EFFICIENCY OF FARM CONCERN INTERNATIONAL’S COMMUNICATION STRATEGIES IN PROMOTING AFRICAN INDIGENOUS VEGETABLES:

A STUDY OF FARMERS IN LARI SUB-COUNTY

BY

JAMES KIMANI KURIA

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NOVEMBER 2015
DECLARATION

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Signature ........................................... Date ...........................................

JAMES KIMANI KURIA

REG. NO. K50/67529/2015

This research project has been submitted with my approval as the university supervisor.

Signature ...........................................Date ...........................................

LEAH MUCHEMI

SUPERVISOR
DEDICATION

This work is dedicated to these great people; my wife Tabitha Wanjiku, son Danson Kuria and my dear parents Danson Kuria and Ann Wairimu. I will forever remain grateful for their financial, material and emotional support.
AKNOWLEDGEMENT

I am greatly indebted to the Almighty God for granting me good health, finances and interest to successfully complete this work. Special thanks to my supervisor Leah Muchemi for her invaluable dedication, comments, guidance and encouragement towards my success.

I also register special thanks to my beloved brother John Wambugu whose encouragement and financial support contributed greatly to the completion of my study.

This work would not have been completed without support in data collection by Kabunge Commercial Village members in Lari Sub County Mr. John Muiya, coordinator Mr. John Njenga, Samuel Gitau, Joseph Muiya and John Gicheha.

To my fellow colleagues Ngumbo Njoroge, Jennifer Thuita, Michael Mwangangi, and Caroline Munyi for sharing knowledge in class work and research. Thank you and God bless you all.
ABSTRACT

The study analyses the efficiency of communication strategies used by Farm Concern International (FCI). To unearth this aspect, the study’s objectives focused on investigating the rate of production, consumption and commercialization of African Indigenous Vegetables (AIVs) before and after the implementation of a five year project dubbed DoHoMa (Domestic Horticultural Market). The study used both quantitative and qualitative research designs and used purposive sampling followed by random sampling to select 100 farmers from the five villages in Lari Sub County. The data was gathered from primary source through the use of structured questionnaire for both quantitative and qualitative. The data was then processed and presented by use of graphs, tables and pie charts and analyzed by use of descriptive analysis. The study used two theories, Rational Argumentation Theory propounded by Cragan and Shields (1998) and Transtheoretical Model (TM) by Prochaska, Johnson and Lee (1998). The study found out that the rate of AIVs production has increased since the implementation of DoHoMa Project with most of the farmers setting aside over eighth an acre piece of land. The rate of consumption has also increased with majority of farmers eating AIVs on a daily basis due to their higher nutritional value. Only a few who consumed the value chain three to six times in a week. The rate of commercialization is currently high with majority of farmers earning between shs5,000 to shs15,000 per month. Majority of farmers sold AIVs to Uchumi Supermarket. The findings also indicated that FCI majorly used two forms of Ora-Media, barazas and demonstrations, to promote production, consumption and commercialization of AIVs. However, a bit of Use of projector was also used but no form of main stream media or internet and drama was used. The study recommends the following agriculture based NGOs need to use more of demonstrations than barazas because most of the farmers have basic education. The Ministry of Agriculture need to facilitate farmers to dig boreholes to enhance irrigation during dry spells. NGOs need to incorporate other forms of communication like mainstream media and internet to train farmers on agricultural practices. NGOs need to liaise with financial institutions to train farmers on financial literacy and facilitate them make savings to enhance production. Also, there is need for more campaign by NGOs and other gate keepers like the media, government leaders and local leaders to enhance increased production of AIVs. In conclusion, FCI communication strategies are fairly efficient in promoting AIVs since farmers preferred use of demonstrations to barazas.
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### Acronyms

**NGOS** – Non Governmental Organizations

**AIVs** – African Indigenous Vegetables

**TAVs** – Traditional African Vegetables

**ALVs** – African Leafy Vegetables

**FCI** – Farm Concern International

**SHF** – Small Holder Farmers

**DoHoMa** – Domestic Horticultural Markets

**CV** – Commercial Village

**CVM** – Commercial Village Model

**IPGRI** – International Plant Genetic Resource Institute

**SSA** – Sub-Saharan Africa

**RAT** – Rational Argumentation Theory

**TM** – Transtheoretical Model

**CMs** – Community Mobilizers

**EWs** – Extension Workers

**RMs** – Regional Managers

**MHH** – Male Headed Households

**FHH** – Female Headed Household
1.0 CHAPTER ONE: INTRODUCTION

Non-Governmental Organizations (NGOs) play the subsidiary role of informing the intended audience about their project ideas, objectives, benefits and progress before and after the implementation of any project. This is in a bid to mobilize the intended beneficiaries to accept the idea and give the support required. As a result, the NGOs have a role to use appropriate means and ways of communicating to people and ensure their plans get maximum support intended.

However, the success of this role is not altogether clear but this study aims to explore the measure of success achieved by FCI in implementing a five year project in Lari Sub County. The indicators of success would be an increased rate of AIVs production, consumption and commercialization among the smallholder farmers who are the beneficiaries of the project.

NGOs use various communication strategies that facilitate them deliver on programme objectives. The type and nature of communication strategies undertaken, however, determine whether the message reaches the intended audience and if it causes the intended impact. The idea behind the strategies used and whether they result to effective communication to the intended audience forms the basis of this research study.

In this study, the information under scrutiny concerns the nutritional and economic benefits of African Indigenous Vegetables (AIVs). Odhav et al., (2007) notes the availability of a wide variety of indigenous vegetables and fruits found in Africa which are chief sources of nutrients, vitamins, antioxidants, minerals, and proteins. In addition, he points out that indigenous
vegetables and fruits represent inexpensive but high quality nutrition sources for the poor segment of the population. According to Onyango (2002), African indigenous vegetables reward enormous economic benefits to actors along the value chain.

However, AIVs in spite of such benefits have been neglected and considered as weeds and poor man’s diet for a long time in Africa. Mnzava (1997), observes that the introduction of exotic vegetables in mainstream agriculture have seen these vegetables only used during famine and by the poor. Their role in food security and nutrition is yet to be fully exploited.

As a result, some Agriculture based NGOs like Farm Concern International have taken up the task to promote AIVs through sensitizing the populace on the nutritional and economic benefits in Sub-Saharan Africa where AIVs grow freely as weeds. The study will therefore unearth the extent FCI has managed to promote the production, consumption and commercialization of AIVs based on the fact that their economic and nutritional benefits are rewarding. The indicators of success will be an increased acreage of production, consumption and commercialization at household level among the smallholder farmers in Lari Sub County.

1.1.0 BACKGROUND OF THE STUDY

1.1.1 About Farm Concern International

Farm Concern International (FCI) is an Africa-wide market and agriculture-based development Agency in Africa which majorly focuses on commercialization of smallholder farmers and agro-pastoral communities in Africa. The organization trains and informs farmers on emerging technologies, market trends and business concepts that add value to smallholders’ livelihoods.
“FCI develops modern marketing concepts and building business relationships through strategic alliances to enhance competitiveness in the market place, economic growth, sustainability and profitability of Agro enterprises in various countries of Africa,” (FCI Annual Report, 2013:5).

Most of the major objectives FCI aims to achieve revolve around promoting nutrition, commercialization of smallholder farmers, environmental conservation, training on emerging technologies and financial literacy, mobilization and linking farmers to viable markets. A case in point is a five year project dubbed Domestic Horticultural Market (DoHoMa). The project is funded by Bill and Melinda Gates and implemented by FCI across the four countries in Africa which include Kenya, Tanzania, Rwanda and Malawi.

DoHoMa was designed for domestic market mainstreaming with a focus on Traditional African Vegetables (TAVs), Bulb Onion and Irish potatoes based on lessons learnt in various pilot phases in the region implemented by FCI. The project predominantly targets domestic markets, while regional markets are a secondary target market. The project is implemented through the Organization’s leading model of Commercial Village, developed and implemented by Farm Concern International. “Through this model, FCI aims at building efficiency by streamlining farm-gate to market system which ensures the farmer end up being the major beneficiary,” (FCI Programme Briefs, 2013:2).

“In Kenya, DoHoMa project is implemented in Kiambu, Kieni and Meru regions. The target commodity value chains for commercialization are TAVs, red bulb onion and Irish Potatoes,” (FCI Programme Briefs, 2013:3).
The project is in its final year phase and would be used to benchmark the ability of FCI to communicate important messages for the programmes it implements to beneficiaries. FCI is located in Nairobi Kenya, KARI Campus along Waiyaki Way.

1.1.2 Agriculture and Production of AIVs

Research done by Salami (2010) shows that the four East African countries; Ethiopia, Kenya, Tanzania and Uganda can be characterized as agriculture-based, that is, agriculture is the backbone of these economies. The researcher also notes that agriculture is dominated by smallholder farmers who occupy the majority of land and produce most of the crop and livestock products. However, the key long-standing challenge of the smallholder farmers is low productivity stemming from lack of access to markets, credit, and technology, in recent years compounded by the volatile food and energy prices and very recently by the global financial crisis.

Abukutsa (2009) concurs with the idea that, farming in Kenya is typically carried out by small scale producers that account for over 70% of the total production. She further observes that the horticulture sector has grown in the last decade to become the most vibrant industry and a major foreign exchange earner, employer and source of food in the country. The sector employs millions of people directly and indirectly, majority of them being women.

Rosegrant & Hazell, (2000) also observes that, small scale farmers foster agricultural growth and improves productivity and thus effective in reducing poverty and hunger and raising rural living standards, as demonstrated in large parts of Asia during the Green Revolution.
1.1.3 Indigenous Vegetables

Indigenous vegetables are those vegetables whose natural home is in a specified region (Maundu, 1997). There are more than 45,000 species of plants in sub-Saharan Africa of which about 1000 can be eaten as green leafy vegetables which happen to be the mainstay of traditional African diets (MacCalla, 1994).

Indigenous and traditional are words used here to describe leafy vegetables that have been part of the food systems in sub-Saharan Africa for generations. Indigenous leafy vegetables are those that have their natural habitat in Sub-Saharan Africa while the traditional leafy vegetables were introduced over a century ago and due to long use, have become part of the food culture in the sub-continent (Smith & Eyzaguirre, 2007).

1.1.4 Types of AIVs under research

Examples of AIVs found across Eastern Africa include African nightshade (Solanumscabrum), spider plant (Cleome gynandra), vegetable amaranth (Amaranthushybridus), slender leaf (Crotalaria brevidens), jute mallow (Corchorusolitorius), vegetable cowpea (Vignaunguiculata) pumpkin leaves (Curcurbitamuschata) and African kale (Brassicacarinata) among others (Abukutsa-Onyango et al., 2006). These are the vegetables that are the focus of this study.

1.1.5 Negative perception towards AIVs

However, AIVs have been one of the diets usually neglected by most people in the society as they are considered as poor man’s crop. AIVs are therefore left to be grown and consumed by smallholder farmers in rural areas while majority go for exotic varieties such as kales, spinach and cabbages to supplement their diets with vitamins thus missing the nutritional value that goes with these indigenous vegetables.
The International Plant Genetic Resource Institute (IPGRI - now Bioversity) has been involved with the promotion of African Leafy Vegetables (ALVs) in Sub-Saharan Africa (SSA) since 1995 (IPGRI, 2004). However, much of the attention has been paid to seeds while green leafy vegetable sources have, to a large extent, been neglected (Yadav & Sehgal, 2004). The neglect has to a larger extent due to populations of Africa having negative perceptions of ALVs and this has led to low levels of consumption, causing poor nutrition status (Obel-Lawson, 2006).

1.2.0 PROBLEM STATEMENT

Lewis and Opoku, (2006) suggest that most studies are biased on environments in which NGOs operate in. They rather fail to focus and address the organizational attributes and structures. The two scholars did not encompass the communication strategies used by NGOs. Instead, they emphasized the need to strengthen the general field of NGOs research by (a) forming a stronger connection with social science theory and (b) embedding organizational analysis within a more detailed examination of institutional and policy contexts. Thus, none of the researches conducted has attempted to investigate the efficiency of communication strategies used by agriculture-based NGOs in promoting the production, consumption and commercialization of African Indigenous Vegetables.

AIVs, in spite of their higher nutritional and economic value have an image problem and have faced a myriad of challenges. Some of them include: low awareness of their nutrition potential, perception as poor man’s crop among farmers, lack of quality seed, technical production, utilization packages and poor marketing system among others (Onyango, 2002b). Onyango et al., (2005) adds that AIVs have been neglected for long by researchers, policy makers and funding agencies. As a result of this neglect, many of these vegetables are facing extinction yet the communities in the region continue to languish in malnutrition and poverty. The study will
therefore investigate the FCI’s ability to promote AIVs among smallholders’ through the NGO’s subsidiary role of communication.

A research closely related to this study was done by Shaheen (2012) but only focuses on the existing communication strategies used by NGOs for community mobilization and suggests some effective and improved communication strategies that can be used for community mobilization. His study, however, did not examine the efficiency of communication strategies used in community mobilization, thus making his research study too general.

Shaheen, (2012) points out that most of the NGOs use both verbal and nonverbal methods to convey their messages through community mobilizers but they find verbal communication more reliable and effective as it is simple and easy to communicate with common people in the mobilization process.

It is on this basis this study is formulated and will look into the impact the DoHoMa project had in Lari Sub County, as one of the areas it was implemented in Kenya by Farm Concern International. The indicators of efficient communication strategies used would be an increased production of AIVs, increased financial income and increased rate of consumption at household level among the smallholder farmers.

1.3.0 PURPOSE OF THE STUDY

The purpose of the study is to evaluate the efficiency of communication strategies used by FCI. This will help the researcher determine the appropriate strategies that can be used by other related agriculture-based NGOs in spreading information to the target audience.
1.4.0 RESEARCH OBJECTIVES

i. To identify the rate of AIVs production in terms of acreage.

ii. To assess the households’ rate of AIVs consumption.

iii. To evaluate the AIVs’ rate of commercialization.

iv. To determine the efficiency of communication strategies used.

1.5.0 RESEARCH QUESTIONS

i. What is the rate of AIVs production in acreages?

ii. What is the households’ AIVs rate of consumption?

iii. What is the AIVs rate of commercialization?

iv. Was the communication strategies used efficient?

1.6.0 RATIONALE AND JUSTIFICATION

Farm Concern International has a five year project that is coming to a close in October 2015 and deals with promoting AIVs which covers my area of study. The study is thus meant to uncover the communication strategies used by FCI in improving the image of AIVs among smallholder farmers and also determine whether such methods achieved the fore stated goals of the project. Some of the project goals were to improve production, consumption, commercialization as well as increase farm gate value by 30% for AIVs among the smallholder farmers in Kiambu, Kieni and Meru Counties in Kenya (FCI Programme Briefs, 2013).

FCI was preferred by the researcher because it is an Africa wide market development agency which covers over 15 countries in Africa. The results gotten would therefore represent a huge pattern of communication strategies used by agriculture based NGOs.
The findings and recommendations of this study will help FCI, Ministry of Agriculture at county and national level, community based organizations and other agriculture based NGOs to streamline their communication strategies in programmes implementation to the projects beneficiaries.

1.7.0 SCOPE AND LIMITATION

The research was conducted in Lari Sub-County in Kiambu and focused on the rate of AIVs production, consumption and commercialization before and after the implementation of DoHoMa project among the smallholder farmers. This helped to determine whether FCI through the DoHoMa project was able to convince farmers on the nutritional and economic value of AIVs. The findings therefore identify and determine whether the communication strategies used were efficient and recommends some alternatives in perfecting the same.

The study was hampered by inadequate finances and thus limited to cover other regions like Kieni, Meru and the larger Kiambu County where the project was implemented.
2.0 CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Literature review play an important role in research since it helps one acquire an understanding of the topic; through reading relevant literature to ones area of study, how it has been done and key issues on it (Hart, 2005).

This helps one understand previous researches thereby knowing the main theories in the subject area, how they have been applied and developed as well as the criticism made on the work about the topic, which creates expertise in the field (Mugenda and Mugenda, 1999).

In this study, the literature provided would assist the researcher investigate and fill the gap in the communication strategies used by agriculture-based NGO’s in promoting the production, consumption and commercialization of AIVs. To achieve these objectives, the study will investigate the rate of each activity before and after the implementation of the DoHoMa project so as to determine the measure of success attained.

2.2 Production of AIVs

Ekesa et al., (2009) enumerates the advantages of AIVs as having short production cycles, requirement of a few purchased inputs, thriving in poor soil, resistance to pests and diseases, and are quite acceptable to local tastes.

African Leafy Vegetables (ALVs) are well suited to the small plots and limited resources of village families and produce high yields with strong nutritional value (NRC, 2006). ALVs besides being economical to produce have the added advantage of possessing other desirable traits nutritionally such as high vitamin content (vitamin A and C), fiber and minerals. ALVs can therefore support rural, peri-urban and urban populations in terms of subsistence and income
generation, without requiring huge capital investments (DFID and R4D, 2010). This is especially so for the resource poor women and men farmers with low capital investments (Mwaura, S.N. et al., 2013).

However, a study carried out by Farm Concern International and IFPRI between June and July, 2011 in Kiambu County, shows an increase of production and consumption of AIVs especially in Kiambu which has been attributed to various technical supports offered to Male Headed Households (MHH) and Female Headed Households (FHH), (S.N. Mwaura et al., 2013).

Technical support for ALV farming is the support provided to ALV farmers directed specifically to ALV production. This support includes, seed supply systems, value chain intervention, promotion and awareness campaigns carried out by community based organizations like IFPRI and Farm Concern International. Out of the 55 MHH, 67.3 percent had no access to technical support for ALVs farming, while 32.7 percent had. And out of the 28 FHH, 64.3 percent had no access to technical support, while the remaining 34.7 percent had access to technical support (Mwaura S.N. et al., 2013) as shown in table 1 below. This indicates the extent of AIVs neglect by the Ministry of Agriculture and other responsible stakeholders in ensuring proper and optimum production.

**Table 1: Access to technical support services.**

<table>
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<th>Access to technical support</th>
<th>MHH (%)</th>
<th>FHH (%)</th>
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<tr>
<td>YES</td>
<td>32.7</td>
<td>34.7</td>
</tr>
<tr>
<td>NO</td>
<td>67.3</td>
<td>64.3</td>
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*Source: 4th International Conference of the African Association of Agricultural Economists, September 2013 pp. 22-25.*
However, the increased production of AIVs has been attributed to increased consumer demand. Mwaura S. (2013) observes the increased demand resulting from AIVs entering the supermarket chains and other lucrative markets which result to better incomes. As a result of increased demand, there has been a tremendous increase in the production of ALVs in Kiambu district.

Empirical studies by Udoh and Etim (2006a) document that for farmers to optimize production, available resources must be utilized as efficiently as possible and being managers of land, farmers need to manage problems arising from deteriorating natural resources.

2.3 Consumption of AIVs

The information on the importance of adopting AIVs both for commercial and domestic consumption need to be transmitted effectively so as to produce positive results. As stated earlier, AIVs need to be promoted so as to wipe out the negative perception that majority of people have. The use of the word “poor” taints the image of AIVs, thus calling for a spirited joint campaign in Africa to sensitize the populace on the importance of AIVs. It would be appropriate if such campaigns would be spearheaded by different gate keepers like the researchers, media, academicians and community leaders to create a great and quick needed impact (Kabuye et al., 1999).

Taruvinga and Nengovhela (2015) further cite the degree of urbanization, seasons and poverty status as other factors that hamper the level of consumption. They also identify lack of awareness of these vegetables, westernization, negative attitudes and poor taste as the most quoted reasons for the decline in consumption. On a positive note however, the two scholars suggest that ALVs
are believed to contain significant levels of diverse micro and macro-nutrients essential for human health capable of addressing nutritional needs of rural households.

Odhav et al. (2007) points out that indigenous vegetables and fruits represent inexpensive but high quality nutritional sources for the poor segment of the population. Since many indigenous food plants grow wild, they are accessible, they can be collected freely and are thus available to everyone, including the poor.

2.4 Commercialization of AIVs

In Kenya, horticulture production (especially vegetables) is an important source of income for smallholder farmers, who often account for more than 70 percent of the output (McCulloch and Ota, 2002). This is because horticulture has higher returns than most cash crops and is suitable for production on small and marginal farms in varying climatic conditions (Minot and Ngigi, 2004). The main vegetable crops grown by smallholder farmers for both subsistence and commercial purposes in Kenya include cabbages, tomatoes, kales (sukuma wiki), onions and indigenous vegetables commonly referred to as African Leafy Vegetables (ALVs) such as amaranth (Omiti et al., 2004).

ALVs have increasingly become important commercially in Kenya over the last 15 years where they have increasingly featured in both formal and informal markets in Nairobi and its neighbouring areas. Before 2000, ALVs were to be found only in the back-streets and in a few open-air markets. However since then ALVs have become a common occurrence in most supermarkets, where they are sold in increasing quantities. The city and its peri-urban areas are
also dotted with grocery shops in the main shopping areas, as well as retail kiosks that also stock various types of the ALVs (Irungu et al., 2007, Otieno et al., 2009, Maundu et al., 1999).

Among the key peri-urban production areas in Kenya is Kiambu district. Sales of ALVs in Kiambu district rose from less than 31 tonnes per month in 2003, to more than 600 tonnes per month in 2006. It is estimated that approximately 9000 tonnes of ALVs have been sold to formal and informal markets in the period between 2008 and 2010 in central Kenya (AVRDC, 2010).

ALVs have gained commercial importance over the past 15 years as a result of the enormous growth in marketing (Irungu et al., 2007). This growth is attributed to increased consumer demand for ALVs. The increased demand has resulted to ALVs entering the supermarket chains and other lucrative markets which result to better incomes (FAO 2012).

2.5 Communication strategies

Nawabi, (2005) states that a proper communication and information flow in NGOs is key to effective and efficient translation of their strategic aims and values into their programme activities. He further observes that, communication is essential in fostering community development; that with good communication strategies, community members would take ownership of development initiatives in their hands and that good and effective communication would foster community development.
“Community Mobilizers (CMs) and Extension Workers (EWs) [working with NGOs] are used as focal point to introduce Partner’s programs and projects to communities. Interaction between CMs and EWs with technical staff at the field level is regular,” Nawabi, (2005, P.5).

NGOs have also adopted the emerging technologies to cut down unnecessary cost and time wastage in communicating both internally and externally. Internal communication is the exchange of information within the organization while external communication takes place between the organization and the outside world that includes the project beneficiaries (Nawabi 2005).

2.5.1 Use of internet/Email and website

NGOs using Internet not only benefit themselves, but can also benefit the communities that they work with. This could be done by downloading and distributing information relevant to their target beneficiaries. Partner NGOs in Afghanistan in the last two years benefited greatly from their use of the Internet/email through reduced transmission costs, access to new and relevant information, and greater contact with their own offices and partner organizations (Nawabi 2005).

Nawabi (2005) further suggests that a website is another means of communication used by NGOs. He views a website as important because it acts both as source of information and communication especially for the organizations outside the country. He however suggests that the organization must develop a mechanism to regularly update and promote this site.

Once a community needs are identified and terms of partnership agreed upon, the technical staff of a particular program is introduced to the community to carry out further activities. From that
point onward, there seems to be a regular interaction between the CMs/EW and the communities, with the technical staff visiting communities as well. When planning a project for a community, the technical staff also relies on information provided by the Regional Managers (RMs) and CMs/ EWs, including their overall view (Nawabi 2005).

This suggests that communication between an NGO and the programme beneficiaries is systematic and involving. It calls every stakeholder on board so as to establish a rapport among the parties involved in project implementation by defining and redefining the objectives of the project. This enhances all the stakeholders involved to have common goals towards the success of the project.

2.5.2 Use of broadcast and print media.

A study of nutrition education in rural Mexico compared the effectiveness of a mass media group (radio with posters and pamphlets) with a direct education group (teachers and audio-visuals) in transmitting nutrition concepts (Cerqueira et al., 1979). It was observed that radio messages were more uniform than the regular face-to-face methods of education, as messages were received in identical format by all listeners. Also style of presentation and content did not vary as they did from teacher to teacher indicating the uniqueness and uniformity of educational radio in teaching disadvantaged adults in developing countries (Sweeney & Parlato, 1982).

Educational radio can be most effective when supported by trained facilitators, group learning, group discussion (dialogues), feedback, and the use of multimedia approaches. For example, Perraton (1978) argued that trained facilitators must be used in order to successfully utilize educational radio. Similarly, Higgs and Mbithi (1977) contend that a good program has to be
backed by careful training of trainers, preparation of training materials and continuous improvements in these. Perraton (1978) states that group learning is more effective than individual learning and that group discussion is an effective method of learning from radio. The facilitator must converse with students in order to emphasize the main points covered by radio programs as well as to provide feedback where necessary.

According to Daniel and Marquis (1983), the facilitator must ensure that programs are supported by visual demonstrations, that groups are cohesive, and that discussions are carried out effectively by employing techniques of group discussion. Also, multi-media such as print materials, posters, films, and chalk boards, must be used to elaborate the main points to students.

2.5.3 Use of Ora-media

Ora-media is another method of communication used by NGOs. According to Wangari (2012), ora-media is the transmission and dissemination of information by word of mouth and performing techniques. She adds that, the information transmitted carries specific messages targeting a specific audience.

Ora-media has some advantages over the use of radio due to its high participatory nature between the communicator and the audience, thus eliciting quick response and necessary action. Ora-media can also take the form of drama and thus be more entertaining than any other form (Wangari 2012).

In addition, ora-media includes all theatrical media. “It incorporates African indigenous forms of performance, which comprises; dancing, narration, singing, and respect for elders, among others.
This, points out the fact that Africans are enriched with defined culture and tradition,” (Wangari M., 2012, P.33). Also, Kerr (1995) refers popular theatre and micro-media as ora-media in his research study. He suggests that the two approaches of communications emanates from the need to displace the "top-down" approach to communication with a more participatory “bottom-up" approach that can enhance development.

2.5.4 Use of drama

Thiong’o (1996) perceives drama as a multifaceted means of communication. He states that drama in pre-colonial Kenya was not an isolated event; it was part and parcel of the rhythm of the daily and seasonal life among other activities, often drawing its energy from those other activities. It was also entertainment in the sense which involved enjoyment; it was moral instruction; and it was also a strict matter of life and death and communal survival. It was meant to showcase the real life experience in artistic arrangement. It mirrored tradition and culture of the people.

The components, according to Thiong’o were not merely artistic appreciation but also educating the people. They may be performed anywhere, wherever there was need for that. It could take place anywhere-wherever there was an "empty space". The same, use of drama, can be used by NGOs to disseminate information while exhibiting the organization’s culture through the participants dressing code, way of talking and degree of respect towards the project beneficiaries and elders.
Mumma (1995) posits that the theatre or drama form can be particularly suitable for grass root communication because of its self-sustaining potential, its entertainment function, its flexibility in overcoming language barriers, and its capacity for popular participation in message design and planning. The aspect of entertainment therefore attracts a huge audience making it efficient in delivery of message.

There is however no study that has focused on the efficiency of communication strategies used by NGOs to promote AIVs among the smallholder farmers.

2.6 THEORETICAL FRAMEWORK

This research is grounded on Rational Argumentation Theory (RAT) propounded by Cragan and Shields (1998) and Transtheoretical Model (TM) by Prochaska, Johnson and Lee (1998). RAT expounds the effect a communication force of argument has in justifying conviction and spurring human decision making. The theory views group members as risking their convictions as they make reasoned arguments to each other. The risk comes from having to modify their opinions as superior arguments are made by other group members.

“A decision-making group has a burden of proof to meet in order to justify change, just as a prosecuting attorney has a burden of proof to meet in convicting someone of murder. In a murder case, there are certain stock issues that a prosecutor must address, such as, is there a dead person, was there a motive, was there opportunity,” etc. (Cragan & Shields, 1998 p. 33).
In the Transtheoretical (stages of change) Model, Prochaska et al., (1998) proposes six stages a person goes through before the acceptance and adoption of a certain behavior. Pre-contemplation is the stage in which people are not intending to make a change in the near future (often defined as the next 6 months).

Contemplation is the stage where people intend to change (within the next 6 months). People in this stage are aware of the pros of changing but also can identify the cons. Preparation represents the stage where people have a plan of action and intend to take action in the immediate future (within a month). Action is the stage in which people make the behavior change and maintenance represents the stage where people work to prevent a decline. Finally, termination represents that stage where individuals have 100 percent efficacy and will maintain their behavior. This stage is the most difficult to maintain, so many people remain a lifetime in maintenance.

The two theories would help assess the impact of FCI in promoting AIVs by looking into the increase of farmers involved in production, consumption and commercialization of the value chain before and after the implementation of DoHoMa Project. If the number of farmers engaged in the value chain is higher than before the project was implemented, FCI would be considered successful in promoting AIVs. If the number involved in the same is found low or constant after the implementation of the project, FCI would be considered unsuccessful in its subsidiary role of communication.

2.7 CONCEPTUAL FRAMEWORK

Before exploring the efficiency of Agricultural based NGOs in promoting the AIVs, it is important to understand the key variables that are essential to the study and how they relate to
each other to cause impact. The independent variables are communication strategies used to spread the message about nutritional and economic value of AIVs. The efficiency of the communication strategies used thus determine the increase in production, consumption, commercialization and behavior change among the smallholder farmers in Limuru Sub-County as summarized in figure 1 below.

**Figure 1: Underlying variables and their relationship**
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with the methods and procedures that the study will employ to collect data from the target population for analysis. The chapter discusses the research design adopted, target population, sample size, sampling procedure, data collection method, data analysis and presentation.

3.2 Research design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It therefore has a great bearing on the reliability of the results arrived at and as such constitutes the firm foundation of the entire edifice of the research work (Kothari 2004).

The study has used both quantitative and qualitative design with the quantitative design analyzing the rate of production, consumption and commercialization while the qualitative design describes the communication part to determine whether the strategies used by FCI were efficient. As a result of the two designs, focus will be placed on the formulation of the objectives of the study, methods of data collection, sample selection, collecting the data, processing the data and reporting of findings. Orodho (2003) asserts that a study concerned with obtaining information by interviewing or administering a questionnaire to a sample of respondents is a descriptive survey.
The research design will thus facilitate in looking into the efficiency of the communication strategies used by FCI by analyzing the magnitude of production, consumption and commercialization of AIVs before and after the implementation of the DoHoMa Project among the smallholder farmers in Lari Sub-County. Lari Sub-county was purposively selected due to its proximity to the capital city where the huge urban and peri-urban markets are for AIVs as well as other value chains like grains, dairy and horticultural products. It’s also one of the sub-counties where the five year DoHoMa project was implemented in the larger Kiambu County.

3.3 Target population

A target population is the entire assembly a study is interested in, from which a sample is gotten in order to draw conclusion (Bryman, 2004). This study’s target population would be 619 smallholder farmers involved in the DoHoMa Project and produced AIVs in Lari Sub-County.

3.4 Sampling design and sample size

Sampling may be defined as the selection of some part of an aggregate or totality on the basis of which a judgment or inference about the aggregate or totality is made. In other words, it is the process of obtaining information about an entire population by examining only a part of it (Kothari 2004). “Sampling can be highly accurate if done with care.

In addition, the savings in time and money should be obvious,” (Kenneth D. Bailey 1994 p.85). Also, Babbie (1973) notes that the problems of record keeping are much greater if an entire
population is used, and more paper work simply provides an opportunity for greater error and temptation for laxity in procedures.

To evade these challenges, purposive sampling followed by random sampling were used to select 100 smallholder farmers out of the total 619 engaged in the production of AIVs and under the DoHoMa Project. This sample constitutes to 16.16% of the target population. To achieve this, five villages were purposively selected based on where the DoHoMa project was implemented. In each village, 40 houses were identified and the researcher gave them numbers. He then picked every house that had an even number so as to have 20 houses which gave a sample size of 100 respondents.

3.5 Data Collection

The data will be collected from primary source through the use of questionnaire for both qualitative and quantitative research designs. Kothari (2004) describes primary data as the information collected afresh and for the first time, and thus happen to be original in character.

However, Kothari (2004) describes questionnaire method as very much like the collection of data through the use of interview schedule. The only difference is in the fact that schedules (proforma containing a set of questions) are being filled in by the interviewers who are specially appointed for the purpose. These interviewers along with schedules go to respondents, put to them the questions from the proforma in the order the questions are listed and record the replies in the space meant for the same in the proforma. The method facilitates gathering data from both the literate and the illiterate to the satisfaction of the interviewer.
In certain situations, schedules may be handed over to respondents and interviewers help them in recording their answers to various questions in the said schedules. Interviewers explain the aims and objectives of the investigation and also remove the difficulties which any respondent may feel in understanding the implications of a particular question or the definition or concept of difficult terms (Kothari, C. 2004).

3.6 Data processing and analysis

Kothari (2004) describes data processing as a technical process which implies editing, coding, classification and tabulation of collected data so that they are amenable to analysis while data analysis as a process of computing certain indices or measures along with searching for patterns of relationship that exist among the data groups.

Editing is a process of examining the collected raw data to detect errors and omissions and to correct to ensure that the data is accurate and consistent with other facts gathered, uniformly entered and have been well arranged to facilitate coding and tabulation. Coding refers to the process of assigning numerals or other symbols to answers so that responses can be put into a limited number of categories or classes. Classification is a process of arranging data in groups or classes on the basis of common characteristics so as to reduce into homogenous groups which assist the researcher get meaningful relationships while tabulation is the process of summarizing raw data and displaying the same in compact form (i.e statistical tables) to enhance further analysis (Kothari, 2004).
The nature of this research study will lead to *Causal analysis* to facilitate the study of how FCIs’ communication strategies influenced the production, consumption and commercialization of AIVs among the smallholder farmers. Although causal analysis is considered relatively more important in experimental researches, it also applies to social researches where the interest lies in understanding the relationships between variables (Kothari 2004).

### 3.7 Data Presentation

Graphs provide the best way for the audience to see trends, ratios and patterns in data (McGeoch and Moret, 1999). As a result, graphs and other info graphics like tables and pie charts were used to present data.

### 3.8 Reliability and Validity of the Interview Schedule

To establish the reliability and validity of an interview schedule, cognitive interviewing through respondent debriefing is incorporated into the actual data collection to facilitate revision of questions. Respondent debriefing involves incorporating follow-up questions in a field test interview to gain a better understanding of how respondents interpret questions asked of them (Fowler and Roman, 1992).

Additionally, Fowler and Roman (1992) suggests that respondent debriefings can be quite useful in determining the reason for respondent misunderstandings, the necessity of a question, need for additional questions, need to change the final questionnaire so as to reduce measurement error and improve the concept of interest. To achieve this important aspect, 10 smallholder holder farmers under the DoHoMa programme were randomly selected and interviewed by the use of
actual questionnaire which helped to make corrections and changes where possible before the same activity was done on the actual sample.

### 3.9 Ethical Issues

The researcher explained to the prospective respondents the purpose of the study and then asked for consent. It was emphasized to participants that no harm would come to them and participation would be voluntary and one could have chosen not to take part in the study.
4.0 CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the data analysis and the interpretation following the data collection process. The information is presented graphically according to the questionnaire and complemented by the researcher’s own interpretation.

4.2 Biographic Data

The study sought to determine the biographic status of the respondents classified as age, gender, marital status, education and religion.

4.2.1 Age

In terms of age, 81% of the 100 respondents interviewed were above 40 years, 10% were between 31 to 40 years, 5% were between 26 to 30 and 4% were below 25 years as shown in table 2 below.

Table 2: Age of respondents

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25 Years</td>
<td>4</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>26-30 years</td>
<td>5</td>
<td>5.0</td>
<td>9.0</td>
</tr>
<tr>
<td>31-40 years</td>
<td>10</td>
<td>10.0</td>
<td>19.0</td>
</tr>
<tr>
<td>Above 40 Years</td>
<td>81</td>
<td>81.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This indicates that farming in Lari Sub County is dominated by elderly people. The youths, below 40 years, could be engaged in other income generating activities.
4.2.2 Gender

Most of the respondents interviewed were female, 71% while male were 29%. This indicates that majority of farmers engaged in DoHoMa Project and produced AIVs were female as shown in figure 2 below. It is also a clear indication that farming is majorly done by women.

Figure 2: Gender Distribution

4.2.3 Marital Status

Figure 3 below shows the marital status of the respondents.
Majority, 97%, of respondents were married while 3% were not.

4.2.4 Education

Majority of farmers, 63%, engaged in DoHoMa Project in Lari Sub County had attained primary education, those with secondary level were 27%, tertiary level 5% and those without formal education were also 5% as shown in figure 4 below.

Figure 4: Formal Education
The sample shows that there is relatively higher number of farmers producing AIVs with only basic education. Those with secondary and tertiary education were minimal while those without were relatively few.

4.2.5 Religion

Figure 5: Religion
Figure 5 above shows the respondents’ religious status. 90% of the interviewees professed Christian values while 10% believed in the community traditions. None of the interviewees was Islam or professed other belief systems. This indicates that majority of the farmers in Lari Sub County are religious, Christianity taking the largest share.

4.3 Communication Strategies and language(s) used by FCI

This section analyses the communication method(s) used by FCI to promote AIVs, the preferred communication method of the respondent, the language used and the preferred language choice of the interviewee.

4.3.1 Communication method

FCI mostly used barazas at 61%, demonstrations 30% and Use of projector 9%. None of the trainings conducted by the organization used drama or media programmes as shown in figure 6 below. Baraza is a form of Ora-media and has some advantages over the use of radio as observed by Wangari (2012). Its high participatory nature between the communicator and the audience elicits quick response and necessary action as seen in the production, consumption and commercialization of AIVs.
4.3.2 Communication method preferred by respondents

However, majority 64% of the respondents preferred demonstration which they cited was simpler because it entailed much of practical work than theory. It should also be noted that majority, 63%, had only basic education while 5% had no formal education and this could have contributed to their choice of method of communication. Only 36% preferred the use of *barazas* while none preferred the Use of projector method as shown in figure 7.
4.3.3 Language used to promote AIVs

FCI majorly used Kikuyu and Swahili languages, 76% and 24% respectively, to train on AIVs in the barazas and demonstrations held in Lari Sub County. There was no baraza or demonstration that was conducted in English or other language as shown in figure 8 below.
4.3.4 Language preferred by respondents

In spite of the use of Kikuyu and Swahili language in promoting AIVs, some people, 18%, preferred English language while 5% and 77% still preferred Swahili and Kikuyu languages respectively as shown in figure 9 below.
Kikuyu thus remains the preferred language of communication in the region because it is the first language of the majority. Those who preferred Swahili and English were relatively educated at secondary or tertiary level.

4.4 Rate of AIVs Production

4.4.1 Production of AIVs before the DoHoMa Project

Most of the farmers did not produce AIVs before FCI implemented the DoHoMa Project in Lari Sub County. Only 15% produced AIVs while 85% did not as shown in figure 10. However, after the implementation of the DoHoMa Project in 2010, majority of farmers in Lari Sub-County turned to AIVs farming. This concur with a study carried out by S.N Mwaura et al. (2013) in Kiambu County which shows an increase of production and consumption of AIVs attributed to various technical support offered to Male Headed Households (MHH) and Female Headed Households (FHH).
The finding thus shows that FCI was successful in promoting the production of AIVs in the region.

4.4.2 When respondents joined the project

DoHoMa Project begun in 2010 but majority, 34%, of farmers joined the project in 2012 whiles a few, 9%, joined in 2014. In both 2010 and 2013, only 20% in each case joined while 13% have joined in 2015 as shown in figure 11 below.
Figure 11: Year when farmers joined DoHoMa Project

4.4.3 Current Size of Land under AIVs

Majority, 55%, of the respondents interviewed used eighth acre piece of land to produce AIVs, 30% used quarter acre while 5% used a quarter acre or more as shown in figure 12 below.
The statistics thus indicates that, in spite of the majority of farmers producing AIVs, only a few have apportioned relatively large piece of land for the value chain. Only 10% apportioned over half acre for AIVs while others produced the crop in less than an eighth acre piece of land.

4.4.4 How respondents have benefited from the Project

70% of the respondents acquired market for the AIVs while 15% each benefited from capacity building and cultivated more land as shown in table 3 below.
Table 3: Benefits accrued to the project

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>find market</td>
<td>70</td>
<td>70.0</td>
<td>70.0</td>
</tr>
<tr>
<td>capacity building</td>
<td>15</td>
<td>15.0</td>
<td>85.0</td>
</tr>
<tr>
<td>cultivate more land</td>
<td>15</td>
<td>15.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.5 Rate of AIVs Consumption

All the respondents interviewed admitted to have been informed of the nutritional value of AIVs by FCI and agreed to have been consuming the vegetables.

4.5.1 Communication method used to train on nutritional value

Figure 13: Method used to train on nutritional value
69% of the trainings on nutritional value were conducted through *barazas*, 15% Use of projector, 11% cooking demos and 5% drama as shown in figure 15 above. This indicates that FCI majorly used *barazas* to train on nutrition and on few occasions used cooking demos.

### 4.5.2 Regularity of AIVs consumption

**Figure 14: Regularity of AIVs consumption**

![Bar chart showing regularity of AIVs consumption](image)

Although all the respondents admitted to have been consuming AIVs, their degree of consumption differed greatly. 56% ate on daily basis, 34% ate thrice in a week and 5% ate twice and once in a week each as shown in figure 14 above. This indicates that FCI managed to promote the consumption of AIVs among the people in the region and also overcome the negative perception of the crop being a poor man’s food.
4.5.3: Reasons for eating AIVs

Figure 15: Why respondents consumed AIVs

Majority, 75%, of the respondents ate AIVs because they were nutritious than the exotic vegetables while 20% ate because they were available and 5% ate because they were cheap than exotic ones as shown in figure 15 above.

The finding coincides with Odhav et al. (2007), that indigenous vegetables represent inexpensive but high quality nutritional sources for the poor segment of the population. Since many indigenous food plants grow wild, they are accessible, they can be collected freely and are thus available to everyone, including the poor. The finding also indicates that the information on the nutritional value of AIVs shared by FCI was well accepted by people and changed their negative perception towards the crop.
4.5.4 Production of Exotic vegetables

In spite of a higher number of farmers adopting the production of AIVs, almost all 91% intercropped both the AIVs and exotic vegetables. Only 9% of the interviewees did not produce the exotic type as shown in figure 16 below. A study carried out by S.N Mwaura et al. (2013) indicates a gradual increase of AIVs production and consumption in Kiambu County which has been attributed to various technical supports offered to farmers by Farm Concern International.

Figure 16: Percentage of respondents who produced Exotic Vegetables

4.5.5 Size of land under exotic vegetables

Only a few people apportioned relatively huge chunks of land for producing exotic vegetables. Majority, 34% apportioned less than eighth acre, 23% used eighth, 14% used a quarter, 15% set aside half acre while 5% apportioned three quarter acre. 9% of the respondents however did not produce Exotic vegetables at all as shown in figure 17 below.
4.5.6 Regularity of consumption of Exotic vegetables

Majority, 47%, of the respondents ate Exotic vegetables once per week while 19% did not eat at all. Only a few, 5%, ate on a daily basis while 9% and 5% ate twice and thrice a week respectively. Also, 15% ate the vegetables once a month as shown in figure 18 below. Compared to consumption of AIVs, exotic consumption is quite minimal. On the other hand, the reason for high consumption of AIVs has been noted by Odhav et al. (2007) as being cheap, available and high quality nutritional sources for the poor segment of the population.
4.5.7 Why respondents eat Exotic vegetables

Majority, 43%, of the respondents ate exotic vegetables because they were more available than AIVs while minority, 4%, ate because they were cheap than AIVs. A relatively higher number, 34%, of respondents ate just to change the diet while 19% did not eat at all as shown in figure 19 below. This agrees with Taruvinga and Nengovhela (2015) who cites that AIVs are seasonal and majority of smallholder farmers rely on rainfall for production. The seasonal production thus largely contributes the consumption of exotic vegetables.
4.6 Rate of AIVs Commercialization

All the respondents admitted to have been informed of the economic value of AIVs by FCI through various methods of communication.
4.6.1 Communication method used to train on economic value

Figure 20: Method used to train on economic value

Most of the trainings on economic value of AIVs were conducted through barazas while use of drama was rarely used. The use of barazas was 81%, Use of projector 13% and drama was 6% while media was not used at all as shown in figure 20 above. Perraton (1978) states that use of baraza, as a method of group learning is more effective than individual learning, use of radio or any other form of communication.

4.6.2 Monthly income

Before FCI implemented the DoHoMa Project in the region, none of the respondents neither grew nor generated income from AIVs. After the training on production and economic value of the crop, the respondents currently earn between Shs 1,000 to 15,000 per month. On the other
hand, those who produce exotic vegetables earn between Shs 500 to 5000 per month. This shows that farmers who produce AIVs earn more income than those who produce exotic vegetables. Irungu et al., (2007) notes that ALVs have gained commercial importance over the past 15 years due to enormous marketing. FAO (2012) indicates the increase in marketing attributed to increased consumer demand for ALVs which results to sale of the value chain in supermarkets and better incomes.

4.6.3 Market options provided by FCI

All the respondents interviewed admitted to have been informed on the available markets for AIVs. They include Wangige market, Uchumi Supermarket, Limuru, Kangemi, Soko Mjinga, Muthurwa, Gikomba, Githurai, Korogocho and Mai Mahiu.

Figure 21: Markets where farmers sell AIVs
Out of the 10 markets provided by FCI, only three were used by respondents to sell AIVs. 75% sold at Uchumi Supermarket, 15% sold at Soko Mjinga while 10% sold at Mai Mahiu market as shown in figure 21 above. Uchumi Supermarket, which is a formal market, takes the largest share of AIVs produced by farmers in the region. Otieno et al., (2009) note how ALVs were found in back-street and open air markets before year 2000. Since then, the scholar indicates how the value chain has become a common occurrence in most supermarkets which sell in large quantities.

Irungu et al., (2007) identifies how the city and its peri-urban areas are also dotted with grocery shops in the main shopping areas, as well as retail kiosks that also stock various types of the ALVs.

4.6.4 Reasons why farmers produce AIVs

All the respondents who were interviewed mostly preferred producing AIVs than exotic vegetables. Majority, 51%, cited high income accrued to AIVs, 20% admitted that only a small piece of land is required for production, 19% admitted that AIVs are easy to produce while 10% cited resistance to pests and diseases as shown in table 4.

Ekesa et al., (2009) concurs with the findings as ALVs have short production cycles, requires few purchased inputs, thrives in poor soil, ability to resist to pests and diseases, and are acceptable to local tastes. NRC (2006) adds that ALVs are well suited to the small plots and limited resources of village families and produce high yields with strong nutritional value.
Table 4: Why AIVs are preferred most

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High income</td>
<td>51</td>
<td>51.0</td>
<td>51.0</td>
</tr>
<tr>
<td>Are easy to produce</td>
<td>19</td>
<td>19.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Requires a small piece of land</td>
<td>20</td>
<td>20.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Are pest and disease resistant</td>
<td>10</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.6.5 Challenges faced in production and marketing of AIVs

Majority, 57%, of farmers lack piped water for irrigation while 19% pointed out poor roads during rainy seasons and lack of means of transport as shown in figure 22 below. Also, 15% cited pests and diseases as another challenge, 9% stated lack of capital while none faced challenges in marketing or lack of technical knowhow in production. It thus shows that farmers in Lari Sub County can produce more if they can be provided with adequate facilities like water, means of transport, capital, effective ways and chemicals to control pests and diseases.

However, Mwaura (2013) only indicates lack of technical support. Out of the 55 MHH, 67.3 percent had no access to technical support for ALVs farming, while 32.7 percent had. And out of the 28 FHH, 64.3 percent had no access to technical support, while the remaining 34.7 percent had access to technical support. This indicates the extent of AIVs neglect by the Ministry of Agriculture and other responsible stakeholders in ensuring proper and optimum production.
4.6.6 Project benefits

The respondents interviewed cited various benefits gained from DoHoMa Project which ranged from reliable source of income, improved health, savings, stable and reliable market, improved land cultivation, bank services, capacity building, improved diet and improved community welfare through ability to contribute to various joint activities. Some of these findings concur with DFID and R4D (2010) that ALVs can support rural, peri-urban and urban populations in terms of subsistence and income generation, without requiring huge capital investments.
5.0 CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter makes a summary of the entire study, conclusion and recommendations based on the research findings. The areas which need further study have also been highlighted.

5.2 Summary

The study sought to investigate the efficiency of Farm Concern International’s communication strategies used in implementing the projects. To achieve this purpose, the study endeavored to evaluate the impact of a five year project dubbed DoHoMa which was implemented in Lari Sub County by looking into the methods of communications used in promoting production, consumption and commercialization of AIVs as one of the value chains of the project. DoHoMa (Domestic Horticultural Markets), which began in 2010 and ending in October 2015, is also implemented in other parts of the larger Kiambu County and deals with other horticultural crops like Irish potatoes and bulb onions.

The study found out that FCI majorly used two forms of Ora-media (barazas, demonstrations) and Use of projector to promote production, consumption and commercialization of AIVs in Lari Sub County. However, FCI did not use the main stream media, drama or internet to promote the value chain.

The rate of AIVs production has widely increased with majority of farmers setting aside over eighth acre piece of land to produce the value chain. However, majority of farmers still intercrop
AIVs and exotic vegetables. Also, all the farmers who were interviewed admitted to consume AIVs but at different rates. Majority eat AIVs on daily basis while relatively few eat three to six times a week. Majority also consumed AIVs due to their higher nutritional content as compared to exotic vegetables. Majority ate exotic vegetables to change the diet while some ate because the vegetables were available.

Farmers who produced AIVs also earned relatively higher income as compared to those who produced exotic vegetables. Apart from higher proceeds, AIV farmers had other advantages like availability of market, use of small pieces of lands, cheap and easy production.

However, AIVs farmers encountered a myriad of challenges like lack of water for irrigation during dry spells, diseases and pests like red spider mites, lack of capital and poor roads during rainy seasons.

5.3 Conclusion

FCI communication strategies were fairly efficient in promoting production, consumption and commercialization of AIVs since majority of farmers still produce exotic vegetables in large pieces of land. Other means of communication like main stream media, internet, posters and billboards were not used to promote AIVs. Majority of farmers preferred demonstrations as a method of communication due to its practicality aspect as compared to use of *barazas*.

Production of AIVs have numerous advantages as compared to exotic vegetables ranging from use of small pieces of land, easy and cheap production, resistance to drought, market availability
to high income. However, the mentality that AIVs are food for the poor is still etched in people’s mind resulting to huge production of exotic vegetables.

Also, the proceeds earned from the sale of AIVs is still minimal in spite of the huge market potential for AIVs in Lari Sub County. The markets include both formal and informal but majority prefer selling to Uchumi Supermarket due to regular supply and income which enable them budget.

5.4 Recommendations

The study makes the following recommendations based on the research findings;

a. NGOs should capitalize on the use of demonstrations as major means of communication to farmers than use of barazas since most of the farmers have basic education.

b. The Ministry of Agriculture (MOA) both at national and county level need to facilitate farmers to dig boreholes to enhance irrigation during dry spells. MOA also need to tarmac feeder roads to enable farmers transport AIVs during rainy seasons.

c. Agriculture based NGOs need to incorporate other means of communications like mainstream media, posters, internet and bill boards to implement projects.

d. Community Based Organizations need to liaise with financial institutions to train farmers on financial literacy so as to increase savings and facilitate them increase production of AIVs.
5.4.1 Areas of Further Research

There should be further research on why farmers apportioned small pieces of land for AIVs in spite of a wide market and higher income for AIVs as compared to exotic vegetables. It should also be researched on why NGOs avoid the use broadcast and print media in project implementation in spite of the fact that they are effective in producing uniform results. A study should also be carried to identify why some farmers did not eat exotic vegetables at all.
BIBLIOGRAPHY


MacCalla, A.F. (1994). *Agriculture and Food Need to 2025, why we should be concerned*. Washington DC: CGIAR.


Oladele O., (2011), *Contribution of Indigenous Vegetables and Fruits to Poverty Alleviation in Oyo State, Nigeria*, North-West University, Mafikeng Campus, South Africa


Appendixes

1. Respondents’ Questionnaire

Hello. My name is James Kuria, a student at the University of Nairobi pursuing a Master’s Degree in Communication Studies. I am conducting a research on the efficiency of Farm Concern International’s communication strategies in promoting African Indigenous Vegetables. This study is being carried out among farmers engaged in DoHoMa Project in Lari Sub-County, Kiambu County.

Kindly answer the following questions by ticking in the appropriate brackets or filling the spaces provided. The information gotten will be treated with confidentiality.

**Section 1: Biographic data**

Please tick (√) in the appropriate bracket or answer as required.

1. What is your age in years?
   a. Below 25 years  ( )
   b. 26 – 30 years  ( )
   c. 31 – 40 years  ( )
   d. Above 40 years  ( )

2. What is your gender?
   a. Male  ( )
   b. Female  ( )

3. Are you married? Yes  ( ) No  ( )

4. What is your highest level of education?
   a. Primary school  ( )
   b. Secondary school  ( )
   c. Tertiary level  ( )
   d. None  ( )

5. What is your religion?
   a. Christianity  ( )
   b. Islamic  ( )
   c. Traditional  ( )
Section 2: FCI’s Method(s) of AIVs promotion

6. When did you know Farm Concern International (FCI)?
   a. Before 2010 (  )
   b. 2010 (  ) 2011 (  ) 2012 (  ) 2013 (  ) 2014 (  ) 2015 (  )

7. What was FCI promoting?
   a. Indigenous African Vegetables (AIVs) (  )
   b. Bulb Onions (  )
   c. Irish Potatoes (  )
   d. All (  )

8. Which method was FCI using to promote/train on the production of AIVS?
   a. Barazas (  )
   b. Demonstration through kitchen gardens (  )
   c. Use of projector (  )
   d. Drama (  )
   e. Media programmes (  )
   f. Other (state) ………………………………………………………………………………………………………………………

9. Which method would you have preferred FCI to use in question 8 above?
   ……………………………………………………………………………………………………………………………………………

10. Why do you prefer the method stated in question 9 above?
    a. It is simple (  )
    b. Other (explain)
        ……………………………………………………………………………………………………………………………………………

11. Which language did FCI use to promote AIVs?
    a. Swahili (  )
    b. English (  )
    c. Kikuyu (  )
    d. Other (state) ………………………………………………………………………………………………………………………

12. Which language would you have preferred FCI to use in promoting AIVs?
    a. Swahili (  ) b. English (  ) c. Kikuyu (  ) d. other (state) ………………………

Section 3: Rate of AIVs production
13. Did FCI train how to produce AIVs? (If no, skip question 14).
   Yes ( )     no ( )

14. When did you join DoHoMa project?..............(State the year).
15. How has the project been of help to you?
   a. Find market ( )
   b. Capacity building ( )
   c. Cultivate more land ( )
   d. Other (explain)

16. Did you produce AIVs before FCI implemented DoHoMa Project?
   Yes ( )                                          No ( )

17. How many acreages do you currently use to produce AIVs? (state the acreages)

18. Did FCI inform on the nutritional value of AIVs? (If no, skip question 19).
   Yes ( )     no ( )

19. If yes, which method did FCI use to inform on the nutritional value of AIVs?
   a. Barazas ( )
   b. Media programmes ( )
   c. Use of projector ( )
   d. Drama ( )
   e. Cooking demos ( )

**Section 4: Rate of AIVs consumption**

18. Did FCI inform on the nutritional value of AIVs? (If no, skip question 19).
   Yes ( )     no ( )

19. If yes, which method did FCI use to inform on the nutritional value of AIVs?
   a. Barazas ( )
   b. Media programmes ( )
   c. Use of projector ( )
   d. Drama ( )
   e. Cooking demos ( )
20. Do you consume AIVs? (If yes, skip question 21)
   Yes (    ) No (    )

21. If no, please state why?
   …………………………………………………………………………………………………
   ………………………

22. If yes, how regular do you include AIVs in your diet?
   a. Daily (    )
   b. Twice in a week (    )
   c. Thrice in a week (    )
   d. Once per week (    )
   e. Monthly (    )

23. Why do you include AIVs in your diet?
   a. They are cheap compared to cabbages, kales and spinach (    )
   b. They are available (    )
   c. They are more nutritious (    )
   d. Other (explain)
   …………………………………………………………………………………………………
   ………

24. Do you produce exotic vegetables (kales, cabbages, spinach) in your farm? (If no, skip question 25).
   Yes (    ) No (    )

25. If yes, how many acreages in total.
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………

26. How regularly do you include exotic vegetables in your diet?
   a. Daily (    )
   b. Twice weekly (    )
   c. Thrice weekly (    )
   d. Once in a week (    )
   e. Monthly (    )
   f. None of the above (    )

27. Why do you include exotic vegetables in your diet?
   a. They are cheap than AIVs (    )
b. They are nutritious than AIVs  

c. They are available than AIVs  

d. Change of diet  

e. Don’t eat  

**Section 5: Rate of AIVs commercialization**

28. Did FCI inform on the economic value of AIVs? (If no, skip question 29).
   Yes ( )  No ( )

29. If yes, which method did they use to inform?
   a. Barazas ( )
   b. Media programmes ( )
   c. Use of projector ( )
   d. Drama ( )
   e. Other (state)

30. How much money did you earn from AIVs per season before you were informed of their economic value?
   (Provide an estimate in kshs)………………………………………………….…………………..

31. After the training on economic value, how much money do you currently earn from the sale of AIVs per season?
   (Provide an estimate in Kshs)
   ………………………………………………………………………………………………………

32. Did FCI inform on other available markets for AIVs? (If no, skip question 33).
   Yes ( )  No ( )

33. If yes, which markets did FCI inform for the sale of AIVs?
   a. Wangige ( )
   b. Kangemi ( )
c. Muthurwa (   )
d. Gikomba (   )
e. Githurai (   )
f. Korogocho (   )
g. Other

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

34. Where do you sell AIVs after FCI informed on market availability?
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..........................................................................................................................

35. How much money do you earn from exotic vegetables per season? (Provide an estimate in kshs).
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..........................................................................................................................
..........................................................................................................................
..........................................................................................................................

36. Which vegetable(s) do you prefer producing most?
   a. AIVs (   )
   b. Exotic (kales, cabbages, spinach) (   )
   c. Other (state)
..........................................................................................................................
..........................................................................................................................
..........................................................................................................................

37. Why would you prefer producing AIVs?
   a. Have higher income (   )
   b. Are easy to produce (   )
   c. Requires a small piece of land (   )
   d. Are disease and drought resistant (   )
38. What challenges do you encounter in producing and marketing of AIVs?
   a. Lack of market ( )
   b. Lack of transport ( )
   c. Lack of water ( )
   d. Lack of capital ( )
   e. Lack of technical knowhow ( )
   f. Pests and diseases ( )

39. Comment on how the project has changed your life.
   ……………………………………………………………………………………………
   ……………………………………………………………………………………………
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Thank you for your time