FACTORS INFLUENCING PERFORMANCE OF DAIRY FARMING PROJECTS IN CHERANGANI SUB COUNTY, TRANS-NZOIA COUNTY, KENYA

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DECLARATION

This research project is my original work and has not been presented to other university for the award.

…….. **……...**

Bii Wilson Kipkorir **Date**

L50/84464/2016

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

…….. **……**

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DEDICATION

This research project is dedicated to my beloved wife Zipporah and children Linnet, Kipruto, Gideon and Don for their moral support and encouragement. I dedicate my work to all who participated in one way or the other for their invaluable support during my research period.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFC	Agricultural finance cooperation
AI	Artificial insemination
DFID	Department for international development
EADD	East Africa dairy development
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GOK	Government of Kenya
ICT	Information and communication technology
IFAD	International funds for agriculture development
ILRI	International Livestock Research Institute
KARI	Kenya Agricultural Research Institute
KDB	Kenya Dairy Board
KDP	Kenya dairy project
KDSCP	Kenya dairy sector competiveness program
MDG	Millennium Development Goals
NACOSTI	National Commission for Science, Technology & Innovation
NASEP	National Agricultural Sector Extension Program
SDCP	Smallholder dairy commercialization program
UK	United Kingdom
USAID	United States Aid for International Development
VRIO	Value, Rare, Imitable and Organization
WMP	Whole Milk Powder

ABSTRACT

Dairy farming remains the economic backbone of livestock farmers in high potential areas. Milk and dairy products forms a vital source of nutrition, livelihoods (food security and poverty alleviation) opportunities for farmers and other stakeholders. However, in many farms, milk productivity per animal is low compared to other parts of the world despite the technological advances in animal breeding and value addition. This has created both economic and nutritional challenges while the demand and value for dairy products is projected to increase in the world. Thus, the purpose of the study was to examine the factors influencing performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya. The objectives of the study were to: determine how institutional factors influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya, examine how socio-economic factors influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya, establish how dairying profitability influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya and ascertain how dairy production influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya. It adopted descriptive research design with a target population of 388 persons comprised of the 348 small scale dairy farmers, 10 officials from Kenya Dairy Board and 30 officials from the Ministry of Agriculture. The sample size of 198 persons was determined from a target population of 348 using the Krejcie & Morgan Table (1970). The data was collected using questionnaires and interviews guides. Reliability of the instruments was determined through a pilot study where Cronbach alpha coefficients of 0.721, 0.771, .821 and 0.736 were obtained for the instruments on institutional management, socio-economic, profitability and dairy production respectively. Quantitative data was analyzed using descriptive statistics, and presented in graph and tables, while qualitative data from interviews was organized into themes and sub-themes. The study established that institutional management factors, socio-economic factors, profitability and dairy production influence the performance of the dairy farming projects. The study therefore recommended that for sustainable millennium development goals, the policy makers, the government and other agricultural stakeholders should consider factors such as institutional management factors, socio-economic, profitability and dairy production to enhance performance of dairy farming.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Dairy farming in agriculture enriched with agro-ecological, political and social dimensions across countries, region and the vast continents. According to Knechtges (2011), approximately 900 million of the world's3.3 billion people are poor and live in rural areas. Majority of these people depend on agricultural activities for food and income. Dairy farming directly and indirectly utilize 80% of land surface and is projected to escalate to the tune of 30% of total value of the global agricultural production (OECD, 2002).

Barrett and Reardon (2000) noted that the core of livelihood models focus on the relationship between assets (capitals), livelihood strategies composed of activities such as livestock production, off-farm employment, informal sector and exchange activities and to livelihood outcomes such as improved income, food security, sustainable use of natural resources, better functioning of social networks and groups and reduced vulnerability within a mediating environment.

In United States of America (USA), dairy farming is large scale and highly mechanized with milk marketing mostly done through cooperatives. Dairy product sales represented 42 percent of the total commodity marketed by Agricultural Cooperatives in 2007 alone. The Danish dairy industry can be traced back into eighteenth century and comprises of the universal dairy assemble Foods and 30 little dairy organizations, together generating 4.7 billion kilograms of milk from an aggregate of 61 production plants in Denmark (Knechtges, 2011). Production firms possessed by Danish and Swedish dairy makers and Foods is Europe's biggest dairy gathering. The gathering forms more than 90 percent of the Danish and 66 percent of the Swedish dairy pool. It additionally runs dairy operations in various different nations, with UK put as its three greatest organizations (Michels, 2010).

In South Africa, dairy production has changed as a result of technological advancement especially in feeding forms, milking systems, biotechnology and housing. Dairy cows seemingly reducing as a result of decreasing dairy farms (Metcalfe, 2014). In Tanzania, farmers consider the dairy industry as one of the main sources of income (Bayer et al., 2006). Poor farmers derive income from livestock and purchase agricultural inputs such as fertilizer, herbicides and pesticides and also use the incomes to improve their livelihoods. Milk production in the year 2000 increased at an annual rate of 4.1% in Kenya and 2.6% in Uganda (Ngigi (2004)).

South Africa has the most efficient production system and produces 2,500 liters/ cow/year compared to 800 liters/cow/year in Uganda, 1,000 liters/cow/year in Tanzania and 1,800 liters/cow/year in Kenya (FAO, 2010). Benchmarking in dairy industries in China, India and Australia by Kenyan dairy industry. These countries have a production system similar to the one in Kenya which is low cost because it is based on rain fed pasture production (GOK, 2010).

In Kenya, dairy business is a sub sector which in largest in agricultural sector more than tea (Muriuki, 2003). The sub sector contributes to agricultural GDP about14% and 3.5%to total GDP (GOK, 2008). Although dairy sector in Kenya's contributes to the, household incomes, nation economy and security of food, the sector is being faced by a number of economic, technical, institutional challenges, processing and marketing in milk production (Karanja, 2003). According to the Ministry of Livestock (2003), Rift-Valley provinces produced 50% of the country's 3.196 billion litres of milk with Trans-Nzoia County contributing 3.3% of the milk output.

1.2 Statement of the Problem

Dairy agribusiness has geometric benefits ranging from creation of jobs, generation of income food security, and earnings from foreign exchange and also source of protein to human diet. It also enhances dairy farmers, processors, traders and the entire participants of milk chain distribution. Despite the huge engagement in farming, the smallholder farmer complains of food insecurity and job creation (BDSP, 2010).

In Kenya, the country has the most competitive processing sector in the region with an excess capacity and the Smallholder dairy farmers are well-placed to produce for this capacity if the conditions are right, however there are regional imbalances with respect to dairy development (Karanja, 2003). In addition, despite the fact that Kenya's dairy area has a notable contribution to the national economy, family unit salaries and sustenance security, the industry faces various specialized, financial and institutional, and technological issues in dairy production, value addition, advertising and marketing (Karanja, 2002).

The annual report of Ministry of Cooperative Development (2012) indicated that turnover documented by the dairy cooperatives in Trans-Nzoia County in 2011 was to be Kshs 4,194 million, equated to Kshs 5535 million in 2010 and Kshs 13953 million in 2005, a 70% decrease from 2005. This has led to low living standards amongst of the smallholder farmers and their dependents.

However beside environmental conditions being favorable for dairy development and demand for milk projected to grow due to increased population and absence of substitute for milk there has been continued decline in the performance in the dairy industry indicated by continued reduction of milk production and of land for designated for dairy farming. .

Several studies such as Gloria (2008), have been conducted on dairy farming, however, the study focused on the milk demand and production projects without checking on the factors affecting the performance of the dairy farming projects. It was against this background that the present study assessed the factors influencing performance of dairy farming projects at Cherangany sub-county, the county of Trans-Nzoia, Kenya.

1.3 Purpose of the Study

The main aimed of this study was to assess the factors influencing performance of dairy farming projects at Cherangany sub-county, the county of Trans-Nzoia, Kenya.

1.4 Objectives of the Study

The following specific objectives guided the study.

The study sought to;

1. Determine how institutional factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya
2. Examine how socio-economic factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya
3. Establish how dairying profitability influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya
4. Ascertain how dairy production influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya

1.5 Research Questions

The following research questions guided the study;

1. What level does institutional factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?
2. What ways do socio-economic factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?
3. What extent does dairy profitability influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?
4. What ways do dairy production methods influence performance farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?

1.6 Significance of the Study

Poverty reduction and food security is among the major millennium development goals of the Kenyan government. Dairy cultivating stand a superior stage as contrasted and different divisions of farming in this country to the extent promoting of the item is concerned. Kenya's dairy industry is a standout amongst the most amazing in the creating scene. Additionally, the investigation investigated factors that impact the development of dairy cultivating which frames the monetary spine of inhabitants of Cherangany sub-region and Trans-Nzoia in general alongside maize cultivating and other agrarian

exercises. This investigation will add to the current assortment of information as the discoveries will profit different academicians in doing further research on the variables affecting development of dairy cultivating ventures in Cherangany, Trans-Nzoia County, Kenya.

1.7 Limitations of the Investigation

The exploration was restricted doubt and questions especially with individual points of interest impeded on information gathering and some respondent shied far from giving the data required by the specialist yet this was tackled by guaranteeing the respondent that the data offered were to be approached with deference, polished methodology and classification. Another restriction was that non-respondents, uncooperative and hostile respondents, notwithstanding, this was lessened by inspiring the respondents and by following up on the polls.

1.8 Delimitations of the Investigation

The investigation secured factors impacting development of dairy cultivating ventures in Cherangany sub-county, Trans-Nzoia County, Kenya. This was delimited to components, for example, institutional ,socio-economic, dairying profitability and dairy production. Besides, the study was confined to dairy farmers within Cherangany sub-county Trans-Nzoia County this was because farmer within this region had homogenous characteristics ranging from production methods, social economic factors, institutional management and same breeding methods.

1.9 Assumptions of the Study

The following were the assumptions of the study: Responses received from respondents, were assumed to be true, honest and transparent. The sample unit under concentration was a genuine portrayal of the population, and that the reactions that were gathered once again from them gave the fundamental information to a convincing and educated result.

1.10 Definition Of Significant Terms

Awareness- having knowledge on dairy farming in order to increase milk production (having know how among dairy farmers).

Break Even -This is the minimum price the businessperson must receive to cover all costs of production of milk.

Performance: the rating of dairy activity whether profitable or not

Productivity -the term will refer to the income farmers get from their dairy farming.

Profitability: capacity of the business to create profit contrasted with its costs and other significant expenses acquired amid particular timeframe.

Smallholder Dairy Farmer – These are farmers keeping dairy cows with a group of under-five cows. In this exploration along these lines agriculturists with a group of under-five dairy cattle regardless of the breeds will be thought to be smallholder ranchers.

Socio Economic characteristics: these are social factors of the dairy farmers e.g. age, marital status, sex, income, occupation, beliefs among others that in one way or the other affect

1.11 Organization Of The Study

Chapter one gives background to the investigation, problem statement, study purpose, objectives and study questions, significance, limitations and study delimitations. Chapter two covers empirical literature related to factors influencing performance of dairy farming projects, conceptual framework, theoretical framework, and identified knowledge gap. Chapter three describes the methodology of the study, target population, the sample and sampling techniques, data collection, data analysis and ethical considerations. Chapter four gives findings and discussion of the study while chapter five deal with summary, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter in gives an over view of the previous studies done by other scholars on related topic. This section includes the following discussions: empirical review, theoretical review, and conceptual framework, summary of the study and research gaps.

2.2 Empirical Review

The following sub-sections describe the reviewed literature as per the objectives of the study.

2.2.1 Institutional Factors And Performance Of Dairy Farming

Management experts indicated that distinctive management abilities and practices on a similar kind of enterprise and similar production frameworks will have diverse financial success (Ford and Shonkwiler, 2004). The importance of management in any enterprises in this way can't be over stressed. Management does are described into various functions which incorporate production management, management of finance and human resource management (Gloy, 2002). Management of financial is considered to mainly deal on how farms gain funds and how the same finances are overseen (Gloy, 2003). They decide the capital structure of the farm and guide in making a choice of whether to borrow or utilize their own equity. Different works dwell on determining the connections amongst profitability and leverage, while others just consider renting practices of book keeping (Gloy e. al., 2002).

Majority of research have look at the ratios and financial position of different farms (Gloy et al., 2002). They measure farm's position in terms of financial using ratios such as depreciations, asset to debt, operating expense, operating margin, equity to asset anong others.

The majority of the findings at times have mixed outcomes on the utilization of debt and how it associates with profitability. Some studies have shown that there is no significant

association, while others established mixed results. At the point when the coefficient was statistically significant the sign generally shows tendency to be negative (Gloy et Al., 2002). This demonstrated a negative connection between debt utilize and profitability. Along these lines the utilization of debt in a farm business may rely upon different factors that encompass the management of the business.

Institutional management documentations are known to give information on the performance of a business. They keep track on how the business is performing with respect to liquidity, advantage, and efficiency being utilized of favorable assets and capital (Gary and Jenny, 2008). Moreover they help the agriculturist to discover the performance of the farm in respect of the different aspects. These may comprise of investments for assets versus profitability (Asset turnover extent), cost of operations, and the edges that the farmers get (western dairy organization meeting, 2009). Other indispensable funds measures that farmers require are the liquidity measures, profitability measures, fund efficiency and repayment capacity. This may cause challenges in the local smallholder sector because agriculturists do no keep adequate records.

This can be a useful tool for the agriculturist to make critical choices by knowing whether his business is doing great or something else. For the most part this should be possible through benchmarking with different players in a similar industry (western dairy administration gathering, 2009). This can be considered as an essential segment of training by the players that are engaged with the change of the smallholder dairy industry. Besides it ought to be incorporated into the National Agriculture Sector Extension Program (NASEP) and the seat imprints ought to be additionally incorporated into the dairy division approach which is being worked on.

A farmer is esteemed to be financially effective if it creates profits and enhances its real total assets position. Furthermore keeping up a sound income is considered as financial success factor as well (Kaase, 2003). Accordingly utilizing profitability as an indicator to efficiency performance of rancher is reasonable and adequate. This was regardless of the way that a few agriculturists particularly worker ranchers have diverse cultivating goals that can be connected to traditions, culture and way reliance.

The income is an essential factor in any business cultivating incorporated, this is on the grounds that the income status decides whether the business is have the capacity to meet its day by day commitments (Carroll et al., 2006). It shows if the business has the money to pay its everyday levy and consequently a homestead with great income can't need cash to purchase things like encourage, supplements, quality AI and veterinary administrations, work and loan bosses. In this way a decent income is foremost for the dairy business.

The level of debt additionally decides the farmer's achievement; the actual level of debt that is ideal has not been set up and is with respect to various farm organizations. In addition farms with high level of debt are observed to be less effective than those with moderate debt amounts (Kaase et al., 2003, Carroll et al, 2006). Consequently the level of outfitting needs to definitely monitored so as to have achievement in any business. Too high level are adverse and furthermore inadequate or absence of debt is additionally restricting to the business. To gauge the level of debt, the debt resource proportion might be utilized, it is the proportion between the debt sum and the value of assets of the farm. At the point when the ratio is too high, it demonstrates poor performance as the amount of debt is out doing the farms resource level.

This research was construct mostly with respect to financial management as feature of the of management parts. The utilization of debt by the Kenyan smallholder agriculturists was not exceptionally significant and keeping of financial records isn't extremely well known. Many research works that had been investigated were in the developed world for instance the USA which can't be completely recreated in the developed scene situation. This was on the grounds that agribusiness management particularly little scale agriculture was not that advanced and many of the agriculturists did not much of the time utilize debt in the farms and furthermore did not keep formal records, they additionally did not construct their choices in light of calculated financial outputs.

2.2.2 Socio Economic Factors And Performance Of Dairy Projects

Nderitu (2009), notes that in practicing mixed farming, which cushions the farmer from lack of food, acreage under dairy farming is low. The actual size of land to most farmers is small due to fragmentation as families enlarge and population increases. Thus, the

dairy farmers have problems with growing enough fodder for the animals. Gloria (2008) is of the opinion that the high demand for milk in Kenya urban areas has been affected by high costs of production, processing, transportation (poor infrastructure), inaccessibility to affordable credit and high cost of electricity, among others. Other constraints were due to lack of good Information Communication Technology (ICT), poor governance and lack of an enabling environment, low value addition which translates into poor prices in markets. It is therefore imperative to facilitate the sub sectors performance and development, reduce production cost and increase value addition for milk products with the hope of increasing trade subsequent economic performance.

Nyoro (2006), reveals that access to both internal and external financial sources have an influence to the size and performance dynamics. High entry costs may indicate the presence of profit in the industry and may serve as entry barriers for new entrants as they may lack financial capacity to invest in technology and expansion. A social cultural belief of small holder's farmers is that dairy farming is a subsistence undertaking which affects their investment levels in dairy ventures. Most rural farmers perceive other agricultural products like coffee and tea as more lucrative and concentrate investments in them. This is supported by government through marketing boards that are able to export the products and fetch good prices for them. The dairy industry lacks government supported marketing boards and as such marketing is poorly integrated and left to the private sector control. The liberalization of the dairy market has thus cut-failed the contribution of dairy farmers and reduced their profitability in the agricultural sector.

2.2.3 Dairying Profitability And Per Of Performance Dairy Projects

There are 15 measures of profitability in the dairy sector according to Diane, Polson, Oelker& Gary (2008) based on 10 major areas namely; production rate, control of cost, efficiency of capital, liquidity, profitability, scheduled repayment, mission, solvency, sustain family's living average and encouragedwork force among others.

Phillip (2011), concurs on focused examination of the Netherlands and Dutch dairy Cluster Micro financial aspects of Profitability. In Netherlands, the dairy bunch overwhelms and is a standout amongst the most profitable and fare situated on the planet.

The abnormal state of profitability is driven by refined household and neighborhood request and rivalry, mechanical advancement, high administrative norms and a gifted workforce.

Productivity is capacity to offer things and organizations that meet the quality models of the close-by and world markets at costs that are engaged and give attractive benefits for the advantages used or ate up in making them. To dairy agriculturists it includes the capacity to deliver quality merchandise that are profitable in the neighborhood and worldwide market (Barney and Hasterly, 2008).

Barney and Hasterly (2008) additionally portray the Value, Rare, Imitable and Organization (VRIO) system as a not too bad gadget to examine the internal state of an endeavor. It stays for four request one must get some data around an advantage or capacity to choose its engaged potential. These includes the subject of; significant worth does an asset empower a firm to abuse an ecological open door or potentially kill a natural risk; the topic of irregularity is an asset as of now controlled by just a single or few contending firms? Are the assets to make items uncommon; the topic of unchanging nature - do firms without an asset confront a cost burden in getting or creating it? Is what a firm doing hard to copy; the subject of association are the association's different arrangements and strategies composed to help the abuse of its significant, uncommon and exorbitant to impersonate assets? On the off chance that the assets are not significant, there is aggressive weakness and where they are profitable and not uncommon; there is focused equality (correspondence), but rather when they are important, uncommon, not imitable, and composed, there is upper hand. Vertical coordination advances esteem chain financial aspects. Esteem chain for dairy industry exudes from seed organizations and harvest ranchers, at that point to dairy agriculturists for drain generation at that point to dairy processors and in conclusion to the buyer. Vertical joining improves upper hand.

Baltenweck (2010) suggests that the assessment to which degree nearby dairy makers go up against imported items is to ascertain the foreign cost of items. Import equality on account of drain is figured by beginning with the world costs for Whole Milk Powder (WMP) and adding it to expenses of transport to nearby markets and the cost of change

into fluid drain. To contrast and ranch entryway costs, the cost of nearby drain gathering is deducted from the reproduced fluid drain costs. This at that point shows the import equality cost of drain at cultivate door, specifically practically identical to the costs got by ranchers. On the off chance that the import equality cost is lower than cultivate entryway value neighborhood makers experience issues contending in light of the fact that purchasers are probably going to lean toward the lower cost import. In the event that the import equality cost is higher than the ranch value, neighborhood makers might be focused, as their drain is less expensive than imports. In any case, these value examinations overlook contrasts in quality, which ought to be remembered. Evaluated esteem included hour of work put into dairy cultivating is likewise an aggressive measure of dairy ranchers productivity. On the off chance that the arrival on work is higher than normal nearby wage rate, at that point the cultivating framework can bear to pay focused wages and ought to be practical from the work viewpoint. Normal neighborhood wage in creating nations is in Hours.

Kamau (2011) opines that due to high fuel and raw materials costs the manufactured animal feeds have become very expensive. This has led to the sale of low quality feeds by manufacturers, which contribute to low milk production. However the few manufacturers who produce quality feeds sell them at very high prices which are unaffordable to most small scale farmers which erodes their margins. Raihan (2008), further relates that reliance on climate for production of feeds affects the dairy farmers. When there are adverse weather conditions, cow feed grown in the farms is reduced, forcing the farmers to rely on commercial feeds whose prices have escalated.

Kiama (2009) further elucidates that knowledge of alternative highly nutritious plants among the small holder farmers is low. For example, Lucerne, leucopenia, caliangra and gliricidia is low. These alternative and highly nutritious feeds could improve milk yields and reduce feeding costs and thus enhance farmer’s income. He further notes that the low extension services and poor reading culture coupled with inaccessibility of information facilities and documents has contributed to low production capacity and poor quality of

milk, reducing its value and also income to farmers and their competiveness in the agricultural sector.

Shitanda (2004) notes that all kinds of animal diseases can easily contribute to the low level of milk production among farmers. Diseases like mastitis, pneumonia, foot and mouth, bovine tuberculosis to name but a few of them affect the animal's health and milk production. The cost of veterinary drugs, services, vaccines and pesticides is high and whose application procedures are not well known by most farmers. Further noted is the high cost of dairy equipment like milking salves, which would enhance safety and quality of milk, an important competitive edge in the dairy sector.

Ondwasi (2009) reveals that artificial insemination is one way of improving the stocks and increasing milk production. The traditional method of the local bull hardly improves the breed. However, to get the best semen is very expensive, prohibiting most farmers from accessing them. Also knowledge on keeping the best type of breed is low. It is recommended that the Friesian, Ashier, Jersey and Guernsey breeds of cows should be kept in order to produce large quantities of milk.

2.2.4 Dairy Production Methods And Performance Of Dairy Projects

Tacken et al. (2009) opine that the high cost of feed coupled with poor knowledge of husbandry best practices hindered optimal production and earnings for dairy farmers. Land fragmentation due to population performance reduced available acreage for dairy feeds production. Further, the extensive performance of cash crops, believed to be higher and stable income earners leave little parcels of land for dairy food. He further states that the production of food crops is more prioritized by farmers in ensuring food security. Further cash crops like tea and coffee are believed to be income generating practices in the farms, and mostly preferred to milk production. The culture of land inheritance and usage has caused high land fragmentation which has greatly reduced land available for fodder production. This has also forced farmers to rear just one or two cows reducing milk production capacity and income.

Kirimi (2010) relates that albeit little holder ranchers contribute more than fifty six (56%) of aggregate advertised drain creation, the efficiency per creature in these homesteads stays low. Unpredictable installments, low ranch entryway costs and low deals as an extent of aggregate generation particularly evening milk, temperamental market outlets and restricted access to veterinary and A.I. administrations are for the most part factors that contrarily influence efficiency and execution of the dairy subsector. In any case, the potential for expanding dairy efficiency in the nation and particularly the little holder dairy rancher stays incredible. The normal yield per cow in little holder ranches is as low as one thousand three hundred (1,300) liters every year when contrasted with the best world routine with regards to four thousand to six thousand (4,000 - 6000) liters. Expanded profitability won't just improve cultivate livelihoods, sustenance, and diminished destitution yet will likewise supply dairy items to the developing urban populaces.

Dairy sector profitability program managed by United States Aid for International Development (USAID) in Kenya was established in 2008 to help change the Kenya Dairy Sector, into a comprehensively focused, territorial market pioneer. Its general objective was to build little holder family wage through the offer of value drain and drain items, and in addition wiping out wasteful aspects and lower generation and preparing costs through the dairy esteem chain while in the meantime guaranteeing that Kenyan drain can meet local and global quality guidelines. Its success however has not been promising due to a host of factors as the program came to completion five years ago on the year 2012 without any significant results.

2.3 Theoretical Framework

The study was based on the production theory. Antunes (2015) clarifies generation hypothesis as the examination of creation, or the financial method of changing over commitments to yields. Age uses resources to make a respectable or organization that is fitting for use, favouring giving in a gift economy, or exchange a market economy. This can join collecting, advancement, securing, conveying, and packaging. A couple of

money related experts portray generation broadly as all financial development other than usage. They see every business activity other than the last purchase as some kind of creation.

Generation is a technique, and in that limit it occurs through time and space. Since it is a stream thought, age is measured as a "rate of yield per time allotment". There are three perspectives to age shapes: A creation method can be portrayed as any activity that constructs the comparability between the case of enthusiasm for stock and undertakings, and the sum, outline, shape, size, length and scattering of these items and endeavors open to the business focus.

Kranton (1996) in his article American monetary survey clarifies creation is a procedure that joins different material data sources and irrelevant information sources, for example, plans and know-how to make something for utilization that is the yield. They additionally watch that it is the show of making yield, an extraordinary or organization that has regard and adds to the utility of individuals.

Money related flourishing is made in a creation technique, which implies each and every financial development that point clearly or roundabout to satisfy human needs. How much the necessities are satisfied is consistently recognized as a measure of money related flourishing. In progress, two features clear up the extending money related flourishing of dairy farmers. They are improving quality-cost extent of products and growing pay rates from creating and more viable market creation.

2.4 Conceptual Framework

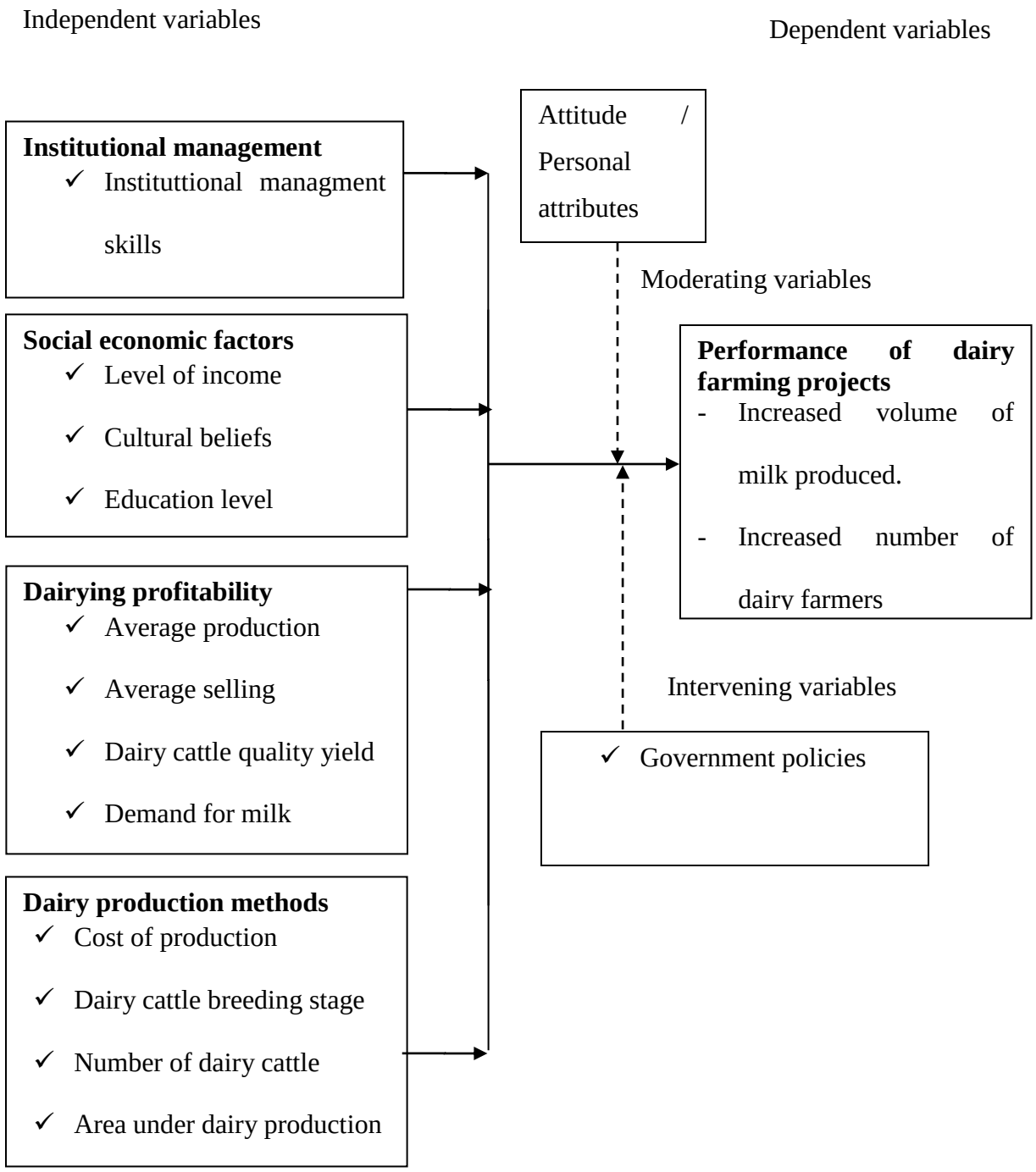

Figure 2.1 : Conceptual Framework

To the study, many factors (influential forces) facilitate or impede dairy project performance. Konchar and Sanvido (1998) measured factors influencing performance of dairy projects in terms of institutional management factors, social economic factors, dairying profitability factors and dairy production methods used by the farmers. This acted as the independent variables in this study. They were the factors that were thought to influence the performance of dairy projects in Cherangany sub-county. The dependent variable in this study was measured in terms of presence of dairy farming and increased number of dairy farmers.

2.5 Knowledge gaps

The review on the factors influencing dairy farming is not conclusive since the knowledge level of farmers and knowledge of good husbandry practice in dairy production needs to be established as well as its effects and impact on dairy farming. As regards social economic effects, it was imperative to establish those of particular regions due to diversity in terms of resource endowments and social culture. The reviews noted government contributions like extension services program. However the policies and programs in the dairy sector were inadequately enumerated and the knowledge by farmers of them is overlooked. The lack of involvement of the dairy farmers in the output market limited their capacity to influence pricing and market share. This had not been adequately reviewed by the past researchers and a further study was crucial.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section distinguishes the examination plan of the investigation. It additionally features the objective populace, Sampling techniques and the strategies for information accumulation. Additionally included are the measures attempted to guarantee the legitimacy of information gathered, and its dependability in this investigation.

3.2 Research Design

This study adopted descriptive survey research design. According to Oso & Onen (2005) descriptive survey research involves enquiring different kinds of fact findings. It draw conclusion about targeted population by describing the data.

3.3 Target Population

The target population was 388 comprised of the 348 small scale dairy farmers in Cherangany, 30 ministries of livestock officials and 10 officials from Kenya dairy board (Annual reports from Ministry of Livestock development, 2016).

3.4 Sample Size And Sampling Techniques

The following sub-sections describes the sample size determination and sampling Techniques used in the study.

3.4.1 Sample Size Determination

According to Institute of Economic Affairs (2009) sample size is a function of heterogeneity of the population. The sample size was derived using Krejcie and Morgan Table (1970). Therefore the sample size was 198 from the table.

3.4.2 Sampling Techniques

As indicated by Kabiru and Njenga (2009), sampling is a procedure of selecting various samples from a population with aim that the chosen contains characteristics of the whole

population. This study used stratified simple random procedure where the targeted population was separated into bunches called strata. This is shown in table 3.1;

Table 3.1: Sampling Frame

Target Group	Number Targeted	Determination	Sample size
Officials from KDB	10	(10/388)*198	5
Ministry Officials	30	(30/388)*198	15
Dairy Farmers	348	(348/388)*198	178
Total	**388**	**(388/388)*198**	**198**

3.5 Description of the research instruments

The study adopted research instruments such as questionnaires and interview guides in collection of data. The questionnaires collected the quantitative data while interview schedules gathered qualitative data. These two types of instruments are described in the following sub-sections.

3.5.1 Questionnaires

Questionnaires are an accumulation of things to which a respondent is relied upon to respond, as a rule in composing. It is implied gather a considerable measure of data over a brief timeframe (Owens, 2002). As indicated by Cooper and Emory (2008), the poll is helpfully utilized on the grounds that it is less expensive and snappier to direct, it is over analyst's impact and changeability, and is very advantageous for the participantsbecause could fill them amid free circumstances or when work is not much. Hence, the surveys were given to the dairy agriculturists.

3.5.2 Interview Guides

An interview is an information gathering method that includes oral addressing of the respondents, either independently or as a gathering (Chaleunvong, 2009). Top to bottom meetings were favored for the service authorities, and authorities from the Kenya dairy board, as they are regarded more proficient and experienced.

3.6 Pilot Study

A pilot considers was led on 36 dairy farmers in Cherangany sub-area who did not take an interest in the genuine examination. This was intended to test the adequacy of the instruments of information accumulation.

3.6.1 Validity of the exploration instruments

The extent that research instruments can measure what it was intended to measure is through validity test (Kabiru& Njenga, 2009). In this study bothconstruct and content validity was adopted. Research instruments were given to supervisor and consulting experts in order to achieve content validity. Construct validity was tested through factor analysis after pilot study. The test found value of 0.61 which was greater than 0.5 hence, the data were valid.

3.6.2 Reliability of the exploration instruments

According to Joppe (2000) reliability is the consistent of outcome to gives accurate representation of the whole population targeted over time. After pilot study reliability was achievedby use of Cronbach Alpha and results shown in Table 3.2;

Table 3.2: Reliability Test

	Reliability Statistics	
	Cronbach's Alpha	No. of Items
Institutional factors	.721	4
Socio-economic factors	.771	4
Profitability	.821	4
Dairy production	.736	4

As showed up in Table 3.2, Institutional component's Cronbach alpha value was 0.771, Socio-fiscal segment's Cronbach alpha value was 0.771, advantage's Cronbach alpha value was 0.821 and dairy creation technique's Cronbach alpha value was 0.736. according to Gliem and Gliem (2003), as a tried and true rule, acceptable alpha must be

0.70 and above. The Since the Cronbach alpha coefficients were higher than the base satisfactory regard (0.7), in this way; the things were seen as strong.

3.7 Data collection procedure

The researcher sought an letter of introduction from University of Nairobi which enabled the research to get permit from NACOSTI. Upon getting study permit, the researcher went to relevant administrative authority to ask for data collections permission. Further to that, two research assistants were recruited who embarked on data collection by administered the questionnaires. Besides supervising the data collection by questionnaires, the researcher conducted pre-planned interviews with the key informants.

3.8 Data Analysis Procedure

Both qualitative and quantitative were utilized to analyze the information. Qualitative analysis was used to analyze the perception data collected from the key informants. Jointsubjects were determined, extraction of qualitative data, organising and discussing based on main objective were done. These were presented using quotations.

Quantitative data from the structured questionnaires was edited and processed. It was then coded to enable categorization into groups and entered into SPSS (Version, 20.0). Thereafter, descriptive statistics involving frequencies and percentages was adopted.

3.9 Ethical Consideration

Moral measures are standards the analyst should tie herself to in directing the examination before information accumulation. Starting endorsement was secured from the University of Nairobi. An examination allows was looked for from the NACOSTI. The scientist disclosed to the respondents the goal of the investigation and guaranteed them of classification to enhance compatibility and rightness of data to be assembled. The scientist likewise demonstrated archives that permit him complete the examination, both by the college and the National Commission for Science Technology and Innovation and in addition illuminate them that their interest is willful and no monetary advantage is appended. The surveys were taken care of with protection to encourage privacy of the respondents. Obscurity, regard of their social esteems and interests were observed.

3.10 Operationalization of variables Table

Table 3.3: Summary of Quantitative Data Analysis Procedure

Objectives	Variables	Indicators	Measurement	A To
To determine how institutional factors influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya	**Independent Variable** Performance of dairy farming project	- Instituttional managment skills - Debt use - government policies - Institutional management practices	% level of agreement on institutional management indicators	Fr di pe
To assess how socio-economic factors influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya	**Independent Variable** Performance of dairy farming project	- Level of income - Cultural beliefs - Education level - Religion	% level of agreement on socio-economic indicators	Fr di pe
To establish how dairying profitability influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya	**Independent Variable** Performance of dairy farming project	- Average production - Average selling - Dairy cattle quality yield - Demand for milk	% level of agreement on profitability indicators	Fr di pe

To ascertain how dairy production influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya	**Independent Variable** Performance of dairy farming project	- Cost of production - Dairy cattle breeding stage - Number of dairy cattle - Area under dairy production	% level of agreement on production indicators	Fr di pe

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1 Introduction

This chapter describes the data analysis, presents, interpret and discuss the findings. The study investigated the factors influencing performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya. The chapter is divided into various sections namely; response rate, the demographic information of the participants and the study objectives. The findings were presented under the following themes: institutional factors influence performance of dairy farming projects, socio-economic factors influence performance of dairy farming projects, how dairying profitability influence performance of dairy farming projects, and how dairy production influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya. The chapter starts with the questionnaire response rate and then demographic information of the participants. There after the findings on each of the objectives under the study was reported and discussed comprehensively.

4.2 Questionnaire response rate

Out of 178 questionnaires given out to respondents only 169 were returned accounting 94.9% response rate. A response rate of 70% and above is adequate according to Mugenda and Mugenda (1999) hence 94.9% response rate was satisfactory for data analysis. This response rate was good enough to make a comprehensive and in-depth analysis of the research objectives. Table 4.1 shows the response rate.

Table 4.1: Questionnaire response rate

Questionnaire	Frequency	Percentage
Administered	178	100.0
Returned	169	94.9

4.3 Demographic data

Demographic data sought by the study were; gender, marital status, age, level of education. These demographic variables were reflected to have an effect on the factors influencing performance of dairy farming projects in Cherangany, Trans-Nzoia County. The findings were as presented in Table 4.2.

Table 4.2: Gender of the participants

Gender	Frequency	Percentage
Male	133	78.7
Female	36	21.3
Total	169	100

Table 4.2 shows that majority (78.7%) were males while minority (21.3%), were females. This implies both men and women reared cattle and hence both their views were considered vital in the study because they are differently exposed to and affected by cattle rearing at the community level and at their family level.

The study also sought to determine the ages of the respondents in the study and hence they were requested to indicate their ages. Establishing of age groups was relevant as it could give independent and personal experiences on dairy farming projects performance in the target area. The results were as shown in Table 4.3.

Table 4.3: Age of the respondents

Age	Frequency	Percentage
18-25	11	6.5
26-35	24	14.2
36-45	52	30.8
Above 45	82	48.5
Total	169	100.0

On the ages of the respondents, most 82 (48.52%) of them were of the ages above 45 years followed by 36–45, 26-35 and 18-24 at 52 (30.8%), 24 (14.2%) and 11 (6.5%) respectively. This

implies that as the respondents aged the easier they were able to initiate dairy farming projects in Cherangany constituency.

The study went further to determine the marital status of the respondents. This was meant to determine whether their marital status had anything to do with performance of dairy farming projects in Cherangany constituency. The results were as shown in Table 4.4.

Table 4.4: Marital status of the respondents

Marital status	Frequency	Percentage
Married	124	73.4
Single parent	24	14.2
Single	13	7.7
Widow	8	4.7
Total	169	100

According to Table 4.5 majority 124 (73.4%) of the participants were married, 24 (14.2%) were single parents, 13 (7.7%) were single and 8 (4.7%) were widows. This implies that majority of those who have initiated dairy farming were forced by the increased responsibilities in marriage to engage in activities that could provide extra income to the family.

The study also determined the level of education of the respondents. This was meant to determine whether their level of education had anything to do with performance of dairy farming projects in Cherangany constituency. The results are presented in Table 4.5.

Table 4.5: Education level of the respondents

Educational level	Frequency	Percentage
No formal education	3	1.8
KCPE	9	5.3
KCSE/KCE/KACE	27	16.0
Certificate	38	22.5
Diploma	47	27.8
Bachelors	33	19.5

Post Graduate	12	7.1
Total	169	100.0

Table 4.5 shows that 47 (27.8%) of the participants had diploma level of education, 38 (22.5%) had a certificate qualification, 33 (19.5%) had bachelor's degree qualification, 27 (16.0%) had secondary level qualification and only 12 (7.1%) had achieved post graduate level. This implies that majority of the respondents were learned people hence were able to manage to initiate dairy farming projects. It also gives an indication on the potential to use modern approaches to extension encompassing information communication technology (ICT) and an ability to keep proper business records because the majority of farmers have no limitation in reading and writing. Moreover, education level shapes an individual opinions and perceptions around dairy farming. It too influences individual economic capacity and potential sources of livelihoods as most people with education may easily initiate dairy farming projects anywhere at any cost.

4.4 Institutional factors on performance of dairy farming projects

Frequencies and percentages was the preferred statistic for analysis of objective one. This statistic helped to determine how institutional factors influence performance of dairy farming projects in Cherangany, Trans-Nzoia County. Descriptive statistics was used for the level of agreement on a five point Likert scale of the variable institutional factors. Descriptive statistics were summarized in Table 4.6.

Table 4.6: Influence of institutional factors on performance of dairy farming projects

Statement on institutional factors		**SD**	**D**	**U**	**A**	**SA**	**Totals**	Mean $\bar{x}$	**StdDev**
Institutional management skills' assisted in initiating dairy farming project	F	17	11	12	70	59	169	3.634	2.719
	%	10.1	6.5	7.1	41.4	34.9	100.0		
The debt use aided the performance of the dairy farming project	F	65	68	11	24	1	169	2.374	1.560
	%	38.5	40.2	6.5	14.2	0.6	100.0		

The government policies on dairy farming assisted me in initiating my project	F	6	6	24	55	78	169	0.840	0.442
	%	3.6	3.6	14.2	32.5	46.2	100.0		
The institutional management practices on dairy farming assisted in the performance of the project	F	5	18	9	49	88	169	0.265	0.367
	%	3.0	10.7	5.3	29.0	52.1	100.0		

Table 4.6 demonstrates that 70(41.4%) respondents concurred with the announcement that administration aptitudes helped with starting dairy cultivating venture, 59(34.9%) firmly concurred, 17(10.1%) emphatically dissented, 12(7.1%) of the respondents were undecided and 11(6.5%) of the respondents were in a conflict with the announcement. The investigation discoveries proposed that the most 129(76.3%) of the respondents trusted that the institutional administration abilities helped with starting dairy cultivating venture. The standard deviation (0.3.634) demonstrates that the individual reactions were near the mean (2.719). The standard deviation of 2.719 demonstrates that the individual reactions, overall, were a little more than 2.5 point far from the mean. This infers the institutional administration expertise is one of the components that prompts the achievement or disappointment of the undertakings, thus, the task is probably going to be started when the institutional administration aptitudes is foreseen to be satisfactory. This backings the finding of Ford and Shonkwiler (2004) that diverse administration abilities and practices on a similar kind of big business and a similar generation frameworks will have distinctive money related achievement.

Also, 68(40.2%) of the respondents unequivocally couldn't help contradicting the announcement that the obligation utilize supported the development of the dairy cultivating venture, 65(38.5%) deviated, 24(14.2%) concurred, 11(6.5%) of the respondents were undecided and 1(0.6%) of the respondents emphatically concurred with the announcement. It rose up out of the examination that most 133(78.7%) the respondents trusted that the obligation utilize never supported the development of the dairy cultivating venture. The standard deviation (2.374) demonstrates that

the individual reactions were near the mean (1.560). The standard deviation of 2.374 demonstrates that the individual reactions, by and large, were a little more than 1.5 point far from the mean. This finding was upheld by one of the interviewee who stated:

The utilization of obligation by the Kenyan smallholder ranchers isn't extremely impressive and keeping of money related records isn't exceptionally well known. This is on the grounds that horticulture administration particularly little scale agribusiness isn't that complex and a large number of the agriculturists don't as a rule utilization of obligation in the homesteads and furthermore don't keep formal records, they additionally wear not construct their choices in light of computed monetary yields… Female Participant, 38 years, Ministry Official.

This suggests the level of obligation is one of the components that prompts the achievement or disappointment of the ventures, nonetheless, as a rule, it is considered for extensive activities. This is in accordance with the discoveries of Kaase et al., (2003) and Carroll et al, (2006) that the level of obligation additionally decides the substantial company's prosperity; the real level of obligation that is ideal has not been built up and is in respect to various homestead organizations. In addition ranches with abnormal state of obligation are observed to be less effective than those with direct obligation sums.

Similarly, 78(46.2%) respondents strongly agreed with the statement that the government policies on dairy farming assisted them in initiating their dairy farming project, 55(32.5%) agreed, 24(14.2%) of the respondents were undecided, 6(3.6%) disagreed and a similar 6(3.6%) of the respondents were in a strong disagreement with the statement. The study findings suggested that majority 133(78.7%) respondents believed that the government policies on dairy farming assisted them in initiating their dairy farming project. The standard deviation (0.840) shows that the individual responses were close to the mean (0.442). This implies that government policies is one of the factors that leads to the success or failure of the projects, hence, the project is likely to be initiated when the government policies is favorable.

Lastly, 88(52.1%) respondents strongly agreed with the statement that the institutional management practices on dairy farming assisted in performance of the dairy farming project, 49(29.0%) respondents agreed, 18(10.7%) respondents disagreed, 9(5.3%) of the respondents were undecided and 5(1.4%) respondents had a strong disagreement with the statement. The study findings suggested that most 137(81.1%) respondents opined that the institutional

management practices on dairy farming assisted in performance of the dairy farming project. The standard deviation (0.265) shows that the individual responses were close to the mean (0.367). This implies that the institutional management practices is one of the factors that leads to the success or failure of the projects, hence, the project is likely to be initiated when the institutional management practices is promising. This concurs with the findings of Gloy (2002) that administration rehearses are described into various capacities which incorporate creation administration, back administration and human asset administration. They decide the capital structure of the homestead and guide in settling on the choice of whether to acquire or utilize possess value.

4.5 Socio-economic factors on performance of dairy farming projects

Frequencies and percentages was the preferred statistic for analysis of objective two. This statistic helped to establish the influence of socio-economic factors on performance of dairy farming projects. The investigation, in this manner, opens with the clear insights (recurrence and rate) for the level of concurrence on a five point Likert size of the variable socio-economic factors (Table 4.7).

Table 4.7: Influence of socio-economic factors on performance of dairy farming projects

Statement on socio-economic factors		SD	D	U	A	SA	Totals	Mean $\bar{x}$	StdDev
My adequate family level of income enhanced the performance of my dairy farming project	F	21	11	7	55	75	169	0.275	0.447
	%	12.4	6.5	4.1	32.5	44.4	100.0		
My cultural beliefs supported the performance of my dairy farming project	F	80	55	8	17	9	169	0.372	0.484
	%	47.3	32.5	4.7	10.1	5.3	100.0		
My education level aided me in initiating the dairy farming project	F	93	53	12	5	6	169	0.025	0.158
	%	55.0	31.4	7.1	3.0	3.6	100.0		

My religion supported me in the performance of the dairy farming project	F	6	15	7	68	73	169	0.196	0.397
	%	3.6	8.9	4.1	40.2	43.2	100.0		

Table 4.7 shows that 75(44.4%) of the respondents strongly agreed with the statement that their adequate family level of income enhanced the performance of their dairy farming project, 55(32.5%) respondents agreed, 21(12.4%) strongly disagreed, 11(6.5%) disagreed and 7(4.1%) of the respondents were undecided on the statement. The study findings suggested that the most 130(76.9%) of the respondents opined that their adequate family level of income enhanced the performance of their dairy farming project. The standard deviation (0.275) shows that the individual responses were close to the mean (0.447). This implies that the beneficiary income level is one of the factors that leads to the success or failure of the projects, hence, the project is likely to be initiated when the family income is anticipated to supports the project through contribution of the local financial resources.

Moreover, 80(47.3%) of the respondents strongly disagreed with the statement that their cultural beliefs supported the performance of their dairy farming project, 55(32.5%) respondents disagreed, 17(10.1%) respondents agreed, 9(5.3%) respondents strongly agreed and 8(4.7%) of the respondents were undecided on the statement. It emerged from the study that most 135(79.8%) of the respondents believed that their cultural beliefs never supported the performance of their dairy farming project. The standard deviation (0.372) shows that the individual responses were close to the mean (0.484). This implies that cultural beliefs is one of the factors that leads to either the success or failure of the projects, therefore, the project is likely to be initiated when cultural beliefs of the beneficiary is anticipated to supports the project. This is in line with the finding of Nyoro (2006), who revealed that a social cultural belief of small holder's farmers is that dairy farming is a subsistence undertaking which affects their investment levels in dairy ventures. Most rural farmers perceive other agricultural products like coffee and tea as more lucrative and concentrate investments in them.

Similarly, 93(55.0%) of the respondents strongly disagreed with the statement that their education level aided them in initiating the dairy farming project, 53(31.4%) respondents

disagreed, 12(7.1%) of the respondents were undecided, 6(3.6%) strongly agreed and 5(3.0%) of the respondents were in an agreement with the statement. The study findings suggested that majority 146(86.4%) of the respondents never believed that their education level aided them in initiating the dairy farming project. The standard deviation (0.025) shows that the individual responses were close to the mean (0.158). This implies that education level is one of the factors that lead to either success or failure of the projects, thus, the project is likely to be initiated when the education level of the beneficiary is anticipated to ensure better performance of the project. This supports the findings of Kiama (2009) who elucidates that knowledge of alternative highly nutritious plants among the small holder farmers is low. He further notes that the low extension services and poor reading culture coupled with inaccessibility of information facilities and documents has contributed to low production capacity and poor quality of milk, reducing its value and also income to farmers and their competiveness in the agricultural sector.

Lastly, 73(43.2%) of the respondents strongly agreed with the statement that their religion supported them in the performance of the dairy farming project, 68 (40.2%) respondents agreed, 15 (8.9%) respondents disagreed, 7 (4.1%) of the respondents were undecided and 6 (3.6%) of the respondents had a strong disagreement with the statement. The study findings suggested that most 141(83.4%) of the respondents opined that their religion supported them in the performance of the dairy farming project. The standard deviation (0.196) shows that the individual responses were close to the mean (0.397). This finding was supported by one of the interviewee who said:

> *...Most of the people from Cherangany, Trans-Nzoia County are Christians and Muslims who accept dairy farming. Therefore, the surrounding religion supported the performance of the dairy projects ...Female Participant, 38 years, Ministry Official.*

This implies that the religious beliefs is one of the factors that leads to the success or failure of the projects, hence, the project is likely to be initiated when the religious beliefs is expected to promote the performance of the project.

4.6 Dairy profitability on performance of dairy farming projects

Frequencies and percentages was the preferred statistic for analysis of objective three. This statistic helped to ascertain the influence of profitability on performance of dairy farming projects in Cherangany, Trans-Nzoia sub county, Kenya. The analysis therefore opens with the descriptive statistics (frequency and percentage) for the level of agreement on a five point Likert scale of the variable profitability (Table 4.8)

Table 4.8: Influence of profitability on performance of dairy farming projects

Statement on profitability		**SD**	**D**	**U**	**A**	**SA**	**Totals**	Mean $\bar{x}$	**StdDev**
The average production aided the performance of my dairy farming project	F	23	11	10	75	50	169	0.109	0.313
	%	13.6	6.5	5.9	44.4	29.6	100.0		
The average selling price supported the performance of my dairy farming project	F	11	22	16	56	64	169	0.730	0.444
	%	6.5	13.0	9.5	33.1	37.9	100.0		
The average daily dairy cattle quality yield aided me in initiating the dairy farming project	F	2	7	21	56	83	169	0.753	0.432
	%	1.2	4.1	12.4	33.1	49.1	100.0		
The demand for milk motivated me in the performance of the dairy farming project	F	4	13	5	77	70	169	0.359	0.480
	%	2.4	7.7	3.0	45.6	41.4	100.0		

Table 4.8 shows that 75(44.4%) of the respondents agreed with the statement that the average production of the dairy cattle aided the performance of their dairy farming project, 50(29.6%) strongly agreed, 23(13.6%) strongly disagreed, 11(6.5%) disagreed and 10(5.9%) of the respondents were undecided on the statement. The study findings suggested that the most 125 (74.0%) of the respondents opined that the average production of the dairy cattle aided the performance of their dairy farming project.The standard deviation (0.109) shows that the individual responses were close to the mean (0.313). This implies that the average production is one of the factors that leads to the success or failure of most of the projects as some of the projects are profit based, thus, the project is likely to be initiated when the production is expected to be high. This supports the finding of Phillip (2011), who revealed that the dairy cluster dominates and is one of the most productive and export- oriented in the world. The high level of productivity is driven by sophisticated domestic and neighborhood demand and competition, technological innovation, high regulatory standards and a skilled workforce.

In addition, 64(37.9%) of the respondents strongly agreed with the statement that the average selling price supported the performance of their dairy farming project, 56(33.1%) respondents agreed, 22(13.0%) respondents disagreed, 16(9.5%) of the respondents were undecided and 11(6.5%) of the respondents strongly disagreed with the statement. It emerged from the study that most 120(71.0%) of the respondents believed that the average selling price supported the performance of their dairy farming project. The Standard Deviation (0.403) shows that the individual responses, on average, were not far away from the mean (0.444). This implies that the average selling price is one of the factors that leads to the success or failure of most of the projects, hence, the project is likely to be initiated when the average selling price of the product is anticipated to be high.

Similarly, 83(49.1%) of the respondents strongly agreed with the statement that the average daily dairy cattle quality yield aided them in initiating the dairy farming project, 56(33.1%) agreed, 21(12.4%) of the respondents were undecided, 7(4.1%) disagreed and 2(1.2%) of the respondents were in a strong disagreement with the statement. The study findings suggested that majority 139(82.2%) of the respondents believed that the average daily dairy cattle quality yield aided them in the performance of dairy farming project. The Standard Deviation of 0.730 shows that the individual responses were a little less than 0.5 point away from the mean (0.432). This

implies that the daily dairy cattle yield is one of the factors that lead to the success or failure of most of the projects, therefore, the project is likely to be initiated when the yield is expected to be high. This is in line with Barney and Hasterly (2008) that the dairy farming quality yield in the local and international market makes farmers to start the project.

Lastly, 77(45.6%) of the respondents agreed with the statement that the demand for milk motivated them in initiating the dairy farming project, 70(41.4%) strongly agreed, 13(7.7%) disagreed, 5(3.0%) of the respondents were undecided and 4(2.4%) of the respondents had a strong disagreement with the statement. The study findings suggested that most 147(87.0%) of the respondents opined that the demand for milk motivated them in initiating the dairy farming project.The standard deviation (0.359) shows that the individual responses, on average, had little variation or "deviation" from the mean (0.480). This implies that the demand is one of the factors that leads to the success or failure of most of the projects, thus, the project is likely to be initiated when the demand is expected to be high. For the dairy project in Cherangany, Trans-Nzoia County, there is likely to be high demand due to its proximity to the county headquarter of Trans-Nzoia (Kitale town). This supports the findings of Gloria (2008) who opined that the high demand for milk in Kenya urban areas has been affected by high costs of production, processing, transportation (poor infrastructure), inaccessibility to affordable credit and high cost of electricity, among others.

4.7 Dairy production on performance of dairy farming projects

Frequencies and percentages was the preferred statistic for analysis of objective four. This statistic helped to examine the influence of dairy production on performance of dairy farming in Cherangany Trans-Nzoia County, Kenya. The analysis therefore opens with the descriptive statistics (frequency and percentage) for the level of agreement on a five point Likert scale of the variables of this objective. (Table 4.9).

Table 4.9: Influence of dairy production on the performance of dairy farming

Statement on dairy production		SD	D	U	A	SA	Totals	Mean $\bar{x}$	StdDev
The average cost of production of the dairy cattle aided the performance of my dairy farming project	F	62	57	25	12	13	169	0.204	0.403
	%	36.7	33.7	14.8	7.1	7.7	100.0		
The dairy cattle breeding stage supported the performance of my dairy farming project	F	9	18	11	73	58	169	0.555	0.498
	%	5.3	10.7	6.5	43.2	34.3	100.0		
The number of the dairy animal to keep motivated me in initiating the dairy farming project	F	4	7	23	48	87	169	0.333	0.472
	%	2.4	4.1	13.6	28.4	51.5	100.0		
The area under dairy production helped me in initiating the dairy farming project	F	6	15	5	76	67	169	0.575	0.495
	%	3.6	8.9	3.0	45.0	39.6	100.0		

Table 4.9 shows that 62(36.7%) of the respondents strongly disagreed with the statement that the average cost of production aided the performance of their dairy farming project, 57(33.7%) respondents disagreed, 25(14.8%) of the respondents were undecided, 13(7.7%) strongly agreed and 12(7.1%) of the respondents agreed with the statement. The study findings suggested that the most 119(70.4%) of the respondents opined that the average cost of production never aided the performance of their dairy farming project.The Standard Deviation of 0.403 shows that the individual responses, on average, were a little less than 0.5 point away from the mean (0.204). This finding was supported by one of the interviewee who said:

> *...High fuel and raw materials costs the manufactured animal feeds are very expensive, this leads to the sale of low quality feeds by manufacturers, which contribute to low milk production, thus, low profitability…Male Participant, 48 years, Official from KDP.*

This implies that the cost of production is one of the factors that lead to either the success or failure of most of the projects, thus, the project is likely to be initiated when the cost of production is expected to be low. However, when the cost of production is high, the profitability of the dairy products is hindered. This supports the finding of Kamau (2011) opines that due to high fuel and raw materials costs, the manufactured animal feeds have become very expensive. This has led to the sale of low quality feeds by manufacturers, which contribute to low milk production. However the few manufacturers who produce quality feeds sell them at very high prices which are unaffordable to most small scale farmers which erodes their margins. It further concurs with the findings of Tacken et al. (2009) opine that the high cost of feed coupled with poor knowledge of husbandry best practices hindered optimal production and earnings for dairy farmers

Similarly, 73(43.2%) of the respondents agreed with the statement that the dairy cattle breeding stage supported the performance of their dairy farming project, 58(34.3%) respondents strongly agreed, 18(10.7%) respondents disagreed, 11(6.5%) of the respondents were undecided and 9(5.3%) of the respondents emphatically couldn't help contradicting the announcement. It rose up out of the examination that most 131(77.5%) of the respondents trusted that the dairy breeding stage upheld the development of their dairy cultivating venture. The Standard Deviation

of 0.498 demonstrates that the individual reactions, by and large, were an additionally somewhat less than 0.5 point far from the mean (0.555). This infers the dairy cows rearing stage is one of the elements that prompts the achievement or disappointment of a large portion of the dairy ventures, thus, the undertaking is probably going to be started when the breeding stage is at a favorable stage of either intermediate or pedigree. .

What's more, 87(51.5%) of the respondents emphatically concurred with the announcement that the quantity of the dairy animals to keep propelled them in starting the dairy cultivating venture, 48(28.4%) concurred, 23(13.6%) of the respondents were undecided, 7(4.1%) differ and 4(2.4%) of the respondents were in a solid conflict with the announcement. The investigation discoveries recommended that lion's share 135(79.9%) of the respondents trusted that the quantity of the dairy animals to keep spurred them in starting the dairy cultivating venture. The standard deviation (0.472) demonstrates that the individual reactions, by and large, had little variance or "deviation" from the mean (0.333). This suggests the quantity of the dairy creature to keep is one of the elements that prompts the achievement or disappointment of a large portion of the undertakings, in this manner, the task is probably going to be started when the quantity of the dairy animals to keep is required to be numerous for high generation of income.

In conclusion, 76(45.5%) of the respondents concurred with the announcement that the surface area under dairy creation helped them in starting the dairy cultivating venture, 67(39.6%) unequivocally concurred, 15(8.9%) deviated, 6(3.6%) firmly differ and 5(3.0%) of the respondents had a solid conflict with the announcement. The examination discoveries recommended that most 143(85.1%) of the respondents opined that the zone under dairy generation helped them in starting the dairy cultivating venture. The standard deviation (0.575) demonstrates that the individual reactions, by and large, had little variance or "deviation" from the mean (0.495). This gives a sign of how far the individual reactions to the inquiry had almost no variance or "deviation" from the mean. This finding was upheld by one of the interviewee who stated:

…Most of the residents have adequate area of land under dairy production, however, the few who have less land have problems with growing enough fodder for the animals …Male Participant, 39 years, Official from KDP.

This implies that the area under dairy production is one of the factors that lead to the success or failure of most of the dairy projects, thus, the project is likely to be initiated when the area under dairy production has been inspected and found to be adequate and conducive. This supports the findings of Nderitu (2009), notes that in practicing mixed farming, which cushions the farmer from lack of food, acreage under dairy farming is low. The actual size of land to most farmers is small due to fragmentation as families enlarge and population increases. Thus, the dairy farmers have problems with growing enough fodder for the animals.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter discusses summary, conclusion, recommendations and suggested areas for further research in the following.

5.2 Summary of findings

5.2.1 Institutional factors on performance of dairy farming projects

The investigation discoveries proposed that the most 129(76.3%) of the respondents trusted that the institutional administration abilities helped with starting dairy cultivating venture. Furthermore, it rose up out of the examination that most 133(78.7%) the respondents trusted that the obligation utilize never helped the development of the dairy cultivating venture. So also, the examination discoveries recommended that larger part 133(78.7%) respondents trusted that the administration strategies on dairy cultivating helped them in starting their dairy cultivating venture. In conclusion, the investigation discoveries proposed that most 137(81.1%) respondents opined that the institutional administration rehearses on dairy cultivating aided development of the dairy cultivating venture.

5.2.2 Socio-economic factors on performance of dairy farming projects

The examination discoveries recommended that the most 130(76.9%) of the respondents opined that their sufficient family level of salary improved the development of their dairy cultivating venture. Also, it rose up out of the examination that most 135(79.8%) of the respondents trusted that their social convictions never upheld the development of their dairy cultivating venture. Thus, the examination discoveries proposed that greater part 146(86.4%) of the respondents never trusted that their training level helped them in starting the dairy cultivating venture. Ultimately, the investigation discoveries recommended that most 141(83.4%) of the respondents opined that their religion bolstered them in the development of the dairy cultivating venture.

5.2.3 Dairy profitability on performance of dairy farming projects

The investigation discoveries recommended that the most 125(74.0%) of the respondents opined that the normal generation of the dairy cows supported the development of their dairy cultivation venture. What's more, it rose up out of the examination that most 120(71.0%) of the respondents trusted that the normal offering cost upheld the development of their dairy cultivating venture. Also, the investigation discoveries proposed that dominant part 139(82.2%) of the respondents trusted that the normal day by day dairy cows quality yield helped them in starting the dairy cultivating venture. Finally, the investigation discoveries proposed that most 147(87.0%) of the respondents opined that the interest for gain persuaded them in starting the dairy cultivating venture.

5.2.4 Dairy production on performance of dairy farming projects

The examination discoveries recommended that the most 119(70.4%) of the respondents opined that the normal cost of generation never helped the development of their dairy cultivating venture. Also, it rose up out of the investigation that most 131(77.5%) of the respondents trusted that the dairy steers rearing stage upheld the development of their dairy cultivating venture. Also, the examination discoveries recommended that larger part 135(79.9%) of the respondents trusted that the quantity of the dairy animals to keep inspired them in starting the dairy cultivating venture. Ultimately, the examination discoveries recommended that most 143(85.1%) of the respondents opined that the territory under dairy creation helped them in starting the dairy cultivating venture.

5.3 Conclusions

From the findings, the study concludes that institutional management; socio-economic factors, profitability and production factors influence the performance of the project. Therefore, on the influence of institutional management factors on the performance of dairy projects, the study concluded that adequate institutional management skills, positive government policies and institutional management practices aids the performance of the dairy farming project in the rural areas of the Cherangany Sub County, Trans-Nzoia County, Kenya. However, debt use does not aid the performance of the dairy farming project as it is believed to be applied by the big projects.

On the influence of socio-economic factors on the performance of dairy farming projects, the study concluded that adequate family level of income and religion enhances the performance of dairy farming projects. However, cultural beliefs, education level are believed not to aid the performance of the dairy project in the rural areas of the Cherangany Sub County, Trans-Nzoia County, Kenya. This is because the people from the area are believed not to have higher education.

Similarly, on the influence of profitability on the performance of dairy farming projects, the study concluded that, average production of the dairy cattle, selling price, daily dairy cattle quality yield and the demand for milk motivates the performance of the dairy farming project in the rural areas of the Cherangany Sub County, Trans-Nzoia County, Kenya.

Lastly, on the influence of production on the performance of dairy farming projects, the study concluded that, the dairy cattle breeding stage, the number of the dairy animal to keep and the area under dairy production help in the performance of the dairy farming project in the rural areas of the Cherangany Sub County, Trans-Nzoia County, Kenya. However, the average cost of production does not aid the performance of their dairy farming project.

5.4 Recommendations

In reference to the findings, conclusions and the direction from the literature review, it was clear that, institutional management, socio-economic factors, profitability and production influence the performance of dairy farming projects. The study therefore, recommends that the government, policy makers and other agricultural stakeholders should ensure that dairy farmers stand at a better platform as compared with other sectors of agriculture in this nation as far as marketing of the product is concerned. This will take care of major sustainable development goals of the Kenyan government which is poverty reduction and food security.

5.5 Recommendation for further studies

The researcher suggests the following further areas of research

1. A study should be carried on the influence of other factors affecting the performance of dairy projects.
2. A study should also be carried to establish factors affecting the entire phases of the projects cycle such as planning, implementation and marketing.

3. Further study should be done on the mediating effects demographic variables on the relationship between institutional management, socio-economic factors, profitability, production and the performance of the dairy projects

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APPENDICES

APPENDIX I:Introductory letter to respondents

Bii Wilson Kipkorir,
P.O. Box 251,
Kitale.

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE; FACTORS INFLUENCING PERFORMANCE OF DAIRY FARMING PROJECTS IN CHERANGANI SUB-COUNTY, TRANS-NZOIA COUNTY, KENYA

I am a postgraduate student in the University of Nairobi, pursuing a Master's degree in Project Planning and Management. I am conducting a research on factors influencing performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya. You have been selected to help in this study. I do humbly request you to allow me to interview you. The information being sought is meant for research purposes only and will not be used against anyone. The researcher will ensure that a feedback reaches all those who participated.

Findings will greatly inform all stakeholders involved and will be a major breakthrough in the revival and sustainability of Dairy sector in the country. Your responses will also be treated with confidence. No names of individuals or farms will be needed.

Thank you in advance.

Yours sincerely

APPENDIX II: Questionnaire

My name is Bii Wilson Kipkorir. I am a post graduate student at University of Nairobi and carrying out a study on the factors influencing performance of dairy farming projects in Cherangany sub county, Trans-Nzoia County, Kenya; you have been selected to participate in this study. The information that you will give will be treated with utmost confidentiality and will only be used for academic purposes. Fill in your responses in the spaces provided in each of the questionnaire items.

Please complete this part which seeks information concerning you and your work by marking **(✓)** the appropriate box. Answer all the questions**.**

SECTION A

PART (I) DEMOGRAPHIC INFORMATION

1. What is your gender?
   - Male ☐
   - Female ☐
2. How old are you?
   - 18-25 yrs ☐
   - 26-35 yrs ☐
   - 36-45 yrs ☐
   - 45 yrs and above ☐
3. Marital Status.
   - Maried ☐
   - Single parent ☐
   - Single ☐
   - Widow ☐
4. Education level.
   - No formal education ☐
   - KCPE ☐
   - KCSE/KCE/KACE ☐
   - Certifiacte ☐
   - Diploma ☐

Bachelors ☐

Post graduate ☐

SECTION B

Category I: Influence of institutional factors on the performance of dairy projects

Please circle the number that represents your level of agreement with each of the following statements using the scale provided:

Strongly Disagree =1, Disagree =2 Undecided =3, Agree =4, Strongly Agree=5

Statements					
Institutional management skills' assisted in initiating dairy farming project	**1**	**2**	**3**	**4**	**5**
The debt use aided the performance of the dairy farming project	**1**	**2**	**3**	**4**	**5**
The government policies on dairy farming assisted me in initiating my dairy farming project	**1**	**2**	**3**	**4**	**5**
The institutional management practices on dairy farming assisted in the performance of the dairy farming project	**1**	**2**	**3**	**4**	**5**

Category II: Influence of socio-economic factors on the performance of dairy projects

Please circle the number that represents your level of agreement with each of the following statements using the scale provided:

Strongly Disagree =1, Disagree =2 Undecided =3, Agree =4, Strongly Agree=5

Statements					
My adequate family level of income enhanced the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
My cultural beliefs supported the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
My education level aided me in initiating the dairy farming project	**1**	**2**	**3**	**4**	**5**
My religion supported me in the performance of the dairy farming project	**1**	**2**	**3**	**4**	**5**

Category III: Influence of profitability on the performance of dairy projects

Please circle the number that represents your level of agreement with each of the following statements using the scale provided:

Strongly Disagree =1, Disagree =2 Undecided =3, Agree =4, Strongly Agree=5

Statements					
The average production aided the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
The average selling price supported the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
The average daily dairy cattle quality yield aided me in initiating the dairy farming project	**1**	**2**	**3**	**4**	**5**
The demand for milk motivated me in the performance of the dairy farming project	**1**	**2**	**3**	**4**	**5**

Category III: Influence of production on the performance of dairy projects

Please circle the number that represents your level of agreement with each of the following statements using the scale provided:

Strongly Disagree =1, Disagree =2 Undecided =3, Agree =4, Strongly Agree=5

Statements					
The average cost of production of the dairy cattle aided the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
The dairy cattle breeding stage supported the performance of my dairy farming project	**1**	**2**	**3**	**4**	**5**
The number of the dairy animal to keep motivated me in initiating the dairy farming project	**1**	**2**	**3**	**4**	**5**
The area under dairy production helped me in initiating the dairy farming project	**1**	**2**	**3**	**4**	**5**

APPENDIX III: Interview guide

1. To what level does an institutional factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?
   Explain……..
2. In what ways do socio-economic factors influence performance of dairy farming projects in Cherangany sub-county, Trans-Nzoia County, Kenya?
   Explain……..
3. To what extent does dairy profitability influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya?
   Explain……..
4. In what ways do dairy production methods influence performance of dairy farming projects in Cherangany, Trans-Nzoia County, Kenya?
   Explain……..

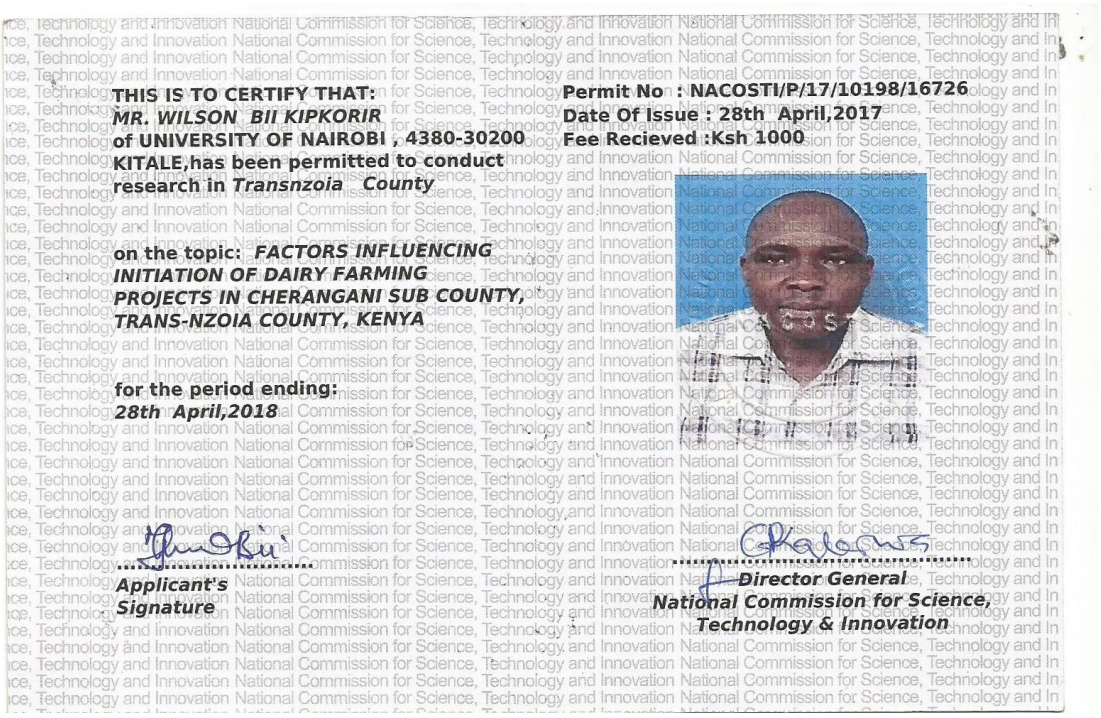
APPENDIX IV: Table for determining sample size from a given population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: **N** = Population size; **S** = Sample size

Source: Krejcie R. V., & Morgan W. D., (1970). Determining Sample Size For Research Activities: Educational and Psychological Measurement. 30 (3): 607-610.

APPENDIX V: Research permit



THIS IS TO CERTIFY THAT:
MR. WILSON BII KIPKORIR
of UNIVERSITY OF NAIROBI , 4380-30200
KITALE,has been permitted to conduct
research in *Transnzoia County*

on the topic: *FACTORS INFLUENCING INITIATION OF DAIRY FARMING PROJECTS IN CHERANGANI SUB COUNTY, TRANS-NZOIA COUNTY, KENYA*

for the period ending:
28th April,2018

.....
Applicant's Signature

Permit No : NACOSTI/P/17/10198/16726
Date Of Issue : 28th April,2017
Fee Recieved :Ksh 1000

.....
Director General
National Commission for Science, Technology & Innovation

Appendix VI: Research authorization

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349,3310571,2219420
Fax: +254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/17/10198/16726** Date: **28th April, 2017**

Wilson Bii Kipkorir
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Factors influencing initiation of dairy farming projects in Cherangani Sub County, Trans-Nzoia County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Trans Nzoia County** for the period ending **28th April, 2018.**

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

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

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Trans Nzoia County.

The County Director of Education
Trans Nzoia County.