FACTORS INFLUENCING CONTRACTUAL FARMING IN KENYA. A CASE OF BUURI CONSTITUENCY, MERU COUNTY, KENYA

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DECLARATION

I declare that this research project report is my original work and has not been presented in any other University for the award of a Master's Degree.

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L50/83285/2015

This research project report has been presented for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this research project report to my family my beloved husband Martin Murea, my children Kelvin, Shannel and Paul for the understanding and support during my entire period of study.

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I am grateful to almighty God for His unwavering mercy and guidance in my life and entire period of study. I acknowledge the support of my supervisor Prof. Nathan Gichuki for his suggestions and guidance that helped me complete this research project and to come up with practical ideas towards its completion.

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ABBREVIATIONS AND ACRONYMS

ASALs	Arid and Semi-Arid areas
FAO	Food and Agriculture Organization
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
RDT	Resource Dependency Theory
ROK	Republic of Kenya
SPSS	Statistical Package for Social Sciences
USA	United States of America
WFP	World Food Programme

ABSTRACT

The purpose of the study was to establish the factors influencing contractual farming in Kenya a case of Buuri Constituency, Meru County. The statement of the problem enumerated on prevalence of food insecurity in the world and the need to change farming systems to address hunger and poverty. The objectives of this study were to examine the influence of food pricing on contractual farming, the influence of production cost on contractual farming, the influence of marketing competition on contractual farming and the influence of farming systems on contractual farming. The research study used a descriptive research design and the target population for this study were farmers, agricultural officers, fresh produce companies, county government officials and national government officials. Primary data were obtained using self-administered questionnaires. The questionnaires were made up of both open ended and closed ended questions Reliability coefficient of the research instrument was assessed using Cronbach's alpha (α). Descriptive statistics analysis was employed to establish the factors affecting contract farming in Buuri Constituency, Meru County. The quantitative data was coded to enable the responses to be grouped into various categories. The analysed data was interpreted in terms of averages and standard deviation using assistance of computer packages especially SPSS (version 21). This study also conducted a correlation analysis to establish the relationship between the variables in the study. Multiple regression analysis was used to establish the relations between the independent and dependent variables. The study sought to determine the influence of food pricing on contract farming in Buuri Constituency, Meru County. Further the study sought to establish the influence of production cost on contract farming in Buuri Constituency, Meru County. the study sought to examine the influence of market competition on contract farming in Buuri Constituency, Meru County. The study sought to determine the influence of product pricing on contract farming in Buuri Constituency, Meru County and concluded that it positively influences contract farming. Further the study established that production cost influence contract farming in Buuri Constituency, Meru County positively and significantly. The study further concluded that market competition influences contract farming in Buuri Constituency, Meru County positively. Further the study concluded that farming systems positively and significantly influences contract farming in Buuri Constituency, Meru County. Based on research findings and conclusion the study recommends that: the farmers and other people involved in contract farming should focus on the price sensitivity since it influences farmer's participation in contract farming and the farmers should also focus on the quality of the products produced. The farmers should ensure that the products are of the required standards to make sure that the consumers who are also the buyers are satisfied.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The deprivation of basic need represented by food insecurity and hunger are undesirable in their own right and are possible precursors to nutritional, health, and developmental problems (Bellemare, 2012). Food insecurity is a term used to describe whether people have access to sufficient quality and quantity of food. Food insecurity is affected by factors such as poverty, health, food production, political stability, infrastructure, access to markets, and natural hazards. Other factors that contribute to household food insecurity in the world include shift to more non-agricultural technology, politics, environmental degradation, insecurity and high population growth (Kelly & Pemberton, 2016).

Improved contract farming is important for global reduction of hunger and poverty, and for economic development (Parekh, 2013). In 2010, world leaders committed themselves to the Millennium Development Goals (MDGs) and one aim of the Millennium Development Goals is to eradicate poverty and hunger, including reducing by half the proportion of people who suffer from hunger between 2010 and 2015. Currently, 820 million people are affected by hunger in developing countries and the numbers of hungry people in the world is growing at a rate of four million a year (Kelly & Pemberton, 2016).

Analysis of contract farming data shows that even though food insecurity and hunger stem from constrained financial resources, many low-income households appear to be food secure, whereas a small percentage of non-poor households appear insecure (Gerlach, & Loring, 2013). The reasons for these differences are not yet well understood, although they probably include unexpected changes in circumstances, variations in household decisions about how to handle competing demands for limited resources, and geographic patterns of relative costs and availability of food and other necessities, such as housing (Welch, 2015). The agricultural production measure provides independent, more specific information on this dimension of well-being than can be inferred from income data alone.

In the United States of America (USA) over 85.7 percent of households is food secure, meaning that they had access at all times to enough food for an active, healthy life for all household members while the remaining households (14.3 percent) are food insecure at least some time during the year. This includes 5.6 percent with very low food security, meaning that the food intake of one or more household members was reduced and their eating patterns is disrupted at times during the year (Coleman-Jensen, Gregory & Singh 2014).

Contract farming refers to an arrangement and commitment between producers and processors to provide inputs and outputs with pre-agreed price, time, quality and quantity. According to Eaton and Shepherd (2011), contract farming is an arrangement between farmers and processing and/or marketing firms to produce and supply agricultural products under forward agreements, frequently at predetermined prices. This arrangement is applied especially for the agricultural commodities that need to be processed, such as vegetables, fruits and dairy (Bijman, 2008). Its applicability and necessity as a tool for achieving agricultural productivity has been recognized and discussed in many empirical studies in the context of its role of linking producers with agricultural markets, especially in developing countries.

There are four models of contract farming arrangements namely centralized model, multipartite model, intermediary model and the informal model (Eaton and Shepherd, 2011). The centralized model involves a centralized processor and/or buyer procuring from a large number of small-scale farmers. The cooperation is vertically integrated and in most cases involves the provision of several services such as pre-financing of inputs, extension and transportation of produce from the farmer(s) to the buyers' processing plant. Multipartite contract farming model arises when a combination of two or more organizations (state, private agribusiness firms, international aid agencies or non-governmental organizations - NGOs) work together to coordinate and manage the cooperation between buyers and farmers (Oya, 2012).

An intermediary model shows many characteristics of a centralized model with the difference that they act as an intermediary on behalf of another firm. Normally, the

intermediaries organize everything on behalf of the final buyer starting with input supply, extension service, payment of the farmers and final product transport. Handling several thousands of out growers involves significant management effort and therefore it might be economically attractive for a buyer to outsource this task to an intermediary. Lastly, Informal arrangements involve casual oral agreements between contracting parties and regularly repeated marketing transactions but are characterized by the absence of written contracts or equally binding and specifying documents (Kelly & Pemberton, 2016).

Contract farming has been instrumental in providing farmers access to supply chains with market and price stability, as well as technical assistance, especially in the developed countries. For low-income farmers, production input and farm investment on credit are often provided by firms (Bellemare, 2012). In return, contractors expect delivery of goods in specified quantities, quality and set prices. Market and price certainty for both parties and integrated farm processing enhances the country's competitiveness through improved quality products and efficient supply chain. Well-coordinated contract farming systems assist development in less privileged farming sectors (Oya, 2012).

In many sub-Saharan African countries, there has been no tradition of written farming contracts. Instead, traditional informal agreements were commonly used and are still respected (Devereux, 2009). Application of formal contract farming has now become an option for many African countries such as Kenya as a method of enhancing commercial farming and promoting agricultural production. African smallholder agriculture is characterized by many problems, such as low productivity, natural resource degradation and inadequate basic services for farming. Although contract farming has proved successful in many African countries by enhancing existing income levels, it may not necessarily be a solution for many market failures in agriculture (Doss, 2011).

According to Food and Agriculture Organization (FAO) (2012), contract farming has been gaining popularity in developing countries, especially in specific products, such as French beans and other horticultural crops (more so in Kenya and Ethiopia), fruits such as pineapples mangoes and passion fruits (Ghana), cotton (Zimbambwe) and poultry (Kenya). Indeed, much of the success in the horticulture industry in Kenya, Zambia and

Ethiopia has been attributed to contract farming with producer organizations (Sadler & Magnan, 2011).

In Kenya, both marketing and production contracts as a form of vertical integration are found in livestock and crop production. Livestock contracts are found in the pig, egg and broiler markets. In crop production, contract farming is common in the horticultural sub-sector and also in the field crops sub-sector, such as for sugarcane, tobacco, tea, and cotton production. More than 230,000 households in Kenya were involved in the contract production of tea, sugar, oilseeds, tobacco and horticultural commodities by mid- 1980s (Wainaina, Okello & Nzuma, 2012). It is estimated that by mid-2010s, 1.2 million out of 3 to 4 million farming households in Kenya were contract farmers in the coffee, tea, dairy cattle, barley (for brewing), vegetable, sugar and corn sectors (Oya, 2012). Generally, the agricultural sector contributes tremendously to the Kenyan economy through employment creation. It is also an important source of income and livelihood for many smallholder farmers in Kenya.

1.2 Statement of the Problem

The world household food insecurity continues to worsen as many communities struggle with daily hunger and starvation despite the growing attention in the world media and expanding aid efforts by many organisations (Nord, 2010). Several factors have been fronted as responsible for the continuing world food insecurity. One such factor is the rise in prices of the world staple foods (wheat, rice and maize). Research has established that inflation of wheat is 120% and rice is 75% (Bartfeld & Ahn, 2011). Poverty has also been pointed out as a key cause. An estimated 100 million people have fallen into poverty in the last two years. For instance in 2013, Afghanistan households were spending 75% of their income on food (Kirkpatrick & Tarasuk, 2010). Dependence on food imports also influences the global food insecurity. A case in point is Haiti where over 80% of staple rice is imported. The result of it is that over half of the country's population is under-nourished and 24% of children suffer chronic malnutrition.

Various countries in Africa have experienced the devastating effects of household food insecurity. For instance, the World Food Programme (WFP) has described Cameroon as a

food insecure country, and has further demonstrated that food intake in households is lower now than in the early 1980s. This has resulted in 19% of young children in the country being underweight and child mortality rate rising (Minot & Sawyer, 2016). Egypt is exposed to the escalating food prices due to its wheat imports although it produces half of its demand for wheat. The country is classified as the number one importer of wheat in the world. The country also has a high population growth rate of 2% per annum. Moreover, the desert terrain of the Sahara limits crop production. Ethiopia also experiences acute household food insecurity. Over 7 million people out of Ethiopia's population of 76.9 million people are classified as food insecure and a further 10 million people are identified as prone to drought. Finally, South Africa has been affected by high food prices in the declining world economy (Maxwell & Fitzpatrick, 2012). High food prices are causing hardship particularly among the poorest family households who spend a huge proportion of their income on food.

In Kenya, contract farming is a sensitive issue because of the magnitude of household food insecurity in the country, especially in arid and semi-arid areas (ASALs) that constitute 88% of Kenya's land area (ROK, 2009). United Nations Human Development report in 2009 noted that almost 52% of Kenyans live below poverty line and therefore are not food sustaining. It is further noted that only 18% of Kenya's territory is suitable for farming without irrigation. Some parts of Meru County and in particular Buuri Constituency have continued to experience frequent household food insecurity. This is despite national food policy of alleviating household food insecurity, especially among small-scale farmers through local agricultural food production (Icheria, 2012).

A number of studies have been conducted in Kenya regarding contract farming. Kokeyo (2013) studied on an assessment of the factors affecting contract farming: the case of sugarcane production in Migori County, Kenya. The study concludes that the main factors influencing farmer participation in sugarcane contracts are: - farm distance to the company sector office, ownership of assets and access to external farm support, risk-averseness, farm household size and education of the household head. A study by Wawire, Kahora, Shiundu, Kipruto &Omolo (2006) revealed that farmers' poor attitude towards contract sugarcane farming was one of the causes of declining trend in cane

production. Dindi (2013) studied the managerial factors influencing sugarcane production by farmers of Mayoni Division, Mumias Sugar Company in Kenya. However, none of the reviewed scholars has studied factors influencing contract farming in Buuri Constituency, Meru County. This study will therefore seek to fill this gap.

1.1 Purpose of the Study

The purpose of the study was to establish the factors influencing contract farming in Buuri Constituency, Meru County.

1.4 Objectives of the Study

The study sought to achieve the following objects:

i. To determine the influence of product pricing on contract farming in Buuri Constituency, Meru County
ii. To establish the influence of production cost on contract farming in Buuri Constituency, Meru County
iii. To examine the influence of market competition on contract farming in Buuri Constituency, Meru County
iv. To find out the influence of farming systems on contract farming in Buuri Constituency, Meru County.

1.5 Research Questions

i. To what extent does product Pricing influence contract farming in Buuri Constituency, Meru County?
ii. To what extent does of production cost influence contract farming in Buuri Constituency, Meru County?
iii. How does market competition influence contract farming in Buuri Constituency, Meru County?
iv. In what ways do the farming systems influence contract farming in Buuri Constituency, Meru County?

1.6 Significance of the Study

The findings of this study will be beneficial to County government of Meru since it establishes the factors influencing contract farming in Buuri Constituency, Meru County. The findings will help build capacity among the small-scale farmers concerning contract farming and coping strategy issues.

The findings will also be shared with the Ministry of Agriculture and Livestock production as well as ministry of interior and coordination of government to provide relevant input in policy making in the area of contract farming and small scale farming practices.

The findings will provide relevant data to local NGOs in planning food aid support programmes. The findings will also contribute to the body of knowledge in the academia and may provide insights on agricultural production gaps for further academic research.

1.7 Delimitation of the Study

The study aimed at establishing the factors influencing contract farming in Buuri Constituency, Meru County. The target population for the study was therefore be the government officials, NGO representatives and other interest groups in Buuri Constituency, Meru County. The study considered data for a period of ten years from 2006 to 2015.

1.8 Limitations of the Study

The findings of this study were limited by non-response or low response rate. This was because the respondents in this study especially those at high ranks have very busy schedules and may have limited time to respond to questionnaires. To address this, the researcher made prior arrangements to drop the questionnaires to be filled at the convenience of the respondents and later picked.

The findings of this study were also based on the circumstances in the respondents' organization at that point in time and might well have been different if gathered five years earlier or later. The respondents also feared to provide accurate information since

bank information is very sensitive. To address this, the researcher assured the respondents in advance that the collected data was only used for academic purposes.

1.9 Basic Assumptions of the Study

The researcher made the assumption that the respondents were cooperative enough to give the required information of the study. The researcher also assumed that all information that was collected from respondents was true to give a clear and true picture. The researcher further assumed that external factors like strike did not arise as this would affect the process of data collection and hence the completion of the project. The researcher also assumed that the cited respondents have adequate knowledge on contract farming.

1.10 Definition of the Terms

Farming systems: This is a group of individual farm systems with broadly similar resource bases, enterprise patterns, household livelihoods and constraints.

Market Competition: Competition is the rivalry between companies selling similar products and services with the goal of achieving revenue, profit, and market-share growth.

Pricing: is the process whereby a business sets the price at which it will sell its products and services, and may be part of the business's marketing plan.

Production cost: This refers to the cost incurred by a business when manufacturing a good or providing a service. Production costs include a variety of expenses including, but not limited to, labor, raw materials, consumable manufacturing supplies and general overhead.

1.11 Organization of the study

The study is organized into five chapters. Chapter one contains the introduction to the study. It presents background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the Study, delimitations of the study, limitations of the Study and the definition of significant terms. On the other hand, chapter two reviews the literature based on the objectives of the study. It further looked at the conceptual framework and finally the summary. Chapter three covers the research methodology of the study. The chapter describes the research design, target population, sampling procedure, tools and techniques of data collection, pre-testing, data analysis, ethical considerations and finally the operational definition of variables. Chapter four presents analysis and findings of the study as set out in the research methodology. The study closes with chapter five which presents the discussion, conclusion, and recommendations for action and further research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter provides an extensive literature and research related to factors influencing contract farming. This literature review summarizes a diverse spectrum of views about contract farming. The chapter is thus structured into empirical review, conceptual framework and theoretical review. The study also presents the knowledge gap the chapter seeks to fulfil.

2.2 Pricing of Contracted Crops and Contract Farming in Kenya

Prices paid for contracted crops are usually lower than market prices. Coleman et.al (2014) revealed that most farmers try to sell their produce at market for a better price instead of factories where farmers must comply with specified conditions. Prices companies pay to farmers are partly dependent on quality, which is an additional incentive for farmers to deliver high quality products. The quality difference is only the appearance of the skin, even though the other attributes are the same. Crop quality consistency and standards are often the most crucial factors in a contract. However, Baumann (2010) stated that it is easy for a company to manipulate prices when the market is competitive and prices are volatile.

Price stability is essential if firms are to continue projects with their growers and growers are to maintain income stability. This is especially true in the early stages of contract framing. Both companies and governments try to counter market volatility and find ways to stabilize prices for growers. A prescriptive formula is helpful for sharing costs and benefits between growers and processors. Without acceptable and stable prices or credit provision, projects in less developed areas can fail. Many farmers voluntarily opt for chemical-free and organic production for health concerns. However, most small-scale farmers experience low yields and undesirable appearances, and thus low prices. In contrast to the findings of Wiboonpongse, et.al (2006), contract organic rice farmers in Payao Province enjoyed high yields and prices 30% higher than ordinary rice. Setboonsarng, et.al (2013) reported significantly higher profits per unit of land and higher

prices for contract farmers in the initial stage of organic production after one to two years of starting than noncontract.

There is a common problem of low prices to farmers for their produce. This problem is more pronounced for inexperienced companies and is likely to happen anywhere contract farming emerges. However, the problem may be solved successfully by using various tactics. For instance, crops demanded by both processing firms and fresh food markets such as tomatoes, farmers maybe allowed selling a certain proportion of the produce in the open market, then during peak season, and when prices decline, contractors may purchase large volumes of high quality produce at contracted prices. The economic rationale is the trade-off between risk and return to farmers and stable prices for raw materials (World Bank, 2011).

2.2 Crop Production Cost and Contract Farming in Kenya

Production and transaction costs are an important element in the course of analysis of market institutions, which is a central component of the study of organizations. A number of studies have pointed out that high production costs discourage smallholders to participate in markets. When both farmers and firms face high transaction costs market functioning is impaired; moreover, transaction costs have an adverse impact on activities like searching, negotiating, monitoring and enforcing in contract farming, thus affecting the exchange and flow of commodities. In addition, transaction costs raise the prices of inputs and reduce profits from the sale of output by lowering its price (Ouma, Jagwe, Obare & Abele, 2010).

One of the advantages of the participation of both parties in contract farming is that the production costs are minimized, thus enabling economic efficiency. Firms in particular, while choosing their management style, must consider the factors that are associated with transaction costs given as follows (Silva, 2015). There are three factors contributing to transaction costs including bounded rationality, opportunism and asset specificity. Bounded rationality and opportunism are based on behavioural assumption, on which transaction cost analysis relies on (Williamson, 2010).

2.4 Market Competition and Contract Farming in Kenya

Market prices are a relevant variable in competitive markets. As pointed out by Azman, D'Silva, Samah, Man and Shaffril (2013), prices summarize the workings of an economic system and economize on the need to gather complex and frequently conflicting information. By contrast, contracting results in a dampened (competitive) price-setting process. Moreover, contracting frequently replaces the one-dimensional setting of competitive markets (where exogenous price is the principal variable) with a multidimensional scenario where in addition to exchange prices, other requirements (complex quality standards, timing patterns, constraints on information disclosure, labour and agricultural input standards) have to be met.

Decision-making based on prices contrasts with situations where exchange takes place under constraints resulting from contracts. These constraints may transfer decision authority either away or alternatively towards the farm unit. For example, egg producers under contract with a large agribusiness firm receive feed, animal stock and veterinary expertise as part of the deal. In a sense, these producers are not independent entrepreneurs but may be seen as (piece-rate) employees of the agribusiness firm. As compared with the situation where they produce the same output but without a contract, scope for individual decision-making has been reduced (Podolny, 2013).

On the other hand, farmers engaged in producing commercial seed for a seed company, or vertically integrating by investing in an on-farm storage facility have additional decision-making challenges over and above those of farmers simply selling their output to grain handlers. Contract choice, may either reduce or expand opportunities for exercising decision-making discretion. Characteristics of the asset subject to exchange determine contract choice. Exchange involving non-specific assets such as grains of cereals or oilseeds do not benefit from contractual protection other than that provided by classical contracting arrangements (Gershon, 2013). In contrast, exchange of assets characterized by specificity will benefit from more detailed contracts. In the absence of these, recourse may be made to relational contracting, whereby parties rely on reputation and rents from repeated interaction.

Increased decision-making skills may result in a shift from simple to more complex contractual arrangements. For farmers, the relevant choice may therefore not be between producing wheat or producing green peas but between interacting via spot markets (the case of wheat) or, alternatively, interacting via more complex contractual forms. Indeed, the acquisition of knowledge regarding agronomic practices of one crop versus another may be of secondary importance as compared with the acquisition of knowledge of one contractual environment versus another (Bashir, Schilizzi & Pandit, 2012). However, if contracting allows an increase in output resulting, for example, from expanded operations through financing provided by the agribusiness firm decision-making scope may well increase. In other words, farmers attempting to produce a higher-value crop such as green peas may find it easier to learn green-pea production technology than the contractual subtleties and alternatives for the marketing of peas as compared with the simpler spot price (Fan & Lorch, 2012).

The adoption of certain contractual forms may thus be compared with the adoption of production technologies. Decision-makers with higher skills may adopt earlier or, to a larger extent, potentially profitable but relatively complex contractual arrangements. As stated by World Bank (2011), human capital (both acquired in formal schooling and as a result of learning-by-doing) is crucial for improving decision-making capabilities contract choice may well be an arena over which these decision-making skills are exercised. Contract adoption is also a function of the potential volume of transactions to be channelled through the contract. These may take the form of search costs, compliance with production technology standards, provisions for contract non-compliance, etc. Indeed, for large agribusiness firms, volume transacted with individual suppliers may be a crucial aspect determining the cost of inputs used in the value chain (Gershon, 2013).

2.5 Farming Systems and Contract Farming in Kenya

A farming system is defined as a population of individual farm systems that have similar resource bases, enterprise patterns, household livelihoods, constraints and for which similar development strategies and interventions would be appropriate. Farm system comprises not only resources such as fields, crops, animals, feeds and manure which are managed and transformed through human activity, but also it includes the farming family,

housing facilities and food stores. The same authors recognize sub-systems within the farm system; the crop production system, the animal production system, and the household system (Dixon, Gulliver & Gibbon 2008). The type of farming system prevailing in a region depends on technical, institutional and human determinants, which interact at each location and point in time to provide a unique environment for agricultural production. The above determinants will dictate the most suitable farming systems with a maximum productivity and any change in these determinants will have an effect on agricultural productivity (Delininger & Harriet, 2011).

Despite a diversity of extensive farming systems in Sub Saharan Africa, the continent still faces a number of challenges namely declining soil fertility, inadequate use of improved germplasm, limited irrigation that severely limits the production potential, poor extension services to farmers and poor access to markets (Jama & Pizarro, 2008). A study done in Burundi revealed that the prevalent farming system found in Burundi is the highland perennial farming system. This farming system is based not only on perennial crops such as banana, plantain and coffee complemented by cassava, sweet potatoes, beans and cereals but also cattle is kept for milk, manure, and social security (Dixon *et al*,2008).

According to Wodon & Zaman (2008), food production systems change in response to the high population density associated with acute scarcity of agricultural land and intensive work on land yet with very low returns. The same author gives a simplified typology of agricultural production systems based on soil fertility management practices, cropping and livestock systems, linked to the level of population density. Both food crop and livestock subsectors are affected by a number of key constraints contributing to limited growth. In the food crop subsector, there is limited use of improved farm management practices such as irrigation, limited use of purchased inputs, uncertain water supply, high input prices, and post-harvest constraints. Population density is also noted as a major determining factor

A study done by Degefa (2012) showed a mixed effect of improved technology utilization on availability of food in the household. The utilization of farm credits, improved seeds and herbicides and irrigation indeed had enhanced the volume of food

available at the household level. However, per capita food availability has declined for the farmers who utilized commercial fertilizer and insecticides. He provided the reason for the undermined contribution of these inputs could be due to the contribution of drought and pest experienced in the particular study area. Giovanni (2015) concluded that Intermediate inputs such as seeds, fertilizer and pesticides were found to be the most significant parameter of the production function in addition to land elasticity, labor and capital.

2.6 Farmers' Attitude

The success of contract farming depends on the satisfaction of both farmers and the contractor firms, with profitability being a key component. In the initial stage, farmers' perceptions regarding new crops and their attitudes towards contract farming are important. Sriboonchitta et al,(2008) conducted a survey on agencies attempting contract farming. Most of the contract farmers surveyed (78%) grew only one contract crop, while the remainder had two to four different contract crops. The survey revealed primary reasons that farmers participated in contract farming. Market certainty and price stability were prime factors. Other reasons included lack of alternatives, expectation of higher prices, etc. In addition, from the authors' survey in 2014, tenant farmers (40% of respondents) felt that contract farming provided them good opportunities to raise their income as labour was the only resource they had.

Abebe, et al, (2013) concluded that attitudes are affected by production background and experience. Experienced farmers were likely to find production of newly introduced products relatively easy. They further found the main reason farmers kept contracts is high return from the crops relative to their other alternatives while others maintain contracts because of market certainty. Firms usually stipulate production quotas on land for contract crops to maintain quality. The average sizes of contract crops per household are about half of what farmers' desire. However, since farmers have become more experienced the restriction has been relaxed as demand for raw materials has increased.

In a contract farming arrangement, firms provide key inputs, such as selected seeds and material, in order to meet consumer preferences. Fertilizer and other chemical inputs are

strictly controlled to ensure effective results and control residual levels. All inputs are provided on credit through cooperatives, groups, or intermediaries for the interested customers though in some cases the farmers may purchase on cash basis from authorized dealers (Garforth, Bailey & Tranter, 2013). On average, farmers are happy with advance credit since it there is no cash investment required.

Sriboonchitta et.al (2008) also noted that in Thailand, most farmers had no information about the price of seed (84%), but knew about fertilizer and chemical prices (68%) since the latter was available in the markets. Farmers who found input prices higher than market prices or inputs were of poor quality (9%) were mostly maize seed farmers who obtained inputs from the Land Development Cooperatives.

Research shows that majority of farmers have favourable attitude towards contract farming (Shukla, Chaudhari et.al 2011). Kumar (2013) also reported that lately more farmers in India opted for contract farming due to positive attitude as a result of price protection on their crops. The results further strengthen by the findings of Mann and Kogl (2013), where they emphasized that bigger profits garnered through contract farming will be a catalyst for having more people to have a positive attitude and accept contract farming. In addition, farmers indicated that contract farming gives farmers better access to capital and modern inputs, improves and encourages quality production and contract farming is a real boon to the small farmers.

Poulton, Dorward & Kydd (2010) provided contradicting results by stating that Youth has a negative attitude towards contract farming. Thy however concluded that youth have the ability to play the significant part in building global agriculture and development. Unfortunately, many of the youth will not get the chance to fulfil that potential due to the unfavourable attitude formation. Lack of education, training and organizational program are among the causes detected. Even though previous studies have proved that youth found to have unfavourable attitude towards contract farming, Norsida (2008) found that youth highly believe that agriculture can generate higher income for them if it is handled in the right way.

2.7 Theoretical Orientation

This section focuses on the theoretical underpinnings of the study, including the productionist paradigm theory, yield gap theory, governance costs/transaction costs concept and resource dependence theory.

2.7.1 Productionist Paradigm Theory

Productionism paradigm is the move from local small scale production to mechanized, commercial, mass production of food commodities. It hails from the time after the Second World War and the industrialization of agriculture. The food supply chain is lead by the quantity of food and all progress is directed to increasing this output. The productionist model of farming is typically monoculture, this being especially conducive to the high input of energy, pesticides, and fertilizers. The productionist paradigm influences how policy is made and where investment is directed, favouring particular types of farming methods and production. It is through this paradigm that land acquisitions have been seen as a solution (Lang and Heasman, 2014).

Lang and Heasman (2014) predicted the decline of the productionist paradigms and the emergence of two paradigms concerned less with production and more with integrated ecology or life science. However, economic stability, food prices and demand for arable land has changed since the time they wrote their book. The period after the war, in 2008 the globe was suffering from food shortages; prices rose and many countries experienced riots. These events have reaffirmed the dominance of the productionist paradigm for a little while longer (Locker & Gordon 2015). It is also partly because of the productionist paradigm that African governments are willing to open up their local markets to foreign investment. The surplus stock caused by high production rates and strong regional economies could undermine local markets in developing countries by selling their stock at undercut prices.

2.7.2 Yield Gap Theory

Reaching higher yields is part of the strategy for achieving agriculture production while protecting the natural environment. The potential for closing the yield gap has been claimed as the most important factor in improving agriculture in Africa, it is preferable to

expanding agricultural land. By closing yield gaps and not expanding cultivated land you can protect areas of biodiversity such as forests and natural ecosystems from being converted into crop land (Foley, *et.al* 2011)

Yield gap is a term which has been used extensively in literature to highlight African farmland as a region which is underused (Delininger *et al*,2011). It is a term referring to the difference between the potential and actual crop yield (production per hectare) of a given area of land, assuming the best technology and agricultural practices are available (Foley *et al,* 2011). This is because biophysical and socioeconomic factors inhibit yields. The gap between the potential yield and actual yield is considered by Widawsky *et al*, (2016) for example, as a loss in production that is yet to be realized. Yield gap is used often in reference to the gap being closed and identifying how to fix them.

The yield gap theory is placed within the productionist paradigm. There is an understanding that land is not worth anything until it is utilised for production. The potential yield is calculated using all the known agricultural technology and management, and therefore it is assumed that this should be adopted as the method on the ground. According to Deininger *et al,* (2011) in the World Bank report, yield gaps are perceived in respect to investment opportunities.

A large yield gap is defined as an attractive quality for investment due to the possibilities for easy increase in yield. Land acquisitions are thought to bring investment in fertilizers, pest management, irrigation, improved seed varieties, knowledge of farming practices and mechanized practices. However, large yield gaps can be an indicator of problems that land acquisitions cannot easily solve such as political problems. As such, when investment has already been made in the land, sustained large yield gaps are a negative sign as it implies that there are constraints that are difficult for investors to overcome (Borras, 2011).

2.8 Conceptual Framework

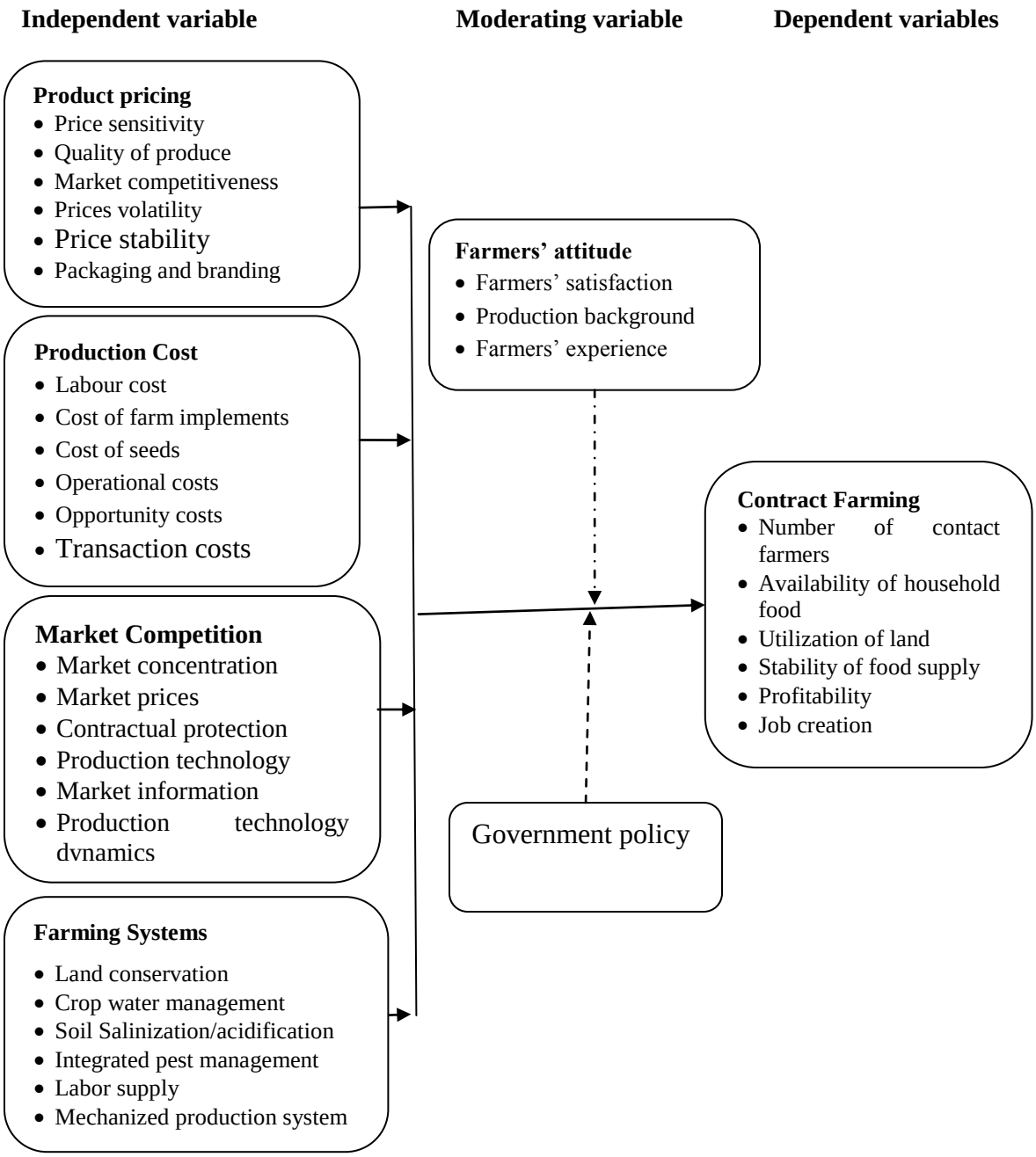

Figure1: Conceptual Framework

2.9 Summary and Research Gaps

This study has reviewed literature relating to contract farming. The study has established that the prices that companies pay to farmers are partly dependent on crop or product quality, which is an additional incentive for farmers to deliver high quality products. The

quality difference is only the appearance, taste or texture of the product, even though the other attributes are the same. Crop quality consistency and standards are often the most crucial factors in a contract. Price stability is essential if firms are to continue projects with their growers and growers are to maintain income stability. A number of studies have pointed out that high production costs discourage smallholders to participate in markets.

Decision-making based on prices contrasts with situations where exchange takes place under constraints resulting from contracts. These constraints may transfer decision authority either away or alternatively towards the farm unit. Finally, despite a diversity of extensive farming systems in Sub Saharan Africa, the continent still faces a number of challenges namely declining soil fertility, inadequate use of improved germplasm, limited irrigation that severely limits the production potential, poor extension services to farmers and poor access to markets. Food production systems changes in response to the high population density associated with acute scarcity of agricultural land and intensive work on land yet with very low returns.

A number of studies have been done locally on contract farming. Mikalitsa (2010) analysed gender specific constraints affecting technology use and household food security in Western Province of Kenya. Icheria (2012) studied household food insecurity and coping Strategies among small-scale farmers in Tharaka central division, Kenya. Oya (2012) studied contract farming in sub-Saharan Africa: a survey of approaches, debates and issues. Wainaina, *et al*, (2012) analysed the impact of contract farming on smallholder poultry farmers' income in Kenya. Gichuhi (2015) studied resilience in the face of starvation: Coping strategies for agricultural production among women in Kenya while Mutinda (2015) investigated the determinants of household food expenditure and agricultural production in rural Kenya. The reviewed literature show a gap in literature in that none of the reviewed researchers has studied the factors affecting contract farming in Buuri Constituency, Meru County. This study will seek to fill this gap.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methodology the researcher used when collecting data: the research design, target population, sampling design, sample size, data collection instruments and data analysis and presentation methods used.

3.2 Research Design

The research study used a descriptive research design. The design is appropriate because it involves description of events in a carefully planned way (Bryman & Bell, 2015). This approach was suitable for this study, since the study intended to collect comprehensive information through descriptions which was helpful for identifying variables. This research design also portrays the characteristics of a population fully (Teddlie &Tashakkori, 2012).

3.3 Target Population

According to Pole and Lampard (2010), a target population is classified as all the members of a given group to which the investigation is related, whereas the accessible population is looked at in terms of those elements in the target population within the reach for study. Based on the recommendations of Churchill and Iacobucci (2010) in defining the unit of analysis for the study, the target population for this study were farmers, agricultural officers, fresh produce companies, county government officials and national government officials. A population of 726 respondents was taken from contracted farmers, fresh produce companies' officials under contracts, agricultural extension officers as well as government officials in the constituency. The relative distribution of the target population to various categories were added up to a target population of 726 respondents as shown in table 3.1.

Table 3.1: Target Population

Department	Total Number	Percentage
Farmers	508	70
Agricultural officers	15	2
Fresh produce company officials	107	15
County government officials	83	11
National government officials	13	2
Total	**726**	**100**

3.4 Sample Size and Sampling Procedure

3.4.1 Sample Size

Sampling is a deliberate choice of a number of people who are to provide the data from which study was to draw conclusions about some larger group whom these people represent. The sample size is a subset of the population that is taken to be representatives of the entire population (Sekaran, 2006). On the basis of the target population, a sample size of 251was computed with a 95% confidence level and an error of 0.05 using the below formula taken from Kothari (2014).

$$n = \frac{z^2.N.\partial_p^2}{(N-1)e^2 + z^2\partial_p^2}$$

Where; n = Size of the sample required,

N = Size of the population and given as 726,

e = Acceptable error and given as 0.05,

∂p = The standard deviation of the population and given as 0.5 where not known,

Z = Standard variation at a confidence level given as 1.96 at 95% confidence level.

3.4.2 Sampling Procedures

Stratified proportionate random sampling technique was used to select the respondents. Stratified random sampling is unbiased sampling method of grouping heterogeneous population into homogenous subsets then making a selection within the individual subset

to ensure representativeness. The goal of stratified random sampling is to achieve the desired representation from various sub-groups in the population. In stratified random sampling subjects are selected in such a way that the existing sub-groups in the population are more or less represented in the sample (Kothari, 2014). The method also involves dividing the population into a series of relevant strata, which implies that the sample is likely to be more representatives (Saunders, 2011).

Table 3.2: Sampling Frame

Sectors	Population	Sample
Contracted Farmers	508	176
Agricultural officers	15	5
Fresh produce company officials	107	37
County government officials	83	29
National government officials	13	4
Total	**726**	**251**

3.5 Data Collection Instruments

Primary data was obtained using self-administered questionnaires. The questionnaire was made up of both open ended and closed ended questions covering issues associated to factors influencing contract farming. The open-ended questions were used so as to encourage the respondent to give an in-depth and felt response without feeling held back in illuminating of any information and the closed ended questions allowed respondent to respond from limited options that had been stated. According to Saunders (2011), the open ended or unstructured questions allow profound response from the respondents while the closed or structured questions are generally easier to evaluate. The questionnaires were used in an effort to conserve time and money as well as to facilitate an easier analysis as they were in immediately usable form.

3.6 Pilot Testing

The purpose of the pilot testing was to establish the validity and reliability of the research instruments (Joppe, 2009). From the pilot results, reliability and validity was tested. The pilot testing was conducted using the questionnaire to 30 respondents from all the sectors,

distributed as follows; contracted farmers 21, Agricultural officers 1, Fresh produce company officials 4, County government officials 3, and National government officials 1. The pilot group was done through random sampling. Saunders (2011) recommends that the questionnaire pre-tests were done by personal interviews in order to observe the respondent's reactions and attitudes. All aspects of the questionnaire were pre-tested including question content, wording, sequence, form and layout, question difficulty and instructions. The feedback obtained was used to revise the questionnaire before administering it to the study respondents.

3.6.1 Validity of the Research Instruments

According to Golafshani (2013), validity is the accuracy and meaningfulness of inferences, based on the research results. One of the main reasons for conducting the pilot study is to ascertain the validity of the questionnaire. The study used both face and content validity to ascertain the validity of the questionnaires. Content validity draws an inference from test scores to a large domain of items similar to those on the test. Content validity is concerned with sample-population representativeness. Gillham (2008) stated that the knowledge and skills covered by the test items should be representative to the larger domain of knowledge and skills.

3.6.2 Reliability of the Research Instruments

Instrument reliability on the other hand is the extent to which a research instrument produces similar results on different occasions under similar conditions. It is the degree of consistency with which it measures whatever it is meant to measure. Reliability is concerned with the question of whether the results of a study are repeatable. Reliability coefficient of the research instrument was assessed using Cronbach's alpha (α) which was computed as follows:

$A=k/k\text{-}1\times [1-\sum (S^2)/\sum S^2 sum]$

Where:

α= Cronbach's alpha

k = Number of responses

$\sum (S^2)$ = Variance of individual items summed up

$\sum S^2 sum$ = Variance of summed up scores

A construct composite reliability co-efficient of 0.6, is considered to be adequate (Rousson, Gasser & Seifer, 2012). For this study, reliability co-efficient of 0.6 or above, for all the constructs was acceptable.

3.6.3 Reliability Analysis

A pilot study was carried out to determine reliability of the questionnaires. The pilot study involved 30 respondents. Reliability analysis was subsequently done using Cronbach's Alpha which measures the internal consistency by establishing if certain items within a scale measure the same construct. Golafshani (2013) established the Alpha value threshold at 0.7, thus forming the study's benchmark.

Table 4.1: Reliability Analysis

	Cronbach's Alpha	Number of items	Decision
Product Pricing	.819	6	Reliable
Production Cost	.833	6	Reliable
Market Competition	.736	6	Reliable
Farming Systems	.728	6	Reliable

Cronbach Alpha was established for every objective which formed a scale. The production cost was the most reliable with an Alpha value of 0.833, followed by product pricing with an Alpha value of 0.819 then market competition with an Alpha value of 0.736 while farming systems was the least reliable with an Alpha value of 0.728. This illustrates that all the four variables were reliable as their reliability values exceeded the prescribed threshold of 0.7 (Golafshani, 2013).

3.6 Data Collection Procedure

The researcher obtained an introduction letter from the university which was presented to each official so as to be allowed to collect the necessary data from the respondents. The drop and pick method was preferred for questionnaire administration so as to give respondents enough time to give well thought out responses. Research assistants were

trained on interviewing skills including developing rapport, convincing respondents to provide relevant data and seeking clarifications whenever necessary. Research assistants booked appointment with respondent organizations at least two days before visiting to administer questionnaires. The research assistants personally administered the research instruments to the respondents. This enabled the researcher to establish rapport, explain the purpose of the study and the meaning of items that may not be clear as observed by Baskerville & Wood (2016).

3.7 Data Analysis and Presentation

The data collected was assessed and comparison made so as to select the most accurate and quality information from the feedback given by various respondents. This involved assessing and evaluating the questionnaires and other sources of both primary and secondary data.

Descriptive statistical methods were employed to establish the factors influencing contract farming in Buuri Constituency, Meru County. The quantitative data was coded to enable the responses to be grouped into various categories. The analysed data was interpreted in terms of averages and standard deviation using assistance of computer packages especially SPSS (version 21). This study also conducted a correlation analysis to establish the relationship between the variables in the study. Tables were used to present the study findings for ease of understanding.

Multiple regression analysis was used to establish the relations between the independent and dependent variables. The study used multiple regressions analysis to establish the factors influencing contract farming in Buuri Constituency, Meru County. Multiple regression attempts to determine whether a group of variables together predict a given dependent variable (Babbie, 2004). Since there were four independent variables in this study the multiple regression model which generally assumed the following equation;

$$\boldsymbol{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon}$$

Where:-

Y= Contract farming

$\beta_{0,} \beta_{1 \ldots} \beta_4$=constants

X_1= Pricing

X_2= Production Cost

X_3= Market Competition

X_4= Farming Systems

€=Error Term

3.8 Ethical Issues

The researcher collected very sensitive information and therefore has a moral obligation to treat the information with utmost care. The researcher assured the respondents confidentiality of the information given to ensure that the respondents are not reluctant to give the information as sought by the study. This was done by using a transmittal letter from the University indicating that the data collected was used only for academic purposes.

3.9 Operationalization of Variables

The operationalization of variables are shown in Table 3.3

Table 3.3: Operationalization of variables

Objective	**Variable**	**Indicators**	**Measurement scale**	**Tools of analysis**	**Type of data analysis**
To determine the influence of Pricing on contract farming in Buuri Constituency, Meru County	**Independent** Pricing	Price sensitivity Quality of produce Market competitiveness Prices volatility	Ordinal Ordinal Interval Ordinal	Mean Percentage 	Descriptive Regression
To establish the influence of production cost on contract farming in Buuri Constituency, Meru County	Production cost	Labour cost Cost of farm implements Cost of seeds Operational costs Opportunity costs	Ordinal Ratio Ordinal Ordinal	Mean Percentage 	Descriptive Regression

To examine the influence of market competition on contract farming in Buuri Constituency, Meru County	Market competition	Market concentration Market prices Contractual protection Production technology	Nominal Ordinal Ordinal Interval	Mean Percentage	Descriptive Regression
To find out the influence of farming systems on contract farming in Buuri Constituency, Meru County	Farming systems	Land conservation Crop water management Soil Stalinization Integrated pest management	Ordinal Ratio Interval Ordinal	Mean Percentage	Descriptive Regression
	Dependent: Contract farming	Access to food Availability of food Utilization of food Stability of food supply	 Ordinal Ordinal Interval	Mean Percentage	 Descriptive Regression

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

Data analysis was guided by the research objectives presented in chapter one. The main objective of the study was to establish factors affecting contract farming on household food security based Buuri constituency, Meru County, Kenya. SPSS was instrumental in the analysis especially in correlation and regression.

4.2 Response Rate

The target population for this study composed of the 726 contracted farmers, fresh produce companies' officials under contracts, agricultural extension officers as well as government officials in the constituency. Out of 251 questionnaires administered as per the sample size of the study, a total of 176 questionnaires were filled and returned giving a response rate of 70.12% which is within what Degefa (2012) prescribed as a significant response rate for statistical analysis and established at a minimal value of 50%.

4.3 Demographic Information

The study was interested in knowing more about the respondents. Therefore it focused on asking the respondents about their gender, occupation as well as their working experience.

4.3.1 Gender of the Respondents

The researcher sought to establish gender distributions of the respondents. The findings were indicated in table 4.2.

Table 4.1: Gender of the respondents

	Frequency	**Percent**
Male	92	52.30%
Female	84	47.70%
Total	**176**	**100**

The findings showed that male gender was 52.3% while female gender was 47.7%. This implies that the study was not biased since it catered for both gender.

4.3.2 Respondents Occupation.

The study sought to establish the occupation of the respondents. Results were summarized in Table 4.2.

Table 4.2: Respondents Occupation

	Frequency	**Percent**
Farmer	153	86.9
Agricultural officer	2	1.1
Fresh produce company official	15	8.5
County government official	5	2.8
National government official	1	0.6
Total	**176**	**100**

Majority of the respondents were farmers as was shown by 86.9%. Those whose occupation was fresh producing company official were 8.5%. Those who were county government officials were 2.8%, agricultural officers were 1.1% whereas those respondents who were national government official were only 0.6%. The results imply that majority of respondents were in one way or the other been involved in contract farming.

4.3.3 Working Experience

The respondents were also requested to indicate the duration of time they have worked in their respective occupations. The responses obtained are shown in the Table 4.3.

Table 4.3: Working Experience

	Frequency	Percent
Less than 1 year	24	13.6
1-5 years	46	26.1
6-10 years	87	49.4
Over 10 years	19	10.8
Total	**176**	**100**

From the findings 49.4% of the respondents have worked in their current occupation for a period of between 6-10 years, 26.1% indicated 1-5 years, 13.6% noted less than 1 year, whereas 10.8% indicated that have worked in their current occupation for a period of over 10 years. The finding implies that majority of the respondents had worked in their current occupation for long enough and therefore they gave relevant information for the study.

4.4 Factors Influencing Contract Farming

The objective of the study was to establish the factors influencing contract farming in Buuri constituency, Meru County, Kenya. The study was based in the following four variables; product pricing, production cost, market competition and farming systems. these are shown in table as mean scores and standard deviations.

4.4.1 Product Pricing

The study sought to determine the influence of product pricing on contract farming in Buuri Constituency, Meru County. The respondents were requested using a likert scale of 1-5 to indicate their level of agreement with the various statements on product pricing influence on contract farming in Buuri Constituency, Meru County. Their responses were as shown in table 4.4.

Table 4.4: Level of agreement with the various statements on Product Pricing

Aspects of pricing	Mean	Std. Dev.
Price sensitivity influence farmers to participate in contract farming	4.080	0.774
Quality of produce promotes contract farming	3.608	0.545
Market competitiveness discourage participation in contract farming	3.852	0.734
Price fluctuation has minimized my participation in contract farming	2.403	0.536
Product diversification has encouraged participation in contract farming	4.199	0.814
Packaging and branding has promoted expansion of contract farming	2.108	0.672

From the results the respondents agreed that product diversification has encouraged participation in contract farming as shown by a mean of 4.199 and standard deviation of 0.814, that price sensitivity influence farmers to participate in contract farming as illustrated by a mean of 4.080 and standard deviation of 0.774. Again, the respondents agreed that market competitiveness discourage participation in contract farming as shown by a mean of 3.852 and standard deviation of 0734 and that quality of produce promotes contract farming as illustrated by a mean of 3.608 and standard deviation of 0.545.

However, the respondents were negative on the aspect of price fluctuation due to participation in contract farming as depicted by a mean score of 2.403 and standard deviation of 0.536 and that packaging and branding has promoted expansion of contract farming as shown by a mean of 2.108 and standard deviation of 0.672.

4.4.2 Production Cost

Further the study sought to establish the influence of production cost on contract farming in Buuri Constituency, Meru County. The respondents were asked to indicate their level of agreement with the various statements on production cost influence on contract

farming in Buuri Constituency, Meru County using a likert scale of 1-5. Their responses were as shown in table 4.5.

Table 4.5: Level of agreement with the various statements on Production Cost

Aspects of production cost	Mean	Std. Dev.
Labour cost fluctuation discourage contract farming	3.642	0.765
Cost of farm implements influence farmer's engagement in contract farming	4.040	0.810
Cost of seeds is subsidized through contract farming	4.108	0.878
Operational costs are high in contract farming	3.171	0.671
Opportunity costs influence farming contract	4.171	0.744
Transaction costs are minimal through contract farming	3.142	0.731

From the findings, the respondents agreed that opportunity costs influence contract farming as shown by a mean of 4.171 and standard deviation of 0.744 and that cost of seeds is subsidized through contract farming as shown by a mean of as shown by a mean of 4.108 and standard deviation of 0.878.

Further, the respondents agreed that cost of farm implements influence farmer's engagement in contract farming as shown by a mean of 4.040 and standard deviation of 0.810 and that labour cost fluctuation discourage contract farming as shown by a mean of 3.642 and standard deviation of 0.765.

However, the respondents were of different opinion on the issue of operational costs are high in contract farming as shown by a mean of 3.171 and standard deviation of 0.671 and that transaction costs are minimal through contract farming as shown by a mean of 3.142 and standard deviation of 0731.

4.4.3 Market Competition

Under this, the study sought to examine the influence of market competition on contract farming in Buuri Constituency, Meru County. The respondents were requested using a likert scale of 1-5 to indicate their level of agreement with the various statements on market competition influence on contract farming in Buuri Constituency, Meru County. Their responses were as shown in table 4.6.

Table 4.6: Level of agreement with the various statements on Market Competition

Aspects of market competition	Mean	Std. Dev.
Market concentration encourages contract farming	4.136	0.851
Market prices fluctuation influence contract farming	3.028	0.736
Contractual protection policies discourage contract farming	4.125	0.846
Technology promotes contract farming	3.921	0.878
Market information influence farmer participation in contract farming	3.778	0.843
Production technology dynamics alters contract farming	2.511	0.566

As per the above results the respondents agreed that market concentration encourages contract farming as illustrated by a mean of 4.136 and standard deviation of 0.851 and those contractual protection policies discourage contract farming as shown by a mean of 4.125 and standard deviation of 0.846.

Again, the respondents agreed that technology promotes contract farming as illustrated by a mean of 3.921 and standard deviation of 0.878 and that market information influence farmer participation in contract farming as shown by a mean of 3.778 and standard deviation of 0.843.

However, respondents were neutral that market prices fluctuation influence contract farming as shown by a mean of 3.028 and standard deviation of 0.736 and that production technology dynamics alters contract farming as illustrated by a mean of 2.511 and standard deviation of 0.566.

4.4.4 Farming Systems

Further the study sought to find out the influence of farming systems on contract farming in Buuri Constituency, Meru County. The respondents were requested using a likert scale of 1-5 to indicate their level of agreement with the various statements on farming systems influence on contract farming in Buuri Constituency, Meru County. Their responses were as shown in table 4.7.

Table 4.7: Level of agreement with the various statements on Farming Systems

Aspects of farming systems	Mean	Std. Dev.
Land conservation method promotes contract farming	4.210	0.818
Crop water management increase contract farming profitability	4.165	0.815
Soil Salinization discourages contract farming	3.085	0.785
Integrated pest management minimizes cost of contract farming	3.898	0.808
Inadequate labor supply discourages contract farming	3.801	0.800
Mechanized production system enhances contract farming	3.148	0.726

From the table 4.8 the respondents agreed that land conservation method promotes contract farming as depicted by an average of 4.210 and standard deviation of 0.818 and that crop water management increase contract farming profitability as illustrated by a mean of 4.165 and standard deviation of 0.815.

Further the respondents agreed that integrated pest management minimizes cost of contract farming as depicted by an average of 3.898 and standard deviation of 0.808 and that inadequate labour supply discourages contract farming as illustrated by a mean of 3.801 and standard deviation of 0.800.

However, the respondents were neutral that mechanized production system enhances contract farming as depicted by an average of 3.148 and standard deviation of 0.726 and that soil salinization discourages contract farming as illustrated by a mean of 3.085 and standard deviation of 0.785.

4.4.5 Farmers' Attitude towards Contract Farming

The respondents were requested to indicate their level of agreement with the various statements on farmers' attitude towards contract farming in Buuri Constituency, Meru County. Their responses were as shown in table 4.8.

Table 4.8: Farmers' Attitude towards Contract Farming

Aspects of Farmers' Attitude	Mean	Std. Dev.
Farmers' satisfaction influence his/her participation in contract farming	4.244	0.830
Production background influences efficiency of contract farming	3.023	0.785
Farmers' experience determines production in contract farming	4.046	0.813

From the above results the respondents agreed that farmers' satisfaction influence his/her participation in contract farming as depicted by an average of 4.244 and standard deviation of 0.830 and that farmers' experience determines production in contract farming as illustrated by a mean of 4.046 and standard deviation of 0.813.

However, the respondents were neutral on the fact that production background influences efficiency of contract farming as shown by a mean of 3.023 and standard deviation of 0.785.

4.4.6 Contract Farming in Buuri constituency, Meru County

Under the study sought to determine the contract farming in Buuri constituency, Meru County. The respondents were requested to indicate their level of agreement with the various statements on contract farming Buuri Constituency, Meru County. Their responses were as shown in table 4.9

Table 4.92: Level of agreement with the various statements on Contract Farming

Aspects of Contract Farming	Mean	Std. Dev
Number of contact farmers has greatly increased	4.233	0.798
Availability of household food has been highly promoted by contract farming	3.023	0.785
Contract farming has led to high utilization of land	4.227	0.782
Stability of food supply has been greatly influenced by contract farming	4.107	0.775
High farming profitability have been acquired through contract farming	3.966	0.834
Many jobs creation opportunities is as a result of contract farming	4.159	0.798

From the results in table 4.9, the respondents agreed that number of contact farmers has greatly increased as depicted by a mean score of 4.233 and standard deviation of 0.798 and that contract farming has led to high utilization of land as shown by an average of 4.227 and standard deviation of 0.782.

Further the respondents agreed that many jobs creation opportunities are as a result of contract farming as depicted by an average of 4.159 and standard deviation of 0.798, that stability of food supply has been greatly influenced by contract farming as shown by an average of 4.107 and standard deviation of 0.775 and that high farming profitability have been acquired through contract farming as shown by an average of 3.966 and standard deviation of 0.834.

However, the respondents indicated negatively that availability of household food has been highly promoted by contract farming as shown by an average of 3.023 standard deviation of 0.785.

4.5 Interactions among independent and dependent variables.

The data presented before on product pricing, production cost, market competition, farming systems and contract farming were computed into single variables per factor by obtaining the averages of each factor. Correlations analysis and multiple regression analysis were then conducted at 95% confidence interval and 5% confidence level 2-tailed to establish the relationship between the variables. The research used statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the Pearson's Product Moment Correlation and multiple regression.

4.5.1 Results of Correlation tests

A Pearson's Product Moment Correlation was conducted to establish the strength of the relationship between the variables. The findings are presented in Table 4.11.

Table 4.10: Correlation Matrix of contractual farming and influencing factors.

		Contract Farming	Product Pricing	Production Cost	Market Competition	Farming Systems
Contract Farming	Pearson Correlation	1				
	Sig. (2-tailed)	.				
Product Pricing	Pearson Correlation	.806	1			
	Sig. (2-tailed)	.029	.			
Production Cost	Pearson Correlation	.714	.522	1		
	Sig. (2-tailed)	.016	.017	.		
Market Competition	Pearson Correlation	.606	.742	.587	1	
	Sig. (2-tailed)	.028	.013	.018	.	
Farming Systems	Pearson Correlation	.881	.543	.723	.521	1
	Sig. (2-tailed)	.056	.008	.003	.016	.

Results in table 4.9 reveal that there is a strong, positive and significant correlation between product pricing and contract farming (r = 0.806, p value=0. 029). In addition, the study reveals that the correlation between production cost and contract farming is positive and significant (r=0.714, p value=0.016). Further, the study reveals that the correlation between market competition and contract farming is positive and significant (r=0. 606, p value=0.028). Finally the study establishes that there was a very strong, positive and significant correlation between farming systems and contract farming (r=0.881, p value=0.056). This implies that all the variables had a positive and significant correlation with contract farming in Buuri constituency, Meru County.

4.5.2 Results of multiple regression analysis

In this study, a multiple regression analysis was conducted to test the effect among predictor variables. The summary of regression model output is presented in Table 4. 12.

Table 4.31: Summary of Regression Model Output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.926	0.857	0.854	1.287

The study found that independent variables selected for the study (i.e. product pricing, production cost, market competition and farming systems) accounted for 85.4% of the variations in factors influencing contract farming in Buuri constituency, Meru County, Kenya. According to the test model, 14.6% percent of the variation in the factors influencing contract farming in Buuri constituency, Meru County, Kenya could not be explained by the model. Therefore, further studies should be done to establish the other factors that contributed the unexplained (14.6%) of the variation in the factors influencing contract farming in Buuri constituency, Meru County, Kenya.

The analysis of variance results for the relationship between the four independent variables and the factors influencing contract farming in Buuri constituency, Meru County, Kenya is shown in Table 4.12.

Table 4.12: Summary of One-Way ANOVA results of multiple regression coefficients.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1724.82	4	431.205	177.250	0.000
	Residual	416	171	2.433		
	Total	**2012.82**	**175**			

The probability value of 0.000 indicates that the regression relationship was significant in predicting the effects of product pricing, production cost, market competition and farming systems on contract farming. The calculated F (177.250) was significantly larger than the critical value of F= 2.4344. This again shows that the overall test model was significant.

The Regression coefficients for the relationship between the four independent variables and contract farming are shown in Table 4.13.

Table 4.13: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.684	0.123		5.561	0.000
Product Pricing	0.766	0.342	0.676	2.240	0.03
Production Cost	0.681	0.276	0.645	2.467	0.017
Market Competition	0.553	0.187	0.443	2.957	0.005
Farming Systems	0.861	0.156	0.792	5.519	0.000

The established multiple regression equation for predicting factors influencing contract farming in Buuri constituency, Meru County, Kenya from the four independent variables was:

$Y = 0.684 + 0.766X_1 + 0.681X_2 + 0.553X_3 + 0.861X_4$

Where, Y= Contract Farming

X_1= Product Pricing

X_2= Production Cost

X_3= Market Competition

X_4= Farming Systems

The regression equation above has established that taking all factors into account (product pricing, production cost, market competition and farming systems) constant at zero, contract farming was 0.684. The findings presented also show that taking all other independent variables at zero, a unit increase in the product pricing would lead to a 0.766 increase in the scores of contract farming and a unit increase in the scores of production cost would lead to a 0.681 increase in the scores of contract farming. Further, the findings shows that a unit increases in the scores of market competition would lead to a 0.553 increase in the scores of contract farming. The study also found that a unit increase in the scores of farming systems would lead to a 0.861 increase in the scores of contract

farming in Buuri constituency, Meru County. Overall, farming systems had the greatest effect on the contract farming, followed by product pricing, then production cost while market competition had the least effect to the contract farming. All the variables were significant (p-values < 0.05).

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research findings based on the objectives of the study. The chapter also draws conclusion, provides recommendations and suggestions for further studies.

5.2 Summary of Findings

This section focuses on the summary of the research findings on the product pricing, production cost, market competition and farming systems on contract farming in Buuri constituency, Meru County.

5.2.1 Product Pricing

The study sought to determine the influence of food pricing on contract farming in Buuri Constituency, Meru County. From the results the study found that product diversification has encouraged participation in contract farming and that price sensitivity influence farmers to participate in contract farming. Again, the study revealed that that market competitiveness discourages participation in contract farming and that quality of produce promotes contract farming. Further the study showed that the price fluctuation has not minimized my participation in contract farming and that packaging and branding has not promoted expansion of contract farming.

5.2.2 Production Cost

Further the study sought to establish the influence of production cost on contract farming in Buuri Constituency, Meru County. From the findings the study revealed that opportunity costs influence farming contract and that cost of seeds is subsidized through contract farming. Further, the study found that cost of farm implements influence farmers engagement in contract farming and that labour cost fluctuation discourage contract

farming. The study revealed that operational costs are fairly high in contract farming and that transaction costs are fairly minimal through contract farming.

5.2.3 Market Competition

Under this, the study sought to examine the influence of market competition on contract farming in Buuri Constituency, Meru County. The study found that market concentration encourages contract farming and that contractual protection policies discourage contract farming. Again the study revealed that that technology promotes contract farming and that market information influence farmer participation in contract farming. The study also showed that market prices fluctuation influence contract farming and that production technology dynamics alters contract farming.

5.2.4 Farming Systems

Further the study sought to find out the influence of farming systems on contract farming in Buuri Constituency, Meru County. The study revealed that land conservation method promotes contract farming and that crop water management increase contract farming profitability. Further the study showed that integrated pest management minimizes cost of contract farming and that inadequate labour supply discourages contract farming. The study also revealed that mechanized production system fairly enhances contract farming and that soil salinization discourages contract farming.

5.3 Discussion of findings.

5.3.1 Product Pricing

The study sought to determine the influence of food pricing on contract farming in Buuri Constituency, Meru County. From the results the study found that product diversification has encouraged participation in contract farming and that price sensitivity influence farmers to participate in contract farming. This was in line with Baumann (2010) who stated that it is easy for a company to manipulate prices when the market is competitive and prices are volatile.

Again, the study revealed that that market competitiveness discourages participation in contract farming and that quality of produce promotes contract farming. This correlated

with Singh (2014) who revealed that most farmers try to sell their produce at market for a better price instead of factories where farmers must comply with specified conditions and prices companies pay to farmers are partly dependent on quality, which is an additional incentive for farmers to deliver high quality products.

Further the study showed that the price fluctuation has not minimized my participation in contract farming and that packaging and branding has not promoted expansion of contract farming. This corresponded to Wiboonpongse, et.al (2006) who claimed that contract organic rice farmers in Payao Province enjoyed high yields and prices 30% higher than ordinary rice.

5.3.2 Production Cost

Further the study sought to establish the influence of production cost on contract farming in Buuri Constituency, Meru County. From the findings, the study revealed that opportunity costs influence farming contract and that cost of seeds is subsidized through contract farming. This was similar to Ouma, et.al (2010) who argued that transaction costs raise the prices of inputs and reduce profits from the sale of output by lowering its price.

Further, the study found that cost of farm implements influence farmer's engagement in contract farming and that labour cost fluctuation discourage contract farming. This was similar to Silva (2015) who said that firms in particular, while choosing their management style, must consider the factors that are associated with transaction costs given as follows.

The study revealed that operational costs are fairly high in contract farming and that transaction costs are fairly minimal through contract farming. This concurred with Williamson (2010) who argued that bounded rationality and opportunism are based on behavioural assumption, on which transaction cost analysis relies on.

5.3.3 Market Competition

Under this, the study sought to examine the influence of market competition on contract farming in Buuri Constituency, Meru County. The study found that market concentration

encourages contract farming and that contractual protection policies discourage contract farming. This concurred with Man and Shaffril (2013) who pointed out that prices summarize the workings of an economic system and economize on the need to gather complex and frequently conflicting information.

Again the study revealed that that technology promotes contract farming and that market information influence farmer participation in contract farming. This corresponds to Podolny (2013) who compared agribusiness firms with the situations where they produce the same output but without a contract, scope for individual decision-making has been reduced.

The study also showed that market prices fluctuation influence contract farming and that production technology dynamics alters contract farming. This was similar to Gershon, (2013) who claimed that exchange involving non-specific assets such as grains of cereals or oilseeds do not benefit from contractual protection other than that provided by classical contracting arrangements

5.3.4 Farming Systems

Further the study sought to find out the influence of farming systems on contract farming in Buuri Constituency, Meru County. The study revealed that land conservation method promotes contract farming and that crop water management increase contract farming profitability. These concurred with Bashir, Schilizzi & Pandit (2012) who argued that the acquisition of knowledge regarding agronomic practices of one crop versus another may be of secondary importance as compared with the acquisition of knowledge of one contractual environment versus another.

Further the study showed that integrated pest management minimizes cost of contract farming and that inadequate labour supply discourages contract farming. The study also revealed that mechanized production system fairly enhances contract farming and that soil salinization discourages contract farming. These correspond to Gershon (2013) who claimed that for large agribusiness firms, volume transacted with individual suppliers may be a crucial aspect determining the cost of inputs used in the value chain.

5.4 Conclusion

The study sought to determine the influence of food pricing on contract farming in Buuri Constituency, Meru County and concluded that it positively influences contract farming. From the results the study deduced that product diversification has encouraged participation in contract farming and that price sensitivity influence farmers to participate in contract farming. Further the study established that the price fluctuation has not minimized my participation in contract farming and that packaging and branding has not promoted expansion of contract farming.

Further the study established that production cost influence contract farming in Buuri Constituency, Meru County positively and significantly. From the findings the study revealed that opportunity costs influence farming contract and that cost of seeds is subsidized through contract farming. Further, the study deduced that cost of farm implements influence farmer's engagement in contract farming. The study also established that operational costs are fairly high in contract farming and that transaction costs are fairly minimal through contract farming.

The study further concluded that market competition influences contract farming in Buuri Constituency, Meru County positively. The study deduced that market concentration encourages contract farming and that contractual protection policies discourage contract farming. Again, the study established that technology promotes contract farming. The study also showed that market prices fluctuation influence contract farming and that production technology dynamics alters contract farming.

Further the study sought concluded that farming systems positively and significantly influences contract farming in Buuri Constituency, Meru County. The study deduced that land conservation method promotes contract farming and that crop water management increase contract farming profitability. Further the study deduced that integrated pest management minimizes cost of contract farming and that mechanized production system fairly enhances contract farming and that soil salinization discourages contract farming.

5.5 Recommendations

Based on research findings and conclusion the study recommends that:

5.5.1 Recommendations for further study

1. The study recommends that since this study was only limited to Buuri Constituency in Meru County, the same study should be done in other constituencies in counties in Kenya. The researcher should go ahead and determine how the factors discussed in this study influences contract farming in those respective constituencies.

2. Further the study recommends that another study should be done to investigate other factors not discussed in this study such as availability of water as well as the transport networks. The study should focus on the effect of those factors and how they influence contract farming.

5.5.2 Recommendation for management action

1. The farmers and other people involved in contract farming should focus on the price sensitivity since it influences farmer's participation in contract farming. This will take into consideration the sensitivity of the buyers of the products produced such that buyers of luxury goods are often less sensitive than buyers of everyday items. The more options a buyer has, the more sensitive he is to a price change in most cases.

2. The farmers should also focus on the quality of the products produced. The farmers should ensure that the products are of the required standards to make sure that the consumers who are also the buyers are satisfied. This will ensure raking of high profits hence promoting and encouraging more farmers to participate in contract farming.

3. The farmers should also time the farming such that their produce will be ready when the prices are high in order to realise more profits. The government should also intervene in controlling the prices to protect the farmers from being undercharged of their products.

5.5.3 Recommendation for policy action

1. The government should assist the farmers by minimising the price of the essential farm input equipment's as well as providing tractors for hire to be accessible to farmers at a cheaper rate. This will assist the farmers and other stakeholders in the contract farming to incur little production costs.

2. Farmers should be encouraged to carry out appropriate land conservation measures to protect the soil from the soil denudation. The farmers should also carry out land reclamation methods. This will ensure improvement in amount of production realised hence resulting to more profits.

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APPENDICES

Appendix I: Letter of Transmittal

Fridah Kagwiria

P.O Box 5848-00200.

NAIROBI.

Dear Sir/Madam,

REF: Invitation to Participate in a Research

I am a Master of Arts in Project Planning and Management student at University Of Nairobi conducting a research on **FACTORS INFLUENCING CONTRACTUAL FARMING IN KENYA; A CASE OF BUURI CONSTITUENCY, MERU COUNTY, KENYA.** I humbly request that you spare a few minutes off your schedule to complete the attached questionnaire. The questions seek your opinions regarding your organization relationship marketing and customer satisfaction. There is no right or wrong answers; I just need your honest opinion. Your anonymity is assured and the information you provide will remain confidential.

Thank you for participating in this study. Your cooperation and contribution in this research is appreciated.

Yours faithfully,

Fridahkagwiria

Appendix II:

Research Questionnaire

This questionnaire is designed to collect data for purely academic purposes. The study seeks to establish the **FACTORS AFFECTING CONTRACT FARMING IN BUURI CONSTITUENCY, MERU COUNTY, KENYA**. All information will be treated with strict confidence. Do not put any name or identification on this questionnaire.

Answer all questions as indicated by either filling in the blank or ticking the option that applies.

SECTION A: DEMOGRAPHIC INFORMATION

1) Gender Male [ ] Female [ ]

2) What is your occupation?

Farmer [ ] Agricultural officer [ ]

Fresh produce company official [ ] County government official [ ]

National government official [ ]

3) How many years have you worked in your current occupation?

Less than 1 year [ ] 1-5 years [ ]

6-10 years [ ] over 10 years [ ]

SECTION B: FACTORS AFFECTING CONTRACT FARMING IN BUURI CONSTITUENCY, MERU COUNTY, KENYA

Product Pricing

4) What is your level of agreement with the following statements on product pricing influence on contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of pricing	**1**	**2**	**3**	**4**	**5**
Price sensitivity influence farmers to participate in contract farming					

Quality of produce promotes contract farming					
Market competitiveness discourage participation in contract farming					
Price fluctuation has minimized my participation in contract farming					
Product diversification has encouraged participation in contract farming					
Packaging and branding has promoted expansion of contract farming					

5) How do the above aspects of product pricing influence contract farming in Buuri constituency, Meru County?

.....

.....

.....

Production Cost

6) What is your level of agreement with the following statements on production cost influence on contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of production cost	1	2	3	4	5
Labour cost fluctuation discourage contract farming					
Cost of farm implements influence farmers engagement in contract farming					
Cost of seeds is subsidized through contract farming					
Operational costs are high in contract farming					
Opportunity costs influence farming contract					
Transaction costs are minimal through contract farming					

7) In what ways has production cost influenced contract farming in Buuri constituency, Meru County?

……

……

.....

Market Competition

8) What is your level of agreement with the following statements on market competition influence on contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of market competition	1	2	3	4	5
Market concentration encourages contract farming					
Market prices fluctuation influence contract farming					
Contractual protection policies discourage contract farming					
Technology promotes contract farming					
Market information influence farmer participation in contract farming					
Production technology dynamics alters contract farming					

9) In what ways has market competition influenced contract farming in Buuri constituency, Meru County?

……

……

……

Farming Systems

10) What is your level of agreement with the following statements on farming systems influence on contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of farming systems	1	2	3	4	5
Land conservation method promotes contract farming					
Crop water management increase contract farming					

profitability					
Soil Salinization discourages contract farming					
Integrated pest management minimizes cost of contract farming					
Inadequate labor supply discourages contract farming					
Mechanized production system enhances contract farming					

11) In your opinion, how has farming systems influenced contract farming in Buuri constituency, Meru County?

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Farmers' Attitude Towards Contract Farming in Buuri constituency, Meru County

12) What is your level of agreement with the following statements on Farmers' attitude towards contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of Farmers' Attitude					
Farmers' satisfaction influence his/her participation in contract farming					
Production background influences efficiency of contract farming					
Farmers' experience determines production in contract farming					

Contract Farming in Buuri constituency, Meru County

13) What is your level of agreement with the following statements on contract farming in Buuri Constituency, Meru County?

Where: 5- Strongly agree 4-Agree 3-Neutral

2-Disagree 1- Strongly disagree

Aspects of Contract Farming					
Number of contact farmers has greatly increased					
Availability of household food has been highly promoted by contract farming					
Contract farming has led to high utilization of land					
Stability of food supply has been greatly influenced by contract farming					
High farming profitability have been acquired through contract farming					
Many jobs creation opportunities is as a result of contract farming					

The end, Thank you for your participation