. Seeing the process of growing crops right from land preparation through harvesting is better that participating in a discussion where the real practical aspect of learning and teaching is absent.

Following from the discussions and interviews held, participatory communication can only work if farmers change their attitude towards learning. It was established that whenever *barazas* were called, few farmers showed up. This means that participatory communication could not involve a majority of the farmers. For this communication to work, farmers' perceptions towards attendance of meetings need to be changed.

Since organizing and carrying out participatory communication involves more stakeholders, the cost implication is lowered because many farmers can be reached at a go. The expenses which farmers would have incurred in search of information are reduced significantly.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter summarizes the findings from the research with respect to the objectives of the study, what these findings imply and gives recommendations for further research.

5.1 Summary

From the findings of this study, several key things can be deduced. It is evident that small scale Irish potato farmers in Kuresoi North Sub-County are not without agricultural information. Some information is available, but the credibility of this information is what forms part of the challenges the farmers face. Imitation of what is either seen or assumed to be working by a majority of farmers, coupled with their largely laid back attitude towards other aspects of potato farming for instance marketing is what makes the farmers poor. With a growing population in Kuresoi North Sub-County that is currently dependent on majorly potato farming and with small parcels of land, information on how to get the most out of these farms is critical to the farmers.

Challenges are, however, rife and as the study found out, different stakeholders in the field of Agriculture need to come together and reduce these challenges. Funding from the parent ministry of Agriculture will also go a long way in creating an enabling environment for information to flow through to the farmers and back to the policy makers in the ministry.

5.1.1 Farmers' knowledge levels

This study found out that the farmers' knowledge needs still need to be improved. With the bulk of information coming from fellow farmers, who, as the interviews and focus group discussions uncovered, are not themselves properly informed. Even the prominent farmers as the study found out, have been able to improve their farming through trial and error and they too are not informed on aspects for instance the quantities of fertilizers to be used per acre of Irish potatoes. Knowledge on the use of various chemicals in managing cold and warding off pests was cited as rudimentary since there were cases of farmers using more than the recommended quantities per acre of the crops. This led to abuse of chemicals which could lead to environmental pollution.

Traditional farming methods like farming of land till it is exhausted were also mentioned by the participants. This is despite the presence of organic fertilizers in the market as well as other methods that allow farmers to make manure using compost so as to replenish minerals in the land after crops have been harvested. As mentioned in one of the interviews conducted, farmers within Kuresoi North Sub-County do not take farming seriously. Farming is assumed to be an engagement that any other person can get into. But as established in the interview, farming requires some training on the side of those who would wish to venture into it, something that majority of those engaged in it have not done.

It was also evident that despite the fact that some fertilizer types making the soil too acidic, farmers did not internalize the import of the use of other fertilizers like TSP which was mentioned to be the most appropriate for reversing the acidity of the soil. The long term effect of too much soil acidity is that this may lead to low yields and finally acute

food shortage since crop farming is the mainstay of majority of families in Kuresoi North Sub-County.

Chief among the reasons why there was information breakdown was attributable to the farmers themselves as well as to the stakeholders, key among them being the ministry of Agriculture. A sizable number of farmers were found to be apathetic when it comes to information. They did not apply themselves to seeking and getting more information about seeds, crop husbandry, financing of farming and marketing of their produce. *Barazas* were poorly attended and such other events like ASK shows were not attended by most farmers.

Stakeholders too were found to be the major contributing factor in the breakdown of information. Rees et.al, (2000) mention that agricultural officers are the main sources of agricultural information but the Ministry of Agriculture failed to employ enough Agricultural officers and to adequately facilitate those already employed. As such, information from research bodies like KARI did not reach the farmers.

5.1.2 Access to Agricultural information

Information access by the farmers interviewed revealed two main issues surrounding it. First was the issue of the source of the information and secondly were the channels through which this information reached the farmers.

In terms of information sources, fellow farmers emerged as the main one. Those farmers whose crop had fared well were asked by other farmers about the fertilizers and the seeds they had used and then their methodology was copied. This source emerged as easily accessible as the fellow farmers lived with and interacted with them on a regular basis.

The few prominent farmers were also mentioned by some of the participants as the source of their agricultural information. The issue of costs incurred in accessing this information as Williamson (1997) is the key reason why farmers preferred this source of information.

While other farmers gave credit to agro-vet shops within the area as the source of their information, few mentioned that they used manuals on chemicals used in managing cold, weeds and diseases. Few farmers also mentioned that they used trial and error method and with time, they had built a base of knowledge that they applied in all their subsequent planting seasons.

The channels that were used by the farmers to access information included observational learning, where farmers observed what other farmers did and tried to replicate it in their farms. Informal gatherings at the shopping centres in the afternoons and evenings remained a widely mentioned channel by the participants while *barazas* were mentioned especially by the Ministry of Agriculture officials and the area chiefs interviewed. TVs and radios were mentioned albeit by few farmers as the channels though which they got agricultural information.

5.1.3 Challenges faced in accessing Agricultural information

Much of what ought to be changed for farmers to receive agricultural information lies with the farmers themselves. As established in the research, apathy to information occasioned by loss of hope in the agricultural sector by a majority of farmers is one of the reasons why information does not reach these farmers. A majority of farmers do not attend *barazas* called by the area chiefs either due to other commitments or pure ignorance as labeled in more than two interviews.

Traditionalism and lack of faith in the officers from the ministry of agriculture has seen farmers continue using DAP fertilizers despite a campaign by the ministry to make them turn to TSP. This traditionalism makes the farmers to form a barrier between them and the right information meant to aid them get better produce.

Stakeholders too are a challenge to farmers' quest for information. When the Ministry of Agriculture fails to employ adequate and skilled Agricultural officers, information regarding different aspects of farming is stifled. This in turn makes farmers fail to employ good agricultural practices due to lack of adequate knowledge. Information flow from the various agricultural information sources other than the farmers themselves need to be streamlined to mitigate information gaps among the farmers in Kuresoi North Sub-County.

There is an assumption, especially from the Ministry of Agriculture and its officials on the ground that farmers can make do with other sources of agricultural information for instance televisions, the internet, agricultural expos and so on. There is a wide gap between what the farmers are expected to do by the stakeholders when seeking information and what the farmers expect of the Ministry of Agriculture as far as cascading of information is concerned.

While the Ministry of Agriculture in the County Government of Nakuru advances a model of information-seeking which views the farmer as rational being capable of going to all lengths to get information, the farmers on the other hand expect the Ministry and other stakeholders to bring the information to them. This clash in expectations creates a gap in information flow. Both the Ministry and the farmer stand accused of not doing

enough in this case. Since the farmers are expected to seek information from a variety of sources and the Ministry of Agriculture expected facilitate access to some of the information, both share the blame if they fail to play their part.

5.1.4 Desired means of communication

This study established that the average farmer primarily used one source of information- other farmers around them. The copying of methodology and practices in their farming was rife with wrong information, some of which had been perfected through trial and error. The reason for the popularity of this means of getting information is because it is free of charge and easily accessible (Oriakhi & Okoedo-Okojie, 2013). In fact, as the study found out, farmers shared information during informal gatherings especially evening hours at the shopping centres with few actually visiting prominent farmers' plots for demonstrations and explanations on how they did their farming.

Use of demonstration plots was cited by participants as the most desirable method of passing information to them. They rooted for establishment of demonstration plots that could be used by the Agricultural officers to show them how to plant, tend and manage their crops till they harvest so that they could replicate it in their own farms.

Central in the most appropriate method of communication is the role of Agricultural or field officers. Farmers generally appreciated the role played by these officers both in passage of new farming techniques to them and in aiding increased production through passing sound information to them on the appropriate seeds, fertilizers and chemicals to be used on their crops.

5.1.5 Importance of participatory communication to the farmers

Smooth information flow from the various sources of agricultural information to the farmers was established as lacking. This was attributed to the failure by the stakeholders and the farmers to engage in participatory communication. The participants felt that a top-down communication model was not the best for them, rooting instead for a model that allowed them to see what was being done in form of demonstrations and being able to ask questions and receive answers promptly. As such participatory communication was found to be a sound mechanism through which farmers in Kuresoi North Sub-County would greatly improve their agricultural productivity.

Due to the lack of other methods of equally cheap and widely accessible participatory communication mechanisms like the use of model farms or demonstration plots, farmers failed to give further suggestions on what other means of participatory communication they would like to see used to help them in their farming.

Participatory communication was also mentioned as important to the stakeholders since it would allow for speedy identification and resolution of issues that farmers presented with.

5.2 Conclusions

Nakuru County, in which the area of study lies, has a poverty rate of about 44% (Government of Kenya, 2003). Considering that this region is endowed in rainfall and good soils (IFAD, 2010), such a poverty rate is quite high. This study purposed to establish how participatory communication could be used to reduce this poverty rate

hence improving the living standards in the area of study and as a case study, in other areas characterized by rich biodiversity.

In conclusion, information plays a key role in building small scale farmer's capacity to produce more and thereby reduce poverty. However, other factors like poor infrastructure and lack of sound marketing strategies aided farmers' continued stay poverty. If there was any importance attached to reduction of poverty in Kenya, more has to be done by the Ministries of Agriculture both at the national and county governments in terms of funding of the Agriculture sector. This funding should be directed at availing information, quality seeds, fertilizers and cheap credit to small scale farmers and facilitating those who bring this information to the farmers.

In addition to funding, this research concludes that efforts should be put in place to protect farmers from cartels that control the available markets. This, as many of the participants suggested should be done through establishment of, and subsequent education in Savings and Credit Co-operative Society movements. This way, marketing would be eased and cheap credit be availed to the farmers hence improving their living standards.

This study also concludes that there should be established regulatory bodies that are mandated to enforce laws governing marketing of Agricultural produce so as to ensure that the standards that are by law set as far as the weight of the sacks with which potatoes are sold are adhered to. This way, farmers will get value for their money and their labors.

5.3 Recommendations

This study recommends several things for policy makers to work on and some for further research as below.

5.3.1 Policy recommendations

Based on the findings of this research, several recommendations are made as follows. First, the government should take adequate funding of the Agricultural sector as the first step towards improving the living standards of small scale farmers. Funding was the main reason why there was poor information flow from bodies like KARI through the office of the county Director of Agriculture, field officers and ultimately to the farmers. Funding should therefore be adequate enough to allow employment and facilitation of more Agricultural officers to at least one per ward. Further, demonstration plots should be developed across each ward to increase and enhance information flow through increased farmer participation.

Through the National or County Governments, Agricultural colleges that stock books, journals and other materials on matters Agriculture as well as offering training to farmers at subsidized rates should be established in each Sub-county. These colleges will act as repositories for information on good agricultural practices as well as leveraging on the socio-cognitive behaviour of the farmers that make them learn better through imitation and adoption of what they perceive as bringing favorable produce.

Awareness should be created among the farmers so as to change their understanding of what poverty really entails. This study established that farmers with tens of acres of land, just as those with an acre or less hardly had enough to eat for the whole year. This

awareness will enable farmers with large pieces of land to change their dependency syndrome and maximize the use of their land and those with smaller plots to practice intensive farming.

There should also be established a body that protects farmers from exploitation by unscrupulous middlemen. This body will be mandated with ensuring that the potatoes are neither sold nor transported in bags that do not conform to the standard 110 kilograms.

This study further recommends that Agricultural officers be trained and their skills enhanced continuously so that they are abreast with new farming technologies that farmers can benefit from.

Potatoes, being perishable foods require that they are transported to the market as soon as they have been harvested. This may not be possible at times as witnessed during data collection where due to heavy rains, the road network was poor and vehicles carrying bags of potatoes regularly ran aground. This exposed farmers as well as buyers to losses. As such, this study recommends that cold rooms be established in central locations within the Sub-Counties where perishable food crops are produced so that when the road network is bad or when the market conditions are unfavorable, farmers can keep their produce for a while as they wait for the conditions to be better.

The value of sound communication infrastructure in development cannot be gainsaid. This study recommends that urgent action be taken by the concerned governments, whether National or County, to upgrade the dirt road that branches off from the tarmac at County Council junction through Sitoito, Kamwaura. Langwenda and finally re-joining the tarmac at Seguton to make it pliable in all weathers. The continued poor status of this

road was mentioned by a number of the participants as one of the reasons why they were still poor. As the only main road serving the area of study, the lives of many farmers within the central part of Kuresoi North Sub-county depended on it for delivery of their harvests to the market as well as for other economic and social endeavors.

There is need to help farmers form marketing and co-operative societies to enable them to sell their produce with ease and ward off brokers. Such outfits will also be able to advance soft loans to farmers. The National and/or county government, through the concerned ministry, should put measures in place to ensure that farmers are properly trained on how to establish and run SACCOs.

Finally, as a foregoing concern, participatory communication as established by the study has the ability to increase farmers' knowledge on Agricultural best practices. But knowledge without resources to concretize it is useless. There should therefore be concerted efforts from stakeholders in the field Agriculture to avail cheap credit to farmers especially the youth and womenfolk as an impetus to better Agricultural production hence poverty reduction. This should go in tandem with making seeds and fertilizers cheap and accessible to farmers.

5.3.2 Recommendations for further research

The scope of this study was limited to the role of participatory communication in poverty reduction in the area of study. As such, there are other factors that may aid in reduction of poverty among small scale farmers in Kuresoi North Sub-County. Poverty, being one of the three issues that immediate post-colonial Kenyan government purposed to eradicate, and noting that it still remains a major problem today:

i) There is need to establish, through a long-term study, the extent to which participatory communication can reduce poverty.

ii) Since the study focused on Irish potato farming among small scale farmers, comparative studies need to be done on how participatory communication can reduce poverty among small scale farmers with a leaning towards non-perishable crop farmers and livestock keepers.

iii) In its findings, this study noted that peers and neighbors formed the bulk of information sources while world of mouth and vicarious learning were the main channels. This study recommends that further investigations be done on how the use peers and neighbors amongst small scale farmers can be incorporated in communication strategies aimed at improving information flow among small scale farmers.

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APPENDICES

APPENDIX 1: Interview schedule for the Minister of Agriculture, Livestock and Fisheries, the County Government of Nakuru

1. You are the Minister for Agriculture, Livestock and Fisheries in the County Government of Nakuru. What role does the Ministry play in poverty reduction among Irish potato farmers in this County?
2. Technological advancements and new farming methods have been shown to improve Agricultural production across the world. How would you rate Nakuru County in terms of knowledge levels of new farming methods as far as Irish potato farming is concerned?
3. Following from your answer above, has the Ministry commissioned any studies on the same?
4. From the Ministry's point of view, please explain the level of access to information on Irish potato farming by farmers in Kuresoi North Sub-County.
5. What challenges, if any, do Irish potato farmers face when accessing this information? Please explain.
6. What challenges does the ministry face in dispensing this information to farmers?
7. In your opinion, which is/are the most appropriate information channel(s) among potato farmers within Kuresoi North Sub-County?
8. Following from this interview, what would you say is the role of communication in poverty reduction among Irish potato farmers in Kuresoi North Sub-County?
9. I appreciate your taking time to respond to these questions. Is there anything else you would like to add?

APPENDIX 2: Interview schedule for farmers

1. Knowledge levels of new farming methods

a) Do you practice Irish potato farming? If yes, for how long practiced this farming?

b) What knowledge do you have about Irish potato farming?

c) In the period you have been practicing the growing of this crop, what procedure have you been using?

d) Please tell me about your land preparation, choice of seeds and where you get these seeds. Do you use any fertilizers? Which one/s? How do you control weeds and/or pests?

e) Do you have reasons why you choose the above? Please explain these reasons.

f) Since you began practicing Irish potato farming are there are new ways of farming this crop that you have adopted? Please explain.

2. Information access

    a) How do you access information on Irish potato farming?

    b) Do you actively seek this information or you wait for this information to be brought to you?

    (If you do wait for information to come to you, who brings it and through which means?)

3. Challenges in information access

a) Do you have or do not have any challenges when accessing this information? Please explain.

4. Appropriate channels of communication

a) In your opinion, which is/are the appropriate information channel(s) available to you as an Irish potato farmer within Kuresoi Sub-County?

5. Role of participatory communication
    a) Do you think you are involved in communication around Irish potato farming by the different stakeholders at the moment?
    b) What would you say are the advantages you will gain as an Irish potato farmer in Kuresoi North Sub-County through participatory communication?
6. I appreciate your taking time to answer my questions. Is there anything else you would like to add?

APPENDIX 3: Interview Guide for FGDs

Q1: Do you all grow Irish potatoes?

Q2: How long have you been growing Irish potatoes?

Q3: How would you compare the methods you used to use when you began farming and those you use today? Kindly explain the difference if any.

Q4: How do you access information on Irish potato farming? What are your sources and channels?

Q5: In you quest for information, which stakeholders do you engage with?

Q6: What are the challenges you face in accessing this information?

Q7: What would you say are the most appropriate channels of communication for you?

Q8: If stakeholders in the field of Agriculture and you as farmers interacted regularly in various platforms, what would happen?

APPENDIX 4: Interview schedule for Agricultural Officer, Nyota Ward

Q1: You are the agricultural officer in Nyota ward. Are you under the National or County Government?

Q2: What would you say is general role of the Ministry of Agriculture, you being its representative in this area in reducing poverty?

Q3: Do you have any understanding of the challenges that farmers face around here? Is there any background knowledge you got before you came?

Q4: What are some of these challenges?

Q5: Food security must not necessarily be a factor of infrastructure. There are other issues like having a balanced diet and so on and so forth. Infrastructure does not come in here. How do you tie the two?

Q6: Would you say there is enough food to eat in Kuresoi North Sub-County?

Q7: There are new technological advancements the world over. What do say are the technological advancements being given to farmers in Kuresoi North Sub-County to improve their production?

Q9: If the Ministry wants to deal with poverty reduction, why can't it get things right on the right seed?

Q10: Pesticides are products of technology. How do farmers around here get to know how to use pesticides?

Q11: What is the frequency with which you train the farmers?

Q12: Would you consider starting demonstration farms? Why?

Q13: How can farmers get their issues to you? You have mentioned that you don't have an office.

Q14: In your own opinion, what would you say is the level of access to information by small scale farmers in this area?

Q15: Would you say their level of knowledge is enough to transform this region to a better agricultural region?

Q16: Do you have challenges when teaching the farmers-when dispensing information when dealing with these farmers?

Q17: What is your methodology in dispensing this information?

Q18: What materials would you need for your training?

Q19: Do you believe there are other communication channels you can be given, other than going to the farmers, that you can use to train the farmers?

Q20: Is there any participation in giving information to farmers/ is there a point of confluence where the farmers and other stakeholders can meet and exchange ideas, learn and be taught, ask questions and so on? Is the dispensing of information a top-down thing?

Q21: What are the optimum levels of potato produce per acre?

Q22: Are there legislations you know of that regulate the size of the bags? Q23: Is there anything you would like to add?

APPENDIX 5: Interview Schedule for Area Chiefs

Q1: Based on your knowledge as the area chief, would you say new farming methods arising from new technological advancements are being used within your area of jurisdiction?

Q2: What would you say is the role information in the choice of farming methods by small scale farmers in this region?

Q3: Poverty reduction is a concern for many stakeholders in the field of Agriculture. As the area Chief, what is your role in poverty reduction in this area?

Q4: How do farmers within your area of jurisdiction access agricultural information?

Q5: In your opinion, what would you say are the most appropriate channels of communication for the small scale farmers here?

Q6: Are there stakeholders in the field of agriculture that your office is aware of and who have been dispensing agricultural information in this area?

Q7: What are the challenges faced in accessing agricultural information by farmers in your area of jurisdiction?

Q8: If stakeholders in the field of Agriculture and you as farmers interacted regularly in various platforms, what would happen?