

**FACTORS INFLUENCING INVOLVEMENT OF  
LEGUME FARMERS IN AGRICULTURAL TRAINING  
PROGRAMS IN MAKUENI COUNTY, KENYA**

**BY  
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**A Research Project Submitted in Partial Fulfilment of the Requirements for the  
Award of the Degree of Masters of Arts in Project Planning and Management of  
the University of Nairobi**

**2016**

## DECLARATION

I, the undersigned declare that this research project is my original work and has never been presented for any award in any other University.

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I confirm that this research project was carried out by the candidate under my supervision as University supervisor.

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## **DEDICATION**

This work is dedicated to my wife-Carolyn, my children-Ryan and Taffy, and my parents- Stephen and Elizabeth Bett, for their moral support, understanding and the encouragement they accorded me during the period of study. I will always value and esteem them highly.

## **ACKNOWLEDGEMENT**

I'm deeply obliged to my supervisor Dr. Angelina Mulwa for her insightful comments in developing this research project. Your guidance, quick responses during consultations and encouragement contributed to the completion of this research work. I wish you God's blessings as you continue to make contribution in the advancement of knowledge in this field.

I thank the School of Continuing and Distance Education, particularly the Department of Extra-Mural Studies at the University of Nairobi for allowing me to study Masters in Project Planning and Management that has resulted in an opportunity to study factors influencing involvement of legume producers in agricultural training programmes. I thank all the lecturers in this department for their commitment to teach and impart knowledge on us. To the non-teaching staff in the department, I highly appreciate for the support that you provided during the period of this study.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

**FAO** -Food and Agriculture Organization

**FTC** - Farmers Training Centre

**NACOSTI**- National Commission for Science, Technology & Innovation

**NGO** -Non-Governmental Organization

**UNDP** -United Nations Development Programme

## ABSTRACT

The Kenya's agricultural extension services are characterized by multiplicity of players from the public and private sector. The extension service providers have been criticised for initiating and managing the agricultural training programs without involving farmers. In this approach, the extension agents are in a position to control the farmers for their gains as they try to push development to the farmers whether they want or not. Such an approach cannot lead to empowerment and sustainable development since the farmers wouldn't get skills and knowledge instead it encourages community dependency to government and donors. Farmers must take an interest in the arranging, execution and assessment of formative projects and considering that they comprehend their necessities and must be included in those choices that influence their lives. This study sought to establish the elements impacting the inclusion of legume producers in agricultural training programmes in the Makueni County. The relationship between the independent variables (organizational factors, farmers' characteristics, perception on the training programs and awareness on agricultural training) and dependent variable (involvement of legume farmers in agricultural programs) was therefore explored. To achieve this, the survey research design was used and the data was collected through the questionnaire and semi-structured interview. The study targeted a population of 1,015 farmers in the County that produces and markets grain legumes in the area. To select the respondent groups, simple random and purposive sampling techniques were applied. The quantitative information gathered was analysed through descriptive measurements (frequencies & percentages). Qualitative data was also interpreted to supplement the quantitative data. Based on the analyses, the main findings of the study revealed organizational factors such as the distance of the training centers, lack of facilities and qualified facilitators have great impacts on farmers' involvement. The study also showed that the farmers' characteristics-age, gender and educational background affects the active participation by farmers and it's important to consider training programs that suite the elderly, the illiterate and the women. Farmers appeared to be satisfied with the current agricultural extension services provided and this positive perception by farmers on the agricultural training programs is important in the implementation of the programs as it leads to improved agricultural practices, increased yields among other benefits. Additionally, the study revealed that farmers are aware of the availability of the agricultural training programs in their area. From the above findings, it could be concluded that legume farmers in Makueni County were involved in the various phases of agricultural training programme. This study therefore recommends that the agricultural extension agents should develop special training programs for the elderly and illiterate farmers in order to motivate them to attend the trainings. Furthermore, the County Governments should increase funding for agricultural training programmes as they contribute to increased yields that would lead to food security. However, farmers should be engaged in developing cost-share training programs as this will ensure sustainability in implementation. Finally, it's recommended that a replication of the study should be done in other counties targeting other enterprises as this will show a more accurate picture of the factors affecting farmers' involvement in agricultural training programs.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

Agricultural advancement is indispensable to any methodology to reduce destitution and advance expansive based development in Kenya. The Kenyan government embraced the Agricultural Extension in 1982 with support from the World Bank. A general accord exist that extension service, if well planned and executed, enhance farming productivity (Romani 2003, Evenson and Mwangi 1998; Bindlish and Evenson 1993; Birkhaeuser et al 1991). Agricultural training services furnish farmers with critical knowledge and skills, for example, prevailing product prices, new and released seed varieties, crops husbandry, market access among others. Such skills are expected to expand farmers' capacity to enhance the utilization of their farming resources.

Even with availability of new technologies, smallholder farmers have no ability to get them (Fliegel, 1993). Consciousness of existing technologies creates a strong want to the systems involved in the distribution of agricultural inputs (Davidson et al 2001). Hence, extension frameworks and agricultural inputs supply frameworks are commonly fortifying the commitment to develop the agricultural sector. Additionally, an appropriate extension service gives good farmers' feedback to researcher.

The agricultural extension programs has significance in battling poverty has been underscored in the Strategy to Revitalize Agriculture (SRA) (Republic of Kenya 2004). The declining adequacy of the extension services has been distinguished as one among the hindrances of agricultural development in Kenya. In such manner, SRA proposed strategies that would make more viable linkages between extension programs, farmers and research.

Makueni County is situated in the Eastern part of Kenya. The region covers a zone of 8008.8 km<sup>2</sup> and it has nine sub-counties. The area has a populace of 884,527 made out of 49% male and 51% female. The County has a number of agribusiness activities but the main ones are horticulture, beekeeping, dairy and livestock keeping, coffee farming and ecotourism. The crops produced in the area include fruits (watermelons, mangoes, oranges and paw paws), maize, peas, beans, pigeon peas, green grams, cowpeas and lentils.

The objective of this study was to establish the elements impacting the inclusion of legume producers in design, execution and evaluation of the agricultural training programmes in the Makueni County, with a broad aim of expanding the knowledge of the organizational factors employed in training programs, the farmers' characteristics, the perception and awareness of farmers in existing agricultural training programs, with the aim of informing the implementation of the agricultural extension services.

## **1.2 Statement of the Problem**

According to Munyua (2010), the agricultural extension program in Kenya is characterized by multiplicity of actors who have individual interests of which some are conflicting. The extension service providers have been criticized of initiating and managing the agricultural training programs without involving farmers. In this approach, the extension agents are in a position to control the farmers for their gains as they try to push development to the farmers whether they want or not.

Farmers should participate in design and implementation of development programs and considering that they understand their needs and must be included in those choices that influence their lives. Passive involvement of farmers in agricultural extension/training programs doesn't lead to empowerment and sustainable

development since the farmers wouldn't get skills and knowledge instead it encourages community dependency to government and donors. According to Muyenga et al (2006), the extension providers that involve framing communities in the assessing their needs and deriving solutions to them become successful in what they do.

There is need to encourage an extension programme planning that embraces bottom-up approach in order to make it demand-driven (Chimoita (2014). Kibet et al, (2005) points out that agricultural extension policy in Kenya has suffered the policy deficiency on defined mechanism on how to involve farmers in designing agricultural extension programmes to suit their unique medium size land farmer's needs in Kenya. Poor linkages and coordination in the current devolved government system has also been noted (Karembu, 2011). Wanjala (2008) concluded that involvement of maize farmers in the arranging, implementing and assessing of training programs varies from one district to the other due to the institutional barriers and the programs not meeting farmers' needs.

Based on the earlier studies done, the knowledge gap exists. Wanjala (2008) on the factors affecting maize farmers' participation in agricultural extension education in Turkana and Uasin-Gishu counties was limited to maize farmers. The study was also meant to compare the status of farmers' involvement in two counties (Turkana and Uasin-Gishu). Wanjala recommended a replication of the study in other districts for a more accurate picture of the factors affecting farmers' participation in agricultural extension education. To compare Wanjala's study and validate the factors influencing farmers' involvement in agricultural training programs, this study focused on a different enterprise (leguminous crops) and covering a different county (Makueni).

### **1.3 Purpose of the Study**

This study sought to establish factors influencing involvement of legume farmers in agricultural training programmes in the Makueni County.

### **1.4 Objectives of the Study**

The following are the specific objectives that the study aimed to achieve:

- i) To assess how the organizational factors influence the involvement of legume farmers in agricultural training programs.
- ii) To establish how legume farmers' characteristics influence involvement of legume farmers in agricultural training programs.
- iii) To assess how legume farmers' perceptions about agricultural training programs influence their involvement in the programs;
- iv) To establish the influence of farmers' awareness on agricultural training programs on their involvement in the programs.

### **1.5 Research Questions**

The following are the questions this study aimed to address:

- i) How do organizational factors influence involvement of legume farmers in agricultural training programs?
- ii) How do farmers' characteristics influence the involvement of legume farmers in agricultural training programs?
- iii) In what ways do farmers' perceptions about agricultural training programs influence their involvement in the programs?

- iv) How does awareness on agricultural training programs influence legume farmers their involvement in the programs?

### **1.6 Significance of the Study**

This study was expected to help farmers, the Ministry of Agriculture, non-governmental organizations, researchers, extension officers and adult education facilitators to understand fundamental factors that influence involvement of farmers in the planning, implementation and assessment of the agricultural training programmes. With such information, it was expected that the stakeholders involved in the development of the training programmes would be able to minimize barriers to involvement, thereby making it easier for more people to take advantage of the services the programmes offer.

It was also expected that the study findings would assist service providers to improve programme planning and offer programmes that meet the needs of legume farmers, and as a result improve farmer involvement. Additionally, the findings of this study can benefit the farmers if the recommendations are incorporated into teaching methods to enrich the content and make training programmes meaningful to the needs of their members.

### **1.7 Limitations of the Study**

The study was confined to farmers engaged in production of grain legumes as it was difficult to study all the farmers dealing with multiple crops. The study was also limited by the few sources of data considering that very few studies had been done on agricultural extension in this area and the entire country as well. Although there were other counties that majored in production of legumes e.g. Kitui, Machakos, Meru and



Tharaka, this study was confined to only Makueni County due to distance, availability of resources and shortage of time.

### **1.8 Delimitations of the Study**

The diversity in farming in terms of size of farmers and variety of agricultural enterprises was the delimitation. The study focused on small scale farmers dealing with legumes in Makueni County. The choice to delimit the study to legume farmers in the county was first of all to do with the curiosity towards the county that was the focal point of the interest in regard to what area to do fieldwork in. The county has potential in production of leguminous grains and already has a thriving legumes sector but this is mainly for domestic requirements. The closer proximity to export route (the Mombasa Port and the Nairobi-Mombasa Highway), the county has a comparative advantage in exporting the legumes to lucrative legumes markets in India, China and Middle East countries.

### **1.9 Basic Assumptions of the Study**

In this study, it was assumed that the legume farmers in the Makueni County received agricultural extension services. It was also assumed that the factors influencing involvement of farmers in agricultural training programs were uniform across all farmers. Finally, it was assumed that respondents in the study provided honest answers.

### **1.10 Definitions of Key Terms**

**Adult Education:** Refers to the type of education provided to adults (persons who are 18 years and above) for a variety of personal, social, economic and civic development purposes.

**Agricultural Extension:** This is a service which helps legume farmers, through instructive methodology, in enhancing crops production, expanding their productivity levels and profits, bettering their levels of living and lifting social and knowledge levels.

**Facilitator:** A person who teaches or trains farmers in farmers training centers (FTCs).

**Farmers Training Centers:** Local training centers where farmers receive agricultural trainings.

**Farmers' Characteristics:** These refer to the gender, age and educational background of the farmers that influence their involvement in agricultural training programs.

**Farmers' Perceptions about Agricultural Training Programs:** beliefs or views of farmers regarding agricultural training programs. These views could be negative or positive.

**Farmers' Awareness on Agricultural Training Programs:** Refers to knowledge or understanding on availability of agricultural extension and where they can access it.

**Involvement of legume farmers:** Inclusion of legume farmers in all stages of agricultural training programs including decision making processes, actualizing the programs and assessing the benefits derived from such development programs.

**Legume:** A crop grown to produce edible grain in pods. An example of a legume is a bean.

**Organizational Factors:** They are institutional practices and procedures that exclude or discourage farmers' involvement in extension activities (Oakley, 1991). They are also limitations or hindrances in the training methods that facilities apply when designing, delivering and managing educational activities.

### **1.11 Organization of the Study**

The study has five chapters. The first chapter consists of background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, limitation and delimitation, basic assumptions, definitions of key terms and organization of the study in that order. Chapter two entirely covers the literature review related to the research topic and the sub-titles covered are introduction, independent and dependent variables, theoretical framework, conceptual framework and the summary. Chapter Three depicts the research methodology which includes sub-titles on introduction, research design, target population, sample size and sampling procedure , research instruments, pilot testing of instruments, validity of the instruments and reliability of the instruments, data collection procedure , data analysis techniques, ethical considerations and operationalization of variables. Chapter Four covers data analysis and interpretation while Chapter 5 summarises the study findings.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter provides an overview of various aspects of extension education programs as related to the purpose of this study. The literature review covers the involvement of legume farmers in agricultural training programs which is influenced by a number of factors including the organizational factors, farmer's characteristics, awareness on agricultural training programs and the farmers' perception on the training programs.

#### **2.2 Farmers' Involvement in Agricultural Training Programs**

Agriculture is one of the pillars of the Kenya's economy. It provides employment to most of the population, its contribution to the total national output is estimated to 25%, and earns the country about 60% of foreign exchange income. Moreover, the production of crops in the nation bolsters a populace of around 40 million Kenyans which is developing at a high rate. To realize fast development, the nation has since it gained independence in 1963, embarked on different ventures and projects in country aimed to develop the sector and this included the agricultural extension. Nonetheless, in spite of the government and donors investing in agricultural extension, the country's agricultural sector has not shown any significant change (Lele, 1991). To some degree, absence of development programs in the nation has been cited to have contributed to the inadequacies in the agricultural extension. Overall, agricultural extension projects in Kenya have been criticized for taking top-down approach or lacking involvement of farmers in their design and implementation (Mannion and Brebony, 1990; Mpesha, 1976; Oliech, 1975).

Government officials in the nation, then again, have stressed that Kenyan citizens ought to be offered their freedom to take part in taking choices which influence their lives(Rahman, 1991). In spite of these assertions, inclusion of people in Kenya's community development has not improved. Government authorities and development specialists support the element of people's inclusion, yet practically speaking there is no agreement on what involvement entails. For instance, one aspect of involvement is the commitment to contribute the cost or manpower for executing a certain community project designed by development experts (Rahman, 1991). This sort of involvement, with all its great goals, may prompt some genuine flaws in projects execution since it neglects to address the nature of the farmer and his or her homestead (Nagel, 1992). Involvement is communicated in the degree to which the farmers are in control of the educational process, objectives or outcomes. According to Rogers (2004), there are three main approaches of involvement: the first is involvement in the developmental contexts, which means persuading people to be part of the conceptualization of the projects. Whereas in educational contexts, involvement focuses on access to education, target groups need to be motivated to attend training sessions. The third approach is involvement as control which means encouraging the participants to take control or take responsibility. Participants have significant role in decision-making, implementation and evaluation so that the programme does not reflect the concerns of the providers alone but also reflects the concerns of all stakeholders. Genuine involvement of people is non-directive and does not force thoughts on them. It depends on a dialogical procedure. It is instructive and engaging. It begins from what people know and from where they are. It is in view of pulling resources together. It depends on their aggregate exertion; promotes people's independence yet recognizes the partnership among people and their change factors as

co-learners (Burkey 1993; Oakley & Marden, 1985). In this way, in spite of the general practice in community development, people's involvement is not restricted to farmers going to meetings or contributing their labour to ongoing projects. Genuine involvement additionally involves the dynamic involvement of people in the process of project planning and is improved by their cooperation with experts through instructive techniques that increase the farmers' influence on how projects are planned. In any case, it has been noticed that the realities that exist in Kenya and other African nations may not bolster active participatory methodologies (Zaman, 1992). This contention has been the cause of agricultural extension methodologies that advance the exchange of the innovation through firmly managed institutions as an essential requirement for good extension programs. Then again, supporters of participatory extension programs give little understanding regarding how the approach would solve the inconsistencies and puzzles the involvement bring about in systems which are firmly relying on top-down approaches. Many educators argue that involvement is the basis for grassroots development. Gboku & Lekoko (2007), for example, emphasize that sustainable development can only be ensured through people's involvement. Oakley (1991) identifies some of the benefits of promoting people's involvement which are: to obtain information about needs, priorities and capabilities of local people, to mobilize local resources, to improve utilization of facilities and services, to obtain more reliable feedback and to build the capacity of local institutions. Involving farmers in training programmes is vital for social change when they start valuing the process of collective analysis. It is also important to enable farmers to identify what type of changes they wish to achieve and how to go about attaining the changes.

Farmers need to participate in the planning, delivery and assessment process of learning. According to Rogers (1992), different levels of involvement can take place depending on the conditions and influences that appear in the community. In line with this, Oakley (1991) identifies four levels of involvement: non-involvement which refers to a situation where participants have no chance to choose what they want to learn. Training programmes that are considered the best are introduced to the beneficiaries and they have to accept it; nominal involvement is the level where training need assessment are conducted, but the programme content is determined at higher level. It aims mainly to prevent opposition from the community; consultative involvement refers to a situation when the decision-makers seek advice, they usually ask people for advice. The decision-makers may ignore the feedback given by the participants' active involvement. At this level participants can discuss issues, identify their needs, and suggest alternatives, share responsibilities. They have control over the training programme and its various components, for instance, its contents, goals or outcomes and its process.

Arnstein (1969) examined the involvement in various extension Programs executed amid the 1960s and found that the vast majority of them had no capacity to increase the farmers' power to change the programs and their plans. In Arnstein's model, the intent of the programs ranged from as low manipulating of their participants, to as high as controlling their decision- making process (Hardina,2004). He developed six stages of involvement, which comprised of the top of the ladder, and this represents genuine involvement. The next stage encompassed three levels of tokenism, which enables the participants' voice to be listened to. At the level of symbolic involvement, the people have some level of influence (known as tokenism) since some authorities under them can decide on their behalf. The lower (bottom) levels of the ladder

represent non- involvement where the participation of the farmers is allowed without any opportunity to change programs to suite their own needs and results achieved remain as they are in power relations (Aref, 2010 & Arnstein, 1969).

Scholars in the field of extension education seem to have reached a consensus on the severity of lack of involvement in extension programmes and the corresponding need for research (Katz, 2002). Rogers (1992) said that investigation is sorely needed to find out contributing factors for the lack of involvement observed in most extension programmes. Narayan, (1995) called for comparative research between regions on involvement in extension programmes. Wanyonyi (1998) said that "the absence of testable theory has crippled involvement in extension education for decades". World Bank (1993) associated the failure of many development projects in developing countries to lack of involvement. Mbugua (2000) observed that non-adoption of many potentially useful technologies is the failure of research institutions to meaningfully include farmers in the research process. The mechanism used in disseminating new developed research technologies has become an increasingly important issue because it will eventually affect adoption rate of the wider community.

### **2.2.1 The Phases at which Farmers should be involved in Training Programmes**

In the widest view, there are three stages of preparing for a training event: arranging (planning), delivery (implementation) and assessment (evaluation) stages (FAO, 2002). The planning phase includes: Training Need Assessment, and determining objectives, contents, methods and materials. Involvement in education is considered as an important tool to make people aware of their potentials and their capacities for a better change. Hence, the rural development approach calls for active involvement at



all phases of the extension process. These include planning, implementation and evaluation of the training programmes.

Knowles (1990) defines training needs assessment as what people should learn for their own benefit, for the good of the community or good for the people in the world. Thus, it can be defined as a gap between present situation and the required situation. Training need assessment is the process of finding out the difference between the wanted and actual occurrence of the trainees. If appropriately carried out, it explains the scope and content of training and helps to find out the objectives which the training results will be evaluated against (Hassen & Amdissa, 1993). If extension is associated with the actual need that is felt or an important problem being faced, then it will be more effective to bring the intended training outcomes. Thus, the beneficiaries need to be central and actively participated both in needs assessment and setting priorities.

Once training needs have been identified, the programme objectives are formulated based on the priority problems and needs of participants. Training objectives should be developed in order for the training activities to be designed systematically to achieve the intended outcomes. The training objectives are the things that the trainees expected do after trainings (FAO, 2002). Hence, the objectives are made out of the gaps and deficiencies identified during the training needs assessment. A good training program will not be effective if the objectives are incompetently made. To ensure that the training objectives are met, the training content, methods and materials should be developed. According to Gboku and Lekoko (2007) training programme contents should be selected and sequenced in response to the training objectives and assessing them against the criteria of what must be learned to achieve them.

Training methods and materials are essential as they provide learners with appropriate learning activities and help the trainers to effectively present and achieve the training content (FAO, 2002). The combination of methods and materials is ideal since some methods are most suited for demonstration, others to encourage learners' involvement and yet others are good for outdoor activities (Hassen & Amdissa, 1993). Effective training encompasses applying different methods, including displays and hearing methods and aids. It also involves the trainees in the use of several sensual modes or representative system, i.e. enables discussions, observations and practicals to happen (Hassen & Amdissa, 1993). Thus, full involvement of the farmers requires proper planning of training methods and materials. When farmers are involved in the programme planning, the programme will be responsive to the local needs (Gboku & Lekoko, 2007). Farmers can share responsibilities such as providing resources and time which make the programme viable. Involving farmers in decision-making make them own the programme (Gboku & Lekoko, 2007).

The Implementation Phase involves delivery of the training activities with an aim to achieve predetermined goals and objectives. It is the process of putting the training programme objectives and instructional plans into operation (Gboku & Lekoko 2007). Once the training has been adequately thought of, designed and arranged, then it's ready for implementation. Successful implementation requires collaborative efforts of coordinators, facilitators and the target groups. Farmers' involvement in implementation helps in effective mobilization of local resources. Gboku & Lekoko (2007) explained that programmes built on the local resources of participants are more likely to be sustainable than those entirely dependent on external support. In addition, involving people in programme implementation, helps to build local managerial and leadership capacities and strengthens the power of the participants.

Lastly, the Evaluation Phase of the training cycle refers to assessing whether the intended objectives have been met or not and where necessary, modify and improve the program to achieve the training results (FAO, 2002). Involving farmers in the Evaluation Phase helps them to assess whether the program met their needs or not. They may evaluate the efforts, activities and benefits obtained from the programme in the context of their environment. They can readjust, and reform the programme based on the evaluation made (Oakley, 1991). In line with this, Knowles (1990) notes that adult learners should have a chance to evaluate their own learning process.

Planning implementation and evaluation of extension programmes are important factors. When institutions or programme planners fail to plan and design extension programme properly, farmers can be discouraged. This may result to negative effects on extension programmes (Fasokun, Katahoire & Oduaran, 2005). In practice, few institutions are committed to encourage effective local involvement in programme planning, implementation and evaluation (Narayan, 1995). In several countries (Kenya included) planning procedures do not encourage local involvement linkages among partners. It has also been noted that the realities of Kenya may not support true involvement. In line with this, Ephrem (2009) stated that farmers are not adequately involved in the planning process.

### **2.3 Organizational Factors Influencing Involvement of Farmers in Agricultural Training Programs**

Organizational factors comprise of issues existing in the techniques that learning organizations use to plan, convey and direct learning exercises. They are as often as possible one-sided against, or unmindful of the necessities of farmers. They incorporate the resources required for learning exercises; negative states of mind

toward farmers; a general absence of support services in moments and places appropriate to farmers and acknowledgment of earlier learning and beforehand acquired knowledge (UNDP, 1992). When institutions or programme planners fail to plan and design training programmes properly, farmers could be discouraged. In practice, few institutions are committed to encourage effective local involvement in programme planning (Narayan, 1995). In several countries planning procedures do not encourage both local involvement linkages among extension partners. Factors inherent in the planning process are many. The common ones include failure to address the needs of the local people, inappropriate duration, and inflexible provision. Poor management is another factor that discourages adult learners (farmers) from participating in extension programmes. Extension programmes should be monitored and supervised effectively to achieve the intended objectives; otherwise, the programme does not achieve its objectives. If the objectives are not achieved, farmers will not be interested to attend such programmes (Fasokun, zatahoire & Oduaran, 2005).

Many farmers also do not want to attend the training programmes due to incompetent and unmotivated facilitators. Their poor methods of training, inadequate knowledge and skills discourage farmers involvement in the training programmes (Fasokun, Katahoire & Oduaran, 2005). Other organizational factors are the place of residence and the availability of facilities and resources. Further these authors stated that the location of the adult training centres and availability of programme material determines involvement of the adult learners. In general, the priority initiatives and resources assigned by administrators, expectation, organizational leadership, organizational structure, training methods, staffing patterns, and the climate set for change are among the organizational factors.

## **2.4 Farmers Characteristics Influencing their Involvement in Agricultural Training Programs**

The farmer's characteristics like gender, age and educational background do influence the involvement in planning, implementation and evaluation of the training programs. The age of farmer/ learner has been seen to have influence on involvement in the development and execution of educational programs; elders for instance tend to have more positive perceptions on the learning effectiveness compared to the young farmers (Gist, 1988; Lee, 1997; Mayhorn, Stronge, McLaughlin, & Rogers, 2004). The educational background has the influence on perceived usefulness, perceived mastering of learning and perceived confidence of knowledge transfer (Chou, 2001; Davis & Davis, 1990; Whitley, 1997).

Gender on the other hand has a big role in the effectiveness of education systems. Timor (2004) demonstrates that a woman's decision to participate in the training programs is based on the standards, chores and perceptions implanted in the community and therefore not solely based on her individual interests or disinterests. Timor further explains that the traditional roles played by women have made the men to control them. The woman's purview is the home, and therefore, her mobility is very limited. This denies her from access to information as well as making her own decisions.

## **2.5 Farmers' Perception on the Agricultural Training Programs**

According to Moris (1991), agricultural extension refers to the advancement of any part of innovation improvement; how people procure the vital resources; how new technologies are developed; what impacts their decision, the sort of support a given innovation requires; how its selection can be financed and supported and the sort of care it requires. This definition relates to the existing needs for further research in

extension so as to meet its role in the society. For instance, it is important to study farmers' perceptions so as to be able to know what influences them to attend training and the types of lessons they like to learn about and, in this regard, will provide the opportunity to have them adopt the taught technologies.

Sarker and Itohara (2009) studied the perceptions of farmers regarding organic agriculture as well as their attitudes toward extension workers. Their study indicated that extension would be more effective in helping to improve farmers' livelihoods if there was a clear understanding of what farmers want to know and how they want it to be delivered to them. Alonge (2005) studied the perceptions of extension personnel. He identified factors that affected the extension services in many developing countries as being staffed with ill-trained and ill-equipped village extension workers and working in unfavourable environments. Poor farmers have access to only the village extension worker. The study tried to connect the farmers' perceptions to what extension agents deliver to them.

Yurttas and Atsan (2006) pointed out that most agricultural extension training activities are based on voluntary participation. Therefore, in order to have farmers voluntarily participate in extension training, their needs and preferences have to be addressed. Different groups of farmers have varying needs for extension training. For instance, the study by Yurttas and Atsan revealed that farmers' need for extension services differ based on age, number of cattle owned, and educational level. Furthermore, a study by Gautam (2000) revealed that "some farmers indicated that they do not want any extension advice and some do not want the current service to continue".

## **2.6 Awareness on Agricultural Training Programs**

Awareness and understanding of agricultural extension amongst farmers would empower them and foster effective involvement in designing policies or program suitable to their specific local situations. Muatha (2014) who sought to investigate the extension devolution awareness level among the farmers in Kenya as well as factors that would influence the awareness, recommended that there is need to sensitize and educate farmers on their role in achieving development in the agriculture sector within a devolved administration system considering that that majority of them don't understand or know the county governments is responsible for providing agricultural extension at the county level.

Mwamakimbula (2014) indicates that farmers fail to attend any extension training program every year due to lack of information about the training programs conducted in their areas. Again, this was caused by the lack of small farmer groups in which farmers would be able to share such information among them, as it is difficult for an extension agent to visit each farmer and deliver information about the training programs (Davis, 2008).

## **2.7 Theoretical Framework**

This study was based on the two theories as outlined below:

### **2.7.1 Paulo Freire's Banking Education Theory.**

In his theory, Freire describes two models of education: the banking concept of education and empowerment education.

The banking model is a similitude utilized by Freire and proposes that learners are viewed as void ledgers that ought to stay open to stores made by the educator. Freire stresses memorization as a key component of banking education. In banking training

model, the instructor assumes the active part, while learners or students are detached/inactive parts in their educator-student relationship. The banking approach, in this way, advances harsh practices and dehumanizes both the educator and the learner. While education as a change procedure requires free exchange and sharing of experience, the banking model of training makes the student/learner a "quiet spectator". The learners are not urged to create their own thoughts or ideas. Along these lines, the students are prepared and tamed to remember and emulate the educator. Rather than advancing dialogical correspondence, the educator imparts and stores, while the students calmly get, recite and memorize (Freire, 1998, 2002, 2004).

In this study, the “concept of taking development to the farmers by government, NGOs and donors” was therefore considered a misleading notion since no one can develop the other. Farmers must participate in design and implementation of agricultural development programs and considering that they understand their needs and must be involved in those choices that influence their lives. To address the shortcoming of the banking theory of education described above, Freire proposed another type of training theory known as empowerment education (Freire, 1998, 2002, 2004). Empowerment education concentrates on the student and withdraws those traits connected with banking theory. Freire underscores three primary stages in the empowerment education approach: (i) produce group theme (ii) posing the problem issue and (iii) act-reflect-act (Rindner, 2004)

### **2.7.2 Maslow's theory of Hierarchy of Needs**

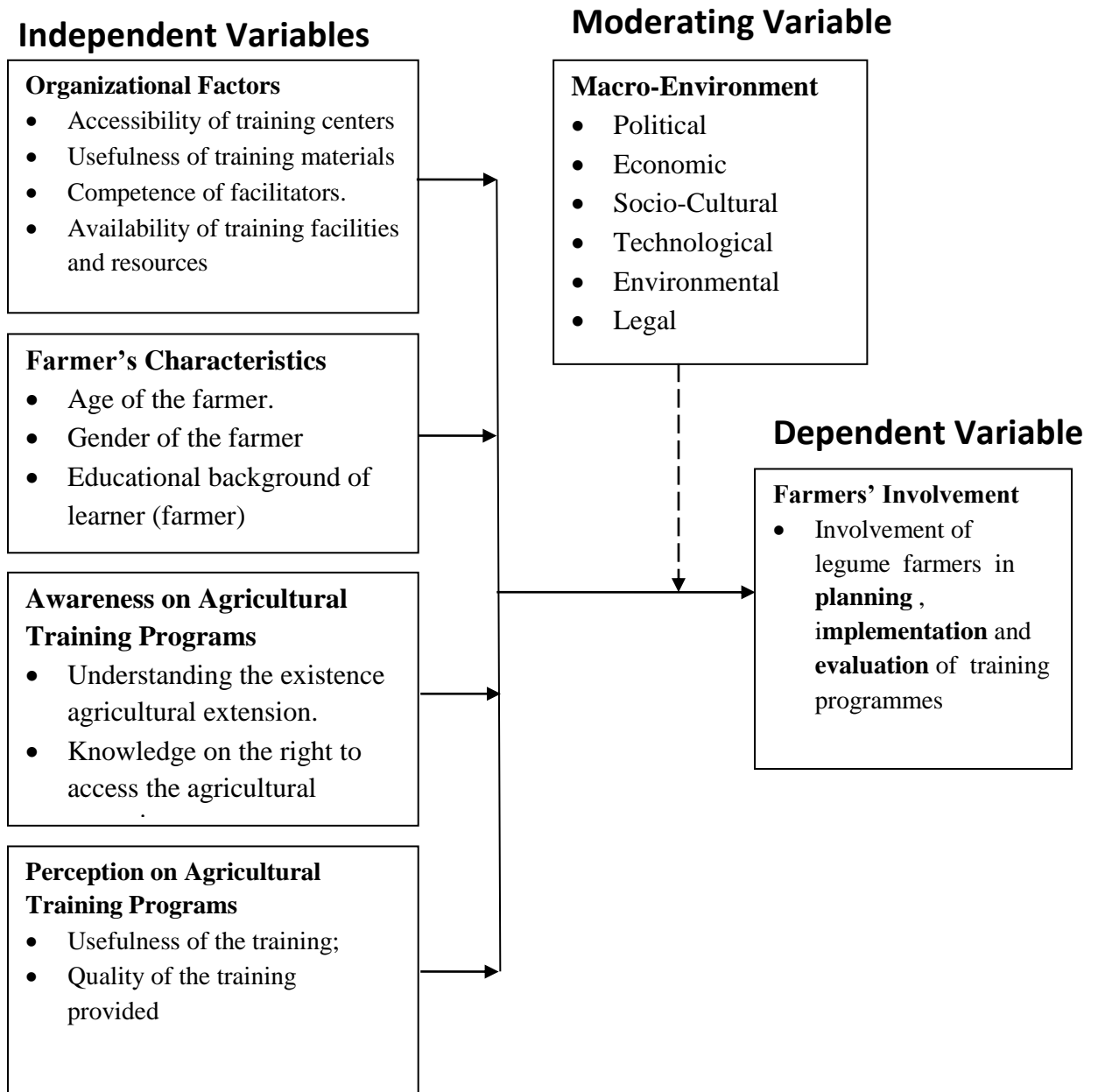
The Maslow's theory of Hierarchy of Needs states that people will normally devote energies towards achieving need that they feel they have, and that the more intensely they feel the need the more prepared they are to work towards meeting that need. In this study, the theory applies where farmers in the training programs can be engrossed



in other things —their home life, relatives, physiological requirements like nourishment and security, and the rundown goes on. When farmers are engrossed with these worries, learning and accomplishment are consistently set aside for later. As indicated by Maslow, this is on the grounds that present concerns are driving the learner's conduct. At the point when learners are worried about specific needs, their conduct is fixated on addressing those requirements which in the priority list. Different concerns will then overshadow learning and achievement. Therefore, to inspire the learners to concentrate on taking in, the teachers can help learners fulfil needs, so the attention can be on substance, learning, and accomplishment.

## **2.8 Conceptual Framework**

Figure 1, describes the relationship between the independent variables and dependent variable.



**Figure 1: Conceptual Framework**

The dependent variable is the involvement of legume farmers in all cycles of the training program which are planning, implementation and evaluation. On the independent variables, the organizational factors such as training facilities, facilitators and good coordination ability would motivate farmers to participate while inappropriateness to the needs of farmers, lack of facilitators and poor coordination by training administrators would demotivate the farmers' involvement in extension programs.

The farmer's characteristics like gender, age and educational background do also influence the involvement in planning, implementation and evaluation of the training programs. These characteristics create limitations for design, delivering and administering learning activities. Perception on the training programs can affect people's involvement in development activities. In this case, extension would be more effective in helping to improve farmers' livelihoods if there was a clear understanding of what farmers want to know and how they want it to be delivered to them. On the other hand, awareness on agricultural training programs is critical for the success of the training programs. Farmers need to know where to access the extension service. A centralized political system need to support the involvement of farmers in development programs. Kenyan political system was highly centralized before the promulgation of the new constitution in August 2010 and little research had not been done in the study area and for this reason it was not clear whether the centralization affected farmers' involvement in extension education.

The macro-environmental factors were highlighted as the moderating variable. These factors are the major external and uncontrollable factors (economic factors, legal, political, and social conditions; technological changes; and environmental forces) that influence farmers' decision making, and affect their involvement.

## **2.9 Summary of Literature Reviewed**

Most of the reviewed literature concentrated in agricultural extension programmes in developed countries. Little has been researched in developing countries where Kenya falls. The literature reviewed shows that involvement of farmers in agricultural training programmes seems to be more of rhetoric than practical. Organizational approaches selected by the training facilitators have a great impact on the success of

the training programs. Many farmers do not want to attend the training programmes due to incompetent and unmotivated facilitators. Their poor methods of training, inadequate knowledge and skills discourage farmers involvement in the training programmes. Other factors are the place of residence and the availability of facilities and resources.

The farmer's characteristics like gender, age and educational background do influence the involvement of farmers in planning, implementation and evaluation processes of the training programs. The age of farmer/ learner has been seen to have influence on involvement in the development and execution of educational programs. The educational background also has the influence on perceived usefulness, perceived mastering of learning and perceived confidence of knowledge transfer. Gender on the other hand has a big role in the effectiveness of education systems.

Farmers' general perception on the training programs need to be considered carefully in order to make the learning process more effective on the part of the extension agents and other development workers. This will in turn improve the efficiency of the training programs as well as help the extension agents gain acceptability among the farmers in the field of work. When farmers are involved in the development activities and are aware about their rights, awareness on agricultural extension services gradually grows up and then there participation in rural development and farming activities will be increased to a great extent. This study sought to validate these factors that influence the involvement of legume farmers in agricultural training programmes in Makueni County.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This chapter introduces the procedure that was employed in answering the research questions, the research design used, target population, sample size and sampling techniques, research instruments, pilot study, data collection techniques, and data analysing techniques.

#### **3.2. Research Design**

The main objective of this study, as indicated earlier in Chapter One was to establish the factors influencing legume farmers' involvement in agricultural training program. This study entailed the descriptive research by use of the survey method. The method was selected because it produces data that is representative and also helps the researcher to describe the situation as it is at a particular moment (Krishnaswami & Ranganatham, 2007). It was also selected to survey a sample number of farmers who had been attending training at the Farmers Training Centers (FTC).

#### **3.3. Target Population**

Borg and Gall (1989) defines a target population as the real hypothetical set of people, event or objects which the researcher wishes to generalize the findings. The researcher sought for the farmer groups in Makueni County that were producing and marketing the leguminous grains. Ten (10) farmer groups operating Village Grain Collection Centers and which were used as training hubs were identified. The groups were located in 5 sub-counties and had a total membership of 1,015 farmers. Table.3.1 shows the membership of farmers in each group/FTC.

**Table 3.1: The Population of Farmers in Selected FTCs**

<b>Sub-County</b>	<b>Name of Farmer Group</b>	<b>Membership</b>
Kibwezi East	Muongano CBO	220
Kathonweni	Yi-kiuuku S.H.G	33
	Kinze Women group	28
	Kithuki CBO	200
	Mbuvo Commercial	200
Makueni	Muvau Farmers	48
	Mbukilye Ngukilye	18
Mbooni East	Amka CBO	200
Kaiti	Kyang'a cereal bank	38
	Kyambeke cereal bank	30
<b>Total</b>		<b>1015</b>

Source: Eastern Africa Grain Council (EAGC) - Makueni Field Office.

### **3.4. Sample Size and Sampling Procedure**

The size of the sample of farmers was determined based on the claims of Best and Kahn (2003). According to Best and Kahn, “An ideal sample size of a target population should be large enough to serve as an adequate representative but small enough to manage in terms of time, money, manpower and complexity of data analysis”.

As indicated by Mugenda and Mugenda (2003) a good sample population ought to be 10% to 30% of the whole population. To determine the sample size in each group, this study applied the 20%, which was within the recommended threshold of 30%. The farmers to be interviewed were then selected using simple random sampling method and a list of interviewees generated. Table 3.2 shows the sample distribution of farmers in each FTC.

**Table 3.2: The Sample Distribution of Farmers in Selected FTCs**

<b>Name of Farmer Group</b>	<b>Membership</b>	<b>Sample Size</b>
Muungano CBO	220	44
Yi-kiuuku S.H.G	33	7
Kinze Women group	28	6
Kithuki CBO	200	40
Mbuvo Commercial	200	40
Muvau Farmers	48	10
Mbukilye Ngukilye	18	4
Amka CBO	200	40
Kyang'a cereal bank	38	8
Kyambeke cereal bank	30	6
<b>Total</b>	<b>1015</b>	<b>203</b>

### **3.5. Research Instruments**

To maximize the quality of data, different approaches were used in the data collection process. Using more than one data collection method was considered very important as it combines the strengths of any source of data and corrects some deficiencies that may exist. Therefore, to maximize the reliability and validity of the data, questionnaires, semi-structured interview questions were used for data collection.

#### **3.5.1 Questionnaire**

The principal tool of data collection for this study was the questionnaire. The questionnaire was used to collect the information from sampled legume farmers. The questionnaire was designed to collect information from the legume farmers had three parts. The first part was about the respondents' demographic profile and some open-ended questions about legume farmers' involvement in the planning process of the training program. The second part dealt with areas of involvement in which farmers

were expected to participate. The third part of the questionnaire covered major factors influencing legume farmers' involvement in the training program.

### **3.5.2 Interview Guide**

Most of the people are usually more willing to talk than to write, reason why interviewing is one of the leading methods of data collection. According to (Krishnaswami & Ranganatham, 2007), interview enables the researcher to seek clarifications and brings to the forefront those questions, that for one reason or another, respondents do not want to answer. Thus, interview guide was used to obtain an in-depth and detail information. It was also used to supplement the data collected through questionnaires.

### **3.6. Pilot Testing of Research Instruments**

Prior to the data collection, the questionnaires will be checked by undertaking a pre-testing at one of the FTCs which is not included in the sample then the researcher's supervisor will be consulted to check whether the questionnaire can measure what it is intended to measure. Accordingly, some modifications will be made where necessary.

### **3.7. Validity of Research Instruments**

Validity refers Validity refers to the level at which evidence supports any inferences made by a researcher based on the data gathered using a particular tool. Validity also refers to the degree to which the research conclusions are sound (Patton, 2002). This study ensured that the validity of the study instruments existed by pre-testing the instruments before the data collection exercise. The instrument was pre-tested with farmers similar to those in the sample but not involved in the actual study. Based on the feedback given during pre-testing, some changes were made by modifying



sentences and question format, which helped to improve the validity of the questionnaire.

### 3.8. Reliability of the Instruments

Reliability is a measure of the degree to which a research instrument produces consistent results or data the similar way each time it is used under the similar condition with the similar subjects. To test the reliability of the questionnaire that was administered, Cronbach alpha analysis was carried out. The table 3.2 summarises the Cronbach's alpha **0.749**, which indicates a high level of internal consistency for the scale in the legume study.

**Table 3.3: Summary Reliability Statistics**

<b>Cronbach's Alpha</b>	<b>Cronbach's Alpha Based on Standardized Items</b>	<b>N of Items</b>
.749	.764	17

Appendix 1 on Item-Total Reliability Statistics presents the "**Cronbach's Alpha if Item Deleted**" in the final column. When some questions were removed from the scale the "Corrected Item-Total Correlation", the new value for Cronbach's Alpha was **0.832**, much higher than the previous **0.749** Cronbach's Alpha value.

### 3.9. Data Collection Procedure

Before the commencement of data collection, the researcher sought research permit from the National Commission for Science, Technology and Innovation (NACOSTI). The research assistants were also recruited and trained on data collection. The assistants were engaged in the pre-testing of the questionnaire and the feedback was provided to modify the questionnaire.

The data collection was done in August, 2013, from 205 randomly selected farmers in Makueni County. This was done through individual interviews using a structured questionnaire. The researcher consulted the leader of each farmer group about the research and the aim of the study and expressed the need to conduct an interview with farmers in the group. The appointments with the selected farmers were sought and an interview schedule was prepared. All selected participants were visited by the research assistants to seek their willingness to participate in the study. Each research assistant produced the Participant's Introduction Letter (Appendix 5) to the respondents and explaining the study. Farmers were allowed to ask the research assistants any clarifications about the study. Those respondents who agreed to proceed with the interviews were given the questionnaires to complete. Each interview took between 10-15 min to complete. The research assistants would bring all the completed questionnaires for verification. The ones with gaps were rectified before they were availed for data entry.

### **3.10. Data Analysis Techniques**

Following the data collection, the data from the questionnaires were coded and entered into a computer and later exported to Statistical Package for Social Sciences (SPSS) for analysis. The analysis involved the identification of the characteristics of the participants and how they related to various aspects of the study.

Descriptive statistics (frequencies & percentages) were used to describe farmers' demographic characteristics (age, gender, and education level), organizational factors (kilometres the farmers travelled to access the training centre, usefulness of the training, level of facilitators' competence and availability of training facilities), perceptions about the agricultural training programs and the awareness on the existing agricultural extension services.

### **3.11. Ethical Considerations**

Before the research was conducted, the researcher sought permission from the university requesting for a letter of introduction. Involvement of respondents in the study was on voluntary basis and it was free for any interviewee to withdraw from the interview anytime. The researcher also guaranteed the respondents confidentiality of any information that they would provide during the interviews. Names of the respondents were optional on the data collection tools. Completed questionnaires were kept in a lockable place accessible to the researcher only.

### 3.12. Operationalization of Variables

**Table 3.4: Operationalization of Variables**

Objective	Type of Variable	Indicators	Measurement	Level of Scale	Tools for Analysis	Type of Analysis
To establish the influence of organizational factors on involvement of legume farmers in agricultural training programs.	Independent <ul style="list-style-type: none"> <li>Organizational factors</li> </ul>	<ul style="list-style-type: none"> <li>Accessibility of training centers to many trainees</li> <li>The usefulness of training materials provided.</li> <li>Level of knowledge, skill and competence among the training facilitators.</li> <li>Availability of training facilities and resources assigned by administrators.</li> </ul>	<ul style="list-style-type: none"> <li>Kilometres (km) the farmer is expected to travel in order to get to the nearest training centre.</li> <li>Effects on the training outcome level.</li> </ul>	Ratio scale, Ordinal,	Frequency and percentages, SPSS.	Descriptive
To establish how farmers' characteristics influences the involvement of legume farmers in agricultural training programs.	Independent <ul style="list-style-type: none"> <li>Farmer's characteristics</li> </ul>	<ul style="list-style-type: none"> <li>Ability of a farmer in a particular age bracket, or gender to be involved in agricultural training programme.</li> <li>Level of education attained by the farmer through formal schooling.</li> </ul>	<ul style="list-style-type: none"> <li>No of farmers based on age and gender who are viably engaged.</li> <li>Education scale (none, primary,</li> </ul>	Interval, Nominal, Ordinal	Frequency and percentages, SPSS.	Descriptive

			secondary or tertiary)			
To assess how legume farmers' perceptions about agricultural training programs the influences their involvement in the programs;	Independent <ul style="list-style-type: none"> <li>• Perceptions about agricultural training programs</li> </ul>	<ul style="list-style-type: none"> <li>• Usefulness of the agricultural training programs to farmers.</li> <li>• Quality of the agricultural training provided</li> </ul>	<ul style="list-style-type: none"> <li>• Ratings on farmers' satisfaction with the agricultural training provided.</li> <li>• Satisfaction scale</li> </ul>	Ordinal	Frequency and percentages, SPSS.	Descriptive
To identify the influence of farmers' awareness on agricultural training programs on their involvement in the programs.	Independent <ul style="list-style-type: none"> <li>• Awareness on agricultural training programs</li> </ul>	<ul style="list-style-type: none"> <li>• Level of understanding the existence of agricultural training programs in the area</li> <li>• Level of knowledge on the right to access the agricultural extension.</li> </ul>	<ul style="list-style-type: none"> <li>• Ratings on farmers' understanding of agricultural training</li> <li>• Knowledge scale</li> </ul>	Ordinal	Frequency and percentages, SPSS.	Descriptive

To study the factors influencing involvement of legume farmers in agricultural training program.	Dependent <ul style="list-style-type: none"> <li>• Farmers' Involvement</li> </ul>	<ul style="list-style-type: none"> <li>• Level of involvement in planning , implementation and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Ratings on farmers' involvement</li> </ul>	Ordinal	Frequency and percentages, SPSS.	Descriptive
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# CHAPTER FOUR

## DATA ANALYSIS, PRESENTATION AND INTERPRETATION

### 4.1 Introduction

This chapter covers the analysis, presentation and interpretation of the data collected. The data was collected from sampled legume farmers through questionnaires and semi-structured interviews. The collected data was categorically analyzed and inferences made in relation to the basic research questions.

### 4.2 Response Rate

A survey is expected to have a good response rate in order to yield accurate and useful results which are representative of the target population (Hamilton, M. B. (2003). The response rate for this study was obtained by dividing the number of respondents who completed the interview by the number of sampled farmers. A total of 205 questionnaires were distributed to the sampled farmers and 185 were returned. The Response Rate was therefore 90%.

### 4.3 Demographic Information

The considered demographic characteristics in this study were gender, age and educational background. Hence, Tables 4.1, 4.2 and 4.3 shows the demographic profiles of the interviewed farmers.

**Table 4.1: Gender of the Farmer Respondents**

<b>Variable</b>	<b>Category</b>	<b>Frequency(f)</b>	<b>%</b>
<b>Gender</b>	Female	114	62
	Male	71	38
	<b>Total</b>	<b>185</b>	<b>100</b>

As indicated on Table 4.1, among the 185 farmers that completed the questionnaire in Makueni County, 114 (62%) were female while 71 (38%) were male. This may imply that females dominate legume farming and women may accumulate a wealth of legume-specific knowledge and expertise that is provided through agricultural extension programs targeting legume crops.

**Table 4.2: Age of the Farmer Respondents**

<b>Variable</b>	<b>Category</b>	<b>Frequency(f)</b>	<b>%</b>
<b>Age</b>	35 to 44	70	38
	45 to 54	64	35
	Above 55	51	28
	<b>Total</b>	<b>185</b>	<b>100</b>

According to Table 4.2, majority of the respondents (38%) were aged between 35-44 years, which fall in an appropriate age group since this age group represents the productive portion of the society. However, in the second category, that is, above 45-54 years, was also significant (35%). This implies that as age group increases the participation in training events decreases. One can observe a negative correlation between age and participation in the program.

**Table 4.3: Respondents' Level of Education**

<b>Variable</b>	<b>Category</b>	<b>Frequency(f)</b>	<b>%</b>
<b>Education</b>	None	13	7
	Primary	85	46
	Secondary	60	32
	Tertiary	27	15
	<b>Total</b>	<b>185</b>	<b>100</b>



As shown in Table 4.3, one can observe that there are differences in the respondents' educational level. The farmers who have attained higher level of education had low involvement in the agricultural training programs. On the other hand, those who were illiterate and they had not gone to school (7%) were not also involved as well. This shows that there is disparity in farmers' educational status and the level of involvement.

#### **4.4 Factors Influencing the Involvement of Farmers in Agricultural Training Programs**

This study covered factors influencing the involvement of legume farmers in agricultural training programs. These included the organizational factors, farmer's characteristics, the awareness of agricultural training programs and the farmers' perception on the training programs. To measure these factors, a five-point Likert-scale was formulated and read to the respondents and they rated each as agree, strongly agree, uncertain, disagree and strongly disagree. The analysis of each variable is described below:

##### **4.4.1 Farmers Characteristics Influencing their Involvement in Agricultural Programs**

Tables 4.4 and 4.5 show how the farmer's characteristics do influence the involvement of farmers in the planning, implementation and evaluation of the training programs. The majority of the respondents (46%) as shown in Table 4.4 agreed that there is significant gap in age among legume farmers involved in the agricultural training programme. This shows that as age group increases, their participation in the training program decreases. On the other hand, most of the respondents (31%) agreed that there is gender gap among legume farmers involved in the agricultural training

programme which depicts that their disparity in the involvement of women and men in the agricultural training programs and therefore there is much more to be done in the sphere of gender and agriculture, to take into account the interests of both women and men to ensure an equitable future for all.

**Table 4.4 Farmers' Characteristics influencing the Involvement of Legume farmers in Agricultural Training Programs**

Factors	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
	f	%	f	%	f	%	f	%	f	%
There is significant gap in age among legume farmers involved in the agricultural training programme.	15	8	78	41	2	13	64	34	9	5
There is gender gap among legume farmers involved in the agricultural training programme.	26	13	71	36	1	10	57	29	17	9

#### **4.4.2 Organizational Factors Influencing the Involvement of Farmers in Agricultural Programs**

This study measured the organizational factors on involvement of legume farmers in agricultural training programs and the factors were; the accessibility of training centers, usefulness of training materials, competence of facilitators and availability of training facilities and resources.

During the interviews, the farmers were also asked to estimate the distance they covered to the nearest training centre. Table 4.5 shows the analysis.

**Table 4.5: Respondents' Response on the Distance Covered to the Training**

**Centre**

	<b>Code</b>	<b>Frequency(f)</b>	<b>%</b>
<b>How many kilometres (km) from your home to the nearest training centre</b>	Less than 1km	22	12
	1-5 km	107	58
	6 -10 km	31	17
	11-15 km	15	8
	Above 15km	10	5
<b>Totals</b>		<b>185</b>	<b>100</b>

Table 4.5 depicts that most of the training centers are closer to the farmers considering that a little over half of respondents (58%) cover 1 -5km to reach the training centre. Only 5% of the respondents cover more than 15 km. In Table 4.6, 55% of the interviewed farmers agreed that the training centres were accessible to many trainees and this is good for farmers as it encourages them to attend the trainings. This also depicts that the farmers who live far from the training centres do not come early for the training as per the time schedule. Some farmers may not attend the training since they need fare to travel to the training centre unlike those who live closer the centres as they can just walk.

**Table 4.6 Organizational Factors Influencing the Involvement of Legume farmers in Agricultural Training Programs**

<b>Factors</b>	<b>Strongly Agree</b>		<b>Agree</b>		<b>Uncertain</b>		<b>Disagree</b>		<b>Strongly Disagree</b>	
	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>	<b>f</b>	<b>%</b>
The training centre is accessible to many trainees	49	26	106	55	9	5	22	12	5	3
The Training programme provides useful training materials.	29	15	109	57	31	16	16	8	5	3
The facilitators are qualified to handle the training.	76	40	93	49	21	11	1	1		

Closer to half of the respondents (49%) as shown in the table 4.5, agreed that the facilitators are qualified to handle the agricultural training. The usefulness of the training materials provided by the facilitators was also rated and 57% of the respondents agreed to be useful. However, some farmers interviewed complained that some trainers rush their training in order to cover much in one session and farmers end up not comprehending much. The farmers recommended that the trainers should handle one topic at a time to ensure that it's well understood by farmers. It was also observed that communication barrier exists especially elderly farmers are being taught and the farmers suggested that demonstrations should be used where applicable for better understanding.

#### 4.4.3 The Farmers' Perceptions of Agricultural Trainings

The study sought to establish the farmers' perceptions so as to be able to know what influences them to attend training and the usefulness of the training program as this would provide the opportunity to have them adopt the taught technologies.

**Table 4.7 Farmers' perception on the agricultural training programs**

Factors	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
	f	%	f	%	f	%	f	%	f	%
Legume farmers have interest in the training.	94	50	77	41	1	6	3	2	3	2
Legume farmers have benefitted from the trainings given.	72	38	74	39	3	16	11	6	2	1

As shown in Table 4.7, 50% of the farmers interviewed strongly agreed to have interest in the training while most of them (39%) agreed to have benefitted from the

trainings given. This shows that the agricultural trainings delivered to farmers are importance and such trainings influences them to attend training in order to learn on new technologies.

**Table 4.8: Respondents' Response on the Benefits of the Training Program**

		Frequency(f)	%
<b>Do you think the subjects taught are of any benefit to you?</b>	Yes	180	97
	No	5	3
<b>Total</b>		<b>185</b>	<b>100</b>

The farmers were asked which specific benefits they had received and the Table 4.8 shows that 97% of the farmers accepted that the lessons they were taught were of benefit to them.

The results in Table 4.9, shows improved agricultural practices, farming business, increased yield and improved storage were some of the benefits that were realized by farmers as a result of the agricultural trainings. This suggests that governments and private enterprises engaged in agriculture should invest more funds in agricultural extension services.

**Table 4.9: Benefits of the Agricultural Training Program**

Benefits	Frequency(f)	Percentage
Increased yield	31	17
Improved storage	26	14
Farming as a business	31	17
Improved agricultural practices	121	65

#### 4.4.4 Farmers' awareness on Agricultural Training Programs

Awareness and understanding of agricultural extension amongst farmers would empower them and foster their effective involvement in designing training programs that are suitable to their specific needs.

**Table 4.10: Farmers' awareness on agricultural training programs**

Factors	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
	f	%	f	%	f	%	f	%	f	%
Legume farmers have awareness about the availability of the training programme.	39	21	91	48	3	17	19	10	7	4
Farmers understand their right to receive agricultural training services from the County Government	67	35	63	33	2	15	27	14	6	3

According to Table 4.10, closer to half of the farmer respondents (48%) agreed that they were aware of the availability of the agricultural training programme in the County. This reveals that there is good communication between the extension agents and farmers, this leads to awareness of information regarding agricultural training programs in their area. It can also be concluded that farmers share information on the availability of agricultural extension services in the rural areas.

In addition, 35% of those interviewed strongly agreed that farmers understand their right to receive agricultural training services from the County Government showing that most of the farmers can access such services and if they require any agricultural information, they can liaise with the agricultural officers. Due to this

awareness, farmers can be reached and involved in the design of the training programs that address their needs.

#### **4.5 Areas of Farmers' Involvement in the Agricultural Training Program**

According to FAO 2002, there are three phases of the training process: planning, implementation and evaluation. The farmer respondents were asked to indicate the various phases they get involved in agricultural training programmes on items presented on the questionnaire and the results are as shown on Table 4.11. According to data in the table, farmers are involved in identifying the training needs that should be addressed and also selecting the most urgent needs in the programme development. This implies that it will be easy for the training officers to define the scope and requirements of the training skills that the farmers may require (Hassen & Amdissa, 1993). The other implication is that farmers would be able to establish the objectives of the agricultural training programs against which the results will be evaluated.

It was also observed that farmers are involved in deciding the location of the training centre. 49% of the respondents agreed to have been participated in the process of venue selection. The farmers also agreed that they would contribute labour and/or money to the training program during implementation. This willingness to contribute funds in a cost sharing arrangement is important as it can lead to sustainability of the agricultural training programs. It also shows that farmers are aware of limited resources at County level and they know the sources of resources for running the training program.

Majority of the respondents (62%) agreed that they were encouraged to give comments on the training methods and content which is critical in achieving the intended training objectives and create the effectiveness of the training programs.



Accordingly, to Table 4.11, 55% of the farmers agreed to have been encouraged to evaluate the effectiveness of the training program. Some respondents particularly the elderly farmers said that they preferred demonstrations or practicals to theory sessions. This feedback is good and it can be used to change the training methods and revise the training materials.

**Table 4.11: Areas of involvement in Agricultural Training Program**

Areas of involvement	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
	f	%	F	%	f	%	f	%	f	%
Trainees involved in identifying the training needs and problems	46	24	83	43	12	6	42	22	9	5
Trainees involved in selecting the most urgent needs in the programme development.	41	22	90	47	10	5	39	21	10	5
Trainees involved in deciding the location of the training.	50	26	95	49	17	9	23	12	7	4
Trainees are willing to contribute labour and/or funds to the implementation of training programme.	33	17	88	46	37	19	25	13	7	4
Trainees know the resources required for running the training programme.	22	12	88	47	30	16	36	19	13	7
Trainees are encouraged to comment on the training methods and content.	44	23	11	62	19	10	7	4	2	1
Trainees are encouraged to evaluate whether the training programme was effective or not.	61	32	10	55	13	7	7	4	5	3

# **CHAPTER FIVE**

## **SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.0 Introduction**

The chapter presents the summary of the study findings, conclusions and recommendations for further improvement on agricultural training programs and suggestions for further research.

### **5.1 Summary of the Study Findings**

The purpose of this study was to establish the factors influencing the involvement of legume producers in agricultural training programmes in the Makueni County. The objectives of the study were to assess how the organizational factors influence the involvement of legume farmers in agricultural training programs; to establish how legume farmers' characteristics influence the involvement of legume farmers in agricultural training programs; to assess how legume farmers' perceptions about agricultural training programs influence their involvement in the programs; and to establish the influence of farmers' awareness on agricultural training programs on their involvement in the programs.

Based on the study objectives, the following were the major findings of the study:

- a) The study revealed that organizational factors have positive influence in the involvement of the farmers in development of the agricultural training programs. Many farmers agreed that the accessibility of training centers, usefulness of training materials, competence of facilitators and availability of training facilities and resources influences their involvement.

- b) With regard to the farmer's characteristics like gender, age and educational background, the study showed that do as age group increases, enrolment into the training program decreases. On gender, the findings indicate that gender factor is critical in the involvement as some of the enterprises are dominated by women e.g. legumes production. Finally, it was found out that the farmers who had attained higher level of education, had low level of involvement in the agricultural training programs while those who were illiterate and they had not gone to school were not also involved as well.
- c) The study findings show that farmers' perception on the agricultural trainings is positive as most of them (97%) benefit from the training programs. This stresses the importance of studying farmers' perceptions so as to be able to know what influences them to attend training and the types of lessons they like to learn about and, in this regard, will provide the opportunity to have them adopt the taught technologies. It also implies that with changes in prevailing weather and increased crop diseases, there is need to have agronomists who can help farmers address the crop production challenges.
- d) This study also determined that many farmers are aware of the availability of the agricultural training programme in their localities and they understand their right to receive agricultural training services from the County Government. Therefore farmers can be reached and be involved in the implementation of the training programs that address their needs.

## **5.2 Discussions**

This study has shown that organizational factors have positive influence in the involvement of the farmers in development of the agricultural training programs. This

validates Narayan, 1995 argument that when institutions or programme planners fail to plan and design training programmes properly, farmers could be discouraged. The accessibility of training centers, usefulness of training materials, competence of facilitators and availability of training facilities and resources influences their involvement in training programs.

As reported by a number of studies, farmers' characteristics, such as age, gender, and education background have an impact on their involvement in the agricultural extension services, as these aspects have a positive effect on farmers' technical efficiency and, hence, influence the need to look for more of it through extension services. The age of farmer has been seen to have influence on involvement in the development and execution of educational programs; elders for instance tend to have more positive perceptions on the learning effectiveness compared to the young farmers (Gist, 1988; Lee, 1997; Mayhorn, Rogers, Stronge & McLaughlin 2004). This implies that as age group increases the participation in training events decreases. One can observe a negative correlation between age and participation in the program. According to Fasokun, Oduaran & Katahoire (2005), as age increases, people may think that they are 'too old to learn'. Thus, this kind of perception may affect their participation. On the other hand, Cross (1989) argued that the time required for learning new things increases as age increases. In this study, the majority of respondents fall in an appropriate age group (35-44 years) since this age group represents the productive portion of the society.

The educational background has been seen to have an influence on perceived usefulness of the training as cited by Davis & Davis, 1990; Chou, 2001; Whitley, 1997. This study showed that farmers who have attained higher level of education had

low involvement in the agricultural training programs while those who were illiterate and they had not gone to school were not also involved as well.

Gender on the other hand has a big role in the effectiveness of education systems. The legume crop is dominated women and that influences their participation in the agricultural training programs. Timor (2004) demonstrates that a woman's decision to participate in the training programs is based on the standards, chores and perceptions implanted in the community and therefore not solely based on her own interests or disinterests.

The study found out that farmers' perception on the agricultural trainings were positive as most of them (97%) benefit from the training programs. This justifies the argument that for farmers to participate in extension training, their needs and preferences have to be addressed (Yurttas and Atsan 2006). The study found that 50% of the farmers interviewed strongly agreed to have interest in the training as they were benefitting from the trainings given. This implies that extension would be more effective in helping to improve farmers' livelihoods if there was a clear understanding of what farmers want to know and how they want it to be delivered to them (Sarker and Itohara 2009).

This study also determined that the awareness and understanding of agricultural extension amongst farmers is there. Many farmers are aware of the availability of the agricultural training programmes in their localities and they understand their right to receive agricultural training services from the County Government. Therefore farmers can be reached and be involved in the implementation of the training programs that address their needs. This justifies Mwamakimbula (2014) who indicated that farmers fail to attend any extension training program every year due to lack of information about the training programs conducted in their areas. Additionally, some farmers

were encouraged to attend training programs just because their friends were aware of the training programs and convinced them to do so. Again, this emphasizes the importance of having small farmer groups. These groups can help increase the number of farmers attending training programs as it is easier for them to spread information about the training among themselves (Davis 2008).

### **5.3 Conclusions**

While there are still other counties in Kenya that have not been studied on the farmers involvement in agricultural trainings, the findings of this study concludes that the legume farmers in Makueni County were involved in the various phases of agricultural training programme. However, there are some factors that need to be considered during the management of the agricultural training programs as they have great impacts on farmers' involvement. These factors include the organizational factors such as the distance of the training centers, lack of facilities and qualified facilitators. The elderly, the illiterate and the women farmers should also be considered during the design of the agricultural training programs in order to developed programs that suite them. The perception of farmers in the agricultural extension services is another critical factor. For farmers to participation in extension programs, they need to be satisfied with such services. Finally, good communication between the extension agents and farmers is important as it leads to awareness of information regarding agricultural training programs in their area.

### **5.4 Recommendations**

The following are the recommendations based on the findings and conclusions of this study:

- (i) Extension agents both from public and private sector should develop special agricultural training programs for the elderly and illiterate farmers. The training programs should have special time schedule in order to motivate them to attend the trainings.
- (ii) Majority of the farmers interviewed showed willingness to contribute labour and/or funds to the implementation of training programmes. Based on this, the extension agents should further engage farmers in developing cost-share training programs as this will ensure sustainability in implementation.
- (iii) Finally the County Governments should increase funding for agricultural training programmes as they contribute to increased yields that would lead to food security.

## **5.5 Suggested Further Study**

The following areas are suggested for further study:

- (a) Since the study was limited to Makueni County, a replication of the study is necessary in other counties in order to show a more accurate picture of the factors affecting farmers' involvement in agricultural training programs.
- (b) It is important to study another enterprise other than legumes considering that the crop is mainly produced and handled by women.
- (c) Finally, a study on the influence of educational background on the involvement of farmers in agricultural training programs should be studied in order to demystify why the involvement of the highly learned and the illiterate farmers in the agricultural training programs is low compared to those who attained primary and secondary education.

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## APPENDICES

### Appendix 1: Item-Total Reliability Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Trainees involved in identifying the training needs and problems	34.819	47.596	.538	.698	.716
2. Trainees involved in selecting the most urgent needs in the programme development.	34.865	47.376	.571	.681	.713
3. Trainees involved in deciding the location of the training.	35.088	51.751	.334	.321	.737
4. Trainees are willing to contribute labour and/or funds to the implementation of training programme.	34.871	51.948	.342	.278	.736
5. Trainees know the resources required for running the training programme.	34.608	48.275	.533	.447	.717
6. Trainees are encouraged to comment on the training methods and content of the courses.	35.240	52.407	.451	.428	.730
7. Trainees are encouraged to evaluate whether the training programme was effective or not.	35.327	51.386	.468	.386	.727
8. The training programme is need-based.	35.392	51.346	.476	.473	.727
9. The training centre is accessible to many trainees	35.111	51.699	.352	.322	.736

10. The Training programme provides useful training materials.	34.947	52.815	.314	.325	.739
11. The facilitators are qualified to handle the training.	35.520	52.451	.510	.465	.728
12. Legume farmers have awareness about the availability of the training programme.	34.977	50.247	.474	.365	.725
13. Farmers understand their right to receive agricultural training services from the County Government	35.053	48.450	.503	.485	.720
14. Legume farmers have interest in the training.	35.620	55.566	.144	.284	.751
15. Legume farmers have benefitted from the trainings given.	35.310	52.156	.366	.380	.735
16. There is significant gap in age among legume farmers involved in the agricultural training programme.	34.392	61.346	-.271	.469	.790
17. There is gender gap among legume farmers involved in the agricultural training programme.	34.415	58.821	-.129	.428	.784

## Appendix 2: A Questionnaire for Farmers

The main purpose of this questionnaire is to collect the necessary information on the major factors influencing legume farmers' involvement in agricultural training program. It also intends to collect relevant data on the status of legume farmers' involvement in agricultural training programmes done in this area. Your sincere cooperation in answering each question is therefore highly important since the success of this study entirely depends upon your earnest and genuine response to the questions. Writing your name in any part of the questionnaire is optional. Individual data will be kept confidential.

**Instruction I:** Read carefully and write short answer on the space provided or circle the letter of your choice.

Name of the Responder: \_\_\_\_\_

1. Gender: Male  Female
2. Age in bracket 35-44  45-54   $\geq 55$
3. Educational Background: None  Primary  Secondary  Tertiary
4. Have you ever attended agricultural training event?
  - A. Yes
  - B. NoIf NO state the reason-----  
If YES, how did you join agricultural training event?
  - A. On my own request
  - B. I was motivated by my friend
  - C. I was motivated by a facilitator
  - D. If any other

5. How many kilometres (km) from your home to the nearest training centre?

---

6. Do you think the subjects taught are of any benefit to you?

A. Yes

B. No

If YES, state the benefit -----

If NO, explain -----

7. Did you get involved in the planning process of the training programme?

A. Yes

B. No

If NO, state the reason.

---

---

If YES, what extent did you get involved? (A. Identification of the learning needs, B. Commenting on training methods C. Evaluation on the effectiveness of the programme) “all 3 means fully involved, any 2 means partially involved, any 1 means barely involved”

---

8. What do you think is the importance of your involvement in all stages of the training programme?

---

**Instruction II:** The following list shows areas of legume farmers' involvement in agricultural training programme. Please indicate your answer by putting a tick.

<b>Areas of involvement</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
Trainees involved in identifying the training needs and problems					
Trainees involved in selecting the most urgent needs in the programme development.					
Trainees involved in deciding the location of the training.					
Trainees are willing to contribute labour and/or funds to the implementation of training programme.					
Trainees know the resources required for running the training programme.					
Trainees are encouraged to					



comment on the training methods and content of the courses.					
Trainees are encouraged to evaluate whether the training programme was effective or not.					

**Instruction III:** The following list shows the major factors that influence legume farmers' involvement in agricultural training programme. Please indicate your answer by putting a tick.

<b>Factors influencing involvement</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
The training programme is need-based.					
The training centre is accessible to many trainees					
The Training programme provides useful training materials.					
The facilitators are qualified to handle the training.					
Legume farmers have awareness about the availability of the training programme.					
Farmers understand their right to receive agricultural training services from the County Government					
Legume farmers have interest in the training.					

Legume farmers have benefitted from the trainings given.					
There is significant gap in age among legume farmers involved in the agricultural training programme.					
There is gender gap among legume farmers involved in the agricultural training programme.					

**Thank you in advance!**

## Appendix 4: Map of Makueni County

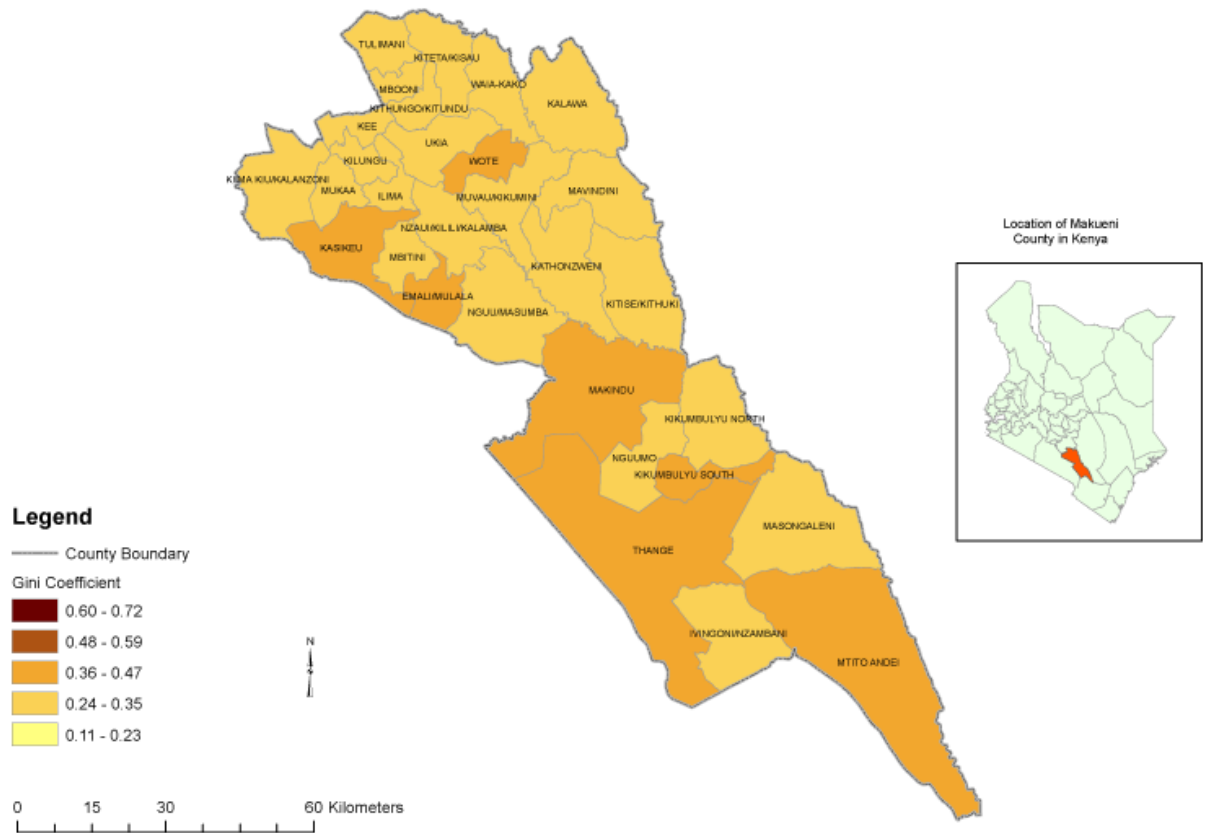


Figure 2: Map showing boundaries of Makueni County

## Appendix 5: Participant Introductory Letter

1<sup>st</sup> August 2016

To Whom It May Concern

Re: Participant Introductory Letter

You are invited to participate in a research study titled "*Factors Influencing Involvement of Legume Farmers in Agricultural Training Programmes in Makeni County, Kenya.*" This study is seeking to establish the factors influencing the involvement of legume farmers in agricultural training programs in Makeni County

In this study, you will be asked to complete a questionnaire. Your participation in this study is voluntary and you are free to withdraw your participation from this study at any time. The survey should take only 15 minutes to complete.

This survey has been approved by the University of Nairobi, Department of Extra Mural Studies. There are no risks associated with participating in this study. The survey collects no identifying information of any respondent. All of the response in the survey will be recorded anonymously.

The information collected in this study may benefit farmers, the Government of Kenya, the Ministry of Agriculture, non-governmental organizations, researchers, extension officers and adult education facilitators to understand the underlying factors that influence the legume farmers' involvement in the planning, planning, implementation and evaluation of the agricultural training programmes. With such information, it is expected that the stakeholders involved in the development of the training programmes might be able to minimize barriers to involvement, thereby making it easier for more people to take advantage of the services the programmes offer.

If you have any questions regarding this research project in general, please contact Samwel Rutto. Tel No: 0712 155751. By completing and submitting this survey, you are indicating your consent to participate in the study. Your participation is appreciated.

Thank you



**Samwel Rutto**  
Graduate Student  
University of Nairobi

**Appendix 6: Letter of Introduction- University of Nairobi**





## Appendix 7: NACOSTI Research Permit



### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
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Website: www.nacosti.go.ke  
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P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No.

Date:

NACOSTI/P/16/26879/12731

26<sup>th</sup> August, 2016

Samwel Kiplangat Rutto  
University of Nairobi  
P.O. Box 30197-00100  
NAIROBI.

#### RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Factors influencing the involvement of legume producers in Agricultural Training Programmes in the Makueni County,*" I am pleased to inform you that you have been authorized to undertake research in **Makueni County** for the period ending **26<sup>th</sup> August, 2017**.

You are advised to report to **the County Commissioner and the County Director of Education, Makueni County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA  
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner  
Makueni County.

The County Director of Education  
Makueni County.