DETERMINANTS OF PRODUCTION AND PERFORMANCE OF HONEY PROCESSING PROJECTS: THE CASE OF KITUI COUNTY

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DECLARATION

This is my original work and has never been submitted for any award in any institution.

Signature  Date 7/12/2021

L50/10926/2018

This project has been submitted for examination with my approval as University Supervisor

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DEDICATION

This research is dedicated to my mother Agatha Ngomo and father Joseph Ngomo, who inspire me to do all it takes to achieve my goals and who have been influenced in every way by my quest. My affection for you is limitless and unquantifiable.

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BC Before Christ

CIGs Common Interest Groups

CIP Commercial Insect Program

EHP Employers Health Program

IFAD Agricultural Development

KTBH Kenya Top Bar Hive

KVD Kerio valley development Authority

MOH Ministry of Health

ABSTRACT

Beekeeping technology has progressed throughout time. Despite technological developments, satisfying the basic needs of rural people to improve their living conditions through the adoption of modern beekeeping practices has proven to be difficult. This is due to a lack of farmer training and low acceptance rates of new technology. The goal of the study was to look into the factors that influence honey processing project productivity and performance. The study's goal was to figure out how technological adoption, credit availability, market demand, and farmer training affect honey processing production and performance in Kitui County. The study's target population was 125 people, with 110 beekeepers and 15 county agricultural officers from Kitui County, and a sample size of 69 people was chosen. Secondary data was gathered using questionnaires and interview guides, while primary data was gathered using the Kitui government's Ministry of Agriculture records and existing beekeeping literature. The validity of the research technique was determined after engaging with and following the advise of University of Nairobi research supervisors. After the pilot study, the research instruments' reliability was determined using the test-retest method. Descriptive statistics such as frequency tables, percentiles, and ranges were used to evaluate the data. The extent to which the influencing elements account for the success of honey processing projects in Kitui government was determined using inferential data analysis approaches such as regression models. The study discovered that production determinants had a favorable and significant impact on honey processing project performance in Kitui. Market demand had the greatest impact on honey processing project performance, followed by technology adoption, while loan access and farmer training had the greatest positive impact on honey processing project performance in Kitui County. The study found that all four variables, including technological adoption, financial access, market demand, and farmer training, have a favorable impact on honey processing project success in Kitui County. According to the report, beekeepers in Kitui County should concentrate on implementing contemporary technologies and ensuring that farmers are effectively taught to execute beekeeping tasks. The study indicated that beekeeper's knowledge influenced adoption of technology which was represented by a composite mean of 2.1785 and SD=1.14267 and thus affect performance of honey processing projects in the county. Credit access affects honey processing projects which was represented by a composite means of 1.9524 and SD=1.117. The study indicated that market demand influence performance of honey processing projects which was represented by a composite mean score of 2.08094 and SD=1. 2395 while study indicated that farmers training affected performance of honey processing projects which was indicated by a composite mean of 2.2348 and SD=1.1177. The research recommends that the county government should give institutional support for beekeeping awareness programs and infrastructural improvements. The county government can also help with training programs by providing free beekeeping training or cooperating with other instructors. County governments, in partnership with donors and financial institutions, should finance farmers, and beekeeper loans should be guaranteed, especially in the early stages. The county government should eliminate the middlemen that exploit farmers, and farmers should have direct access to the market. Kitui County Government should develop methods to strengthen the organization's beekeeping activity. The county government could put together training programs for farmers to help them enhance their beekeeping operations.

CHAPTER ONE
INTRODUCTION

1.0 Introduction

This chapter covers the study's history, issue statement, research aims, and research questions, as well as the study's importance, limitations, and delimitation.

1.1 Background to the Study

Honey output in the world is projected to reach around 1.4 million tonnes. The EU is a large honey producer in terms of output volume. In 2006, the EU produced over 200 thousand tonnes of honey, accounting for about 14% of global production. China (22 percent), the United States (6%), Argentina (6%), and Turkey (6%), in order of production share, are the other leading countries (5 percent). 2015 (Zacepins). Recent studies have revealed that a number of components, such as extension, training, and education, are only available to a small number of people (Gratzer, Susilo, Purnomo, Fiedler, & Brodschneider, Schouten, Lloyd, & Lloyd, 2019). The Small Asian Honey Bee was incorrectly assumed to be A. mellifera when it was used to tock these hives, according to investigations. The researchers had no notion they were dealing with A. cerana, a species that lives in a different environment than A. mellifera and nectars in a different way (Lloyd et al., 2016). The bees abandoned the hives and the hive supplies on a frequent basis, resulting in low overall output.

The beekeeping sector in Turkey has also thrived. Turkey exported 4 tonnes of honey in 1985; by 1999, the figure had risen to 5306 tonnes (Sirali, 2002). Turkey was the world's second-largest honey producer in 2010, producing 81,115 tonnes in a single year. Despite the fact that beekeeping has always been a part of Turkey's premodern history, it was not until after WWII that the country moved from being a net importer of honey to being a net exporter. Beekeeping is the principal source of income for around 200,000 Turkish families (Saner, Engindeniz, Tolon, & Cukur, 2004). In Turkey today, there are 40,000 professional beekeepers.)

Uganda, Zimbabwe, Ethiopia, and Tanzania are among the countries involved, up to ten separate reports on the formation of beekeeping activities, the Ugandan government has participated in production as a real marketable entrepreneurial activity (Zacepins, 2015). The US government has spent US $ 536 million on training and providing them with skills, according to a 2010 report—the head of the Integration Division will be stationed in Uganda (Yap, et al., 2015). The

Ugandan government is working with specialists to start large-scale queen breeding. This endeavor has resulted in the vast production of honey, allowing it to become and remain a viable activity. In Zimbabwe, bee organizations are referred to as "associations of bees" (BKAZ project, one of the most successful social projects in the world, vehicles, Yap, 2015). Honey is produced for local use, therefore manufacturing has long been viewed as an internal sector in Zimbabwe. Thanks to the Association, farmers are now beginning to realize their full output potential in order to generate revenue.

In Ethiopia, beekeeping and honey production have been conducted for millennia. According to history books, Ethiopian manufacture began between 3500 and 3000 BC (Yirga & Ftwi, 2010). Ethiopia is Africa's leading producer and the world's eighth. There are more than 12 million bees in the world, and they create more than 50,000 tons of honey each year. It is a country that produces about 24% of African honey and only 2.2 percent of global honey production (Yirga & Ftwi, 2010). Manufacturing, which is crucial for employment creation, is especially critical for Ethiopia's poor rural farmers. Even though Ethiopia has a long history with beekeeping, the government is continually looking for innovative technological solutions. If production is not modernized, it is one of the most significant hurdles to economic stability, particularly for farmers and beekeepers. Due to a lack of current equipment, low-quality products are produced, resulting in a low price. The country's low honey output is also due to a lack of adequate institutional setup and evaluation of production policies (Getahun, 2015).

Tanzanian beekeeping contributes significantly to socioeconomic growth and environmental conservation. It offered food (honey, pollen, and brood), raw materials for a variety of businesses, and candle-making ingredients (beeswax, oil, honey, propolis, and bee venom). Vyamana (Vyamana, 2009). Tanzanian production is still based on traditional ways, despite the country's substantial economic contribution. Traditional logs and wood bark are found in almost 95% of all cabinets; others feature reeds, pumpkins, and pots. (Prandin, Pedrazzini, & Mutinelli, 2000). In comparison to the post-independence period, beekeeping in Tanzania grew rapidly during colonial times. Tanzania's potential output climbed from 320 to 905 tons per year between 1906 and 1956. Honey production was projected to be 10,000 tons per year in 1958. (Smith, 2008). Despite the enormous potential, production has dropped to just over 8,000 tons, with poor exports. (Meshack, 2006).

Traditional beekeeping is practiced in many Kenyan villages. Honey was an important part of dowry payments and marriage agreements among the Bantu and highland groups. (Affognon et al 2015). The Ongiek Honey and game meat are the major foods of the Kenyan population, who are predominantly hunters. Meat were kept alive by the use of honey. Honey has long been used to cure coughs, wound healing, and as a component of many medicinal herbs and spices, and it has played a vital role in nutrition and medicine. Kenya is expected to have nearly two million beehives, 4,000 tons of honey, and 4.3 billion euros in annual revenue. Carroll and Kinsella (2013) argue that this is negligible in relation to the country's potential. In addition, there is evidence of increased economic activity in the community's manufacturing sector.

In Kitui County Bee keeping has been traditionally practiced for a long time and has been considered as a viable and sustainable form of farming owing to the amount of land considered as range land standing at over 70% and rainfall that support adequate vegetation necessary for bee forage. Honey so produced is used for food, traditional drink, dowry payment and trade. The beekeepers mainly engaged traditional technologies to produce honey and wax. The technologies and skills acquired were inadequate to meet the current market demands for quantity and quality honey and hive products. Moreover, the technologies are gender unfriendly (MoLFD, 2007).

Although much effort and study has gone into improving the practice of beekeeping, it remains unachievable based on technology and capital outlay required to manage hives. The bee harvester is a natural manner of farming—a supplement for many sorts of farms—due to its wide spread, versatility, and relative ease of operation (Bradbear, 2009). Production is growing in cities and towns around the world - driven by teenagers, amateur and commercial beekeepers, supporters, and green businesses (Bradbear, 2009). Production does not require much space and will complement other agricultural activities. There are about 20,000 different bee species in the world. Most of them are alone or live alone. Some bee species are involved in honey production (Carroll, 2006). Kenya has very traditional beekeeping in the country, which tends to occur in Arid and Semi-arid regions (about 10 million people (MoLFD, 2007). With the development of Kenya's top-block ula, there was a need for farmers to take on movable beam technology as a way to transition the hive between a traditional log hive and a langstrot. Unfortunately, the technology adopted by beekeepers, was very slow.

Both the domestic and international markets offer opportunity. On the other hand, inefficient technology, a lack of understanding, environmental deterioration, and poor production levels are some of the most significant challenges this business faces (Jiva, 2005; Muga, 2011).

1.2 Statement of the Problem

Traditional beekeeping systems, such as simple hollow log hives, are still used by the majority of Kenyan beekeepers. Improved hives from Europe and America, such as the Kenya Top Bar and Langstroth frame, have been introduced in the last fifteen years. Although documentation of the adoption rate is scarce, and data on production patterns of honey and beeswax in relation to better technology is scarce, it must be made available to aid policy guidelines. The value of determining the quantity and quality of honey produced and marketed is more important than determining the income or returns from sales of bee products. (Breeze, Bailey, Balcombe and Potts, 2011). Decline in quantities of honey produced have also been evident in Kitui County despite efforts put in place by farmers and agencies in supporting farmers in the production of honey. Farmers in the region have adopted the use of modern technologies in beehive management such as use of the KTBH and Langstroth hives and have received training on bee hive management but decline in honey production persisted. All this have been aimed at eliminating the traditional practices of beehive farming such as use of log hives with low quantity of honey harvested and identifying ways of dealing with problem of low quantity of honey harvested. These declines have been felt by consumers as prices of honey increased tremendously especially in the last two years 2011, 2012. The study purpose was to explore and provide solutions to the obstacles that restrict the production and performance of honey processing projects in Kitui County.

1.3 Purpose of the Study

To explore determinant of production and performance of honey processing projects with reference to Kitui County.

1.4 Objects of Study

i. To analyze the influence of technology adoption on production and performance of honey processing projects in Kitui County
ii. To determine the influence of credit access on production and performance of honey processing projects in Kitui County

iii. To determine the influence of market demand on production and performance of honey processing projects in Kitui County

iv. To determine the influence of farmers training on production and performance of honey processing projects in Kitui County

1.5 Research Questions

i. To what extent does technology adoption affect production and performance of honey processing projects in Kitui County?

ii. How does credit access affect production and performance of honey processing projects in Kitui County?

iii. What is the effect of market demand on production and performance of honey processing projects in Kitui County?

iv. How does farmers training affect production and performance of honey processing projects in Kitui County?

1.6 Research Hypothesis

H01 There is no significance relationship between technology adoption and performance of honey processing projects in Kitui County

H02 There is no significance relationship between credit access and performance of honey processing projects in Kitui County

H03 There is no significance relationship between market demand and performance of honey processing projects in Kitui County

H04 There is no significance relationship between farmers training and performance of honey processing projects in Kitui County

1.7 Significance of the Study

Modern technologies in beekeeping will be better understood, and key stakeholders in this industry will be more familiar with the best approaches to honey processing projects practices in their pursuit of increased production and effective performance of their businesses. This study is therefore important to policy makers in Government as well as management and membership of the agricultural industry and its recommendations are useful in contributing to an improved production and performance of the industry in honey processing. The Government and Non-Governmental Organizations who are interested in giving financial aid to the farmers by either training farmers or providing financial support for the purchase of hives would be enlightened on

the local challenges that beehive farmers face in the local region and advise them on the best hive that maximizes on the quantity of honey harvested.

Farmers will be able to determine the type of hive that produces the most honey. In order to ensure that farmers produce sufficient quantities of honey, the study will provide substantial information on the elements that affect beekeeping farming in general. The study would add to the corpus of knowledge about beekeeping that already exists. It would precisely record information on the most effective sort of hive that farmers can use to ensure that honey output is maximized. Future researchers would be able to expand on the knowledge that would be documented as a result of this.

1.8 Assumptions of the Study

The researchers will presume that respondents will be able to access and finish the questionnaires. The researcher will also assume that the data collection devices will accurately and truthfully measure the required constructs, and the respondents will be available and will provide honest and sincere answers to the inquiries

1.9 Limitations of the Study

To address the loss of surveys, incomplete questionnaires, and respondents' failure to provide objective responses, meetings were organized and personal connections of respondents were sought; certain concerns were misunderstood by the responses. Unexpected events, such as respondents failing to complete questions, were mitigated by frequent reminders to resubmit the questionnaires. The study also experienced Covid -19 challenges, which included limited movement and access to farmers. The researcher ensured that all the guidelines set by MOH were followed. Time was a limiting factor that was inhibited collecting data from the residents in the whole county.

1.10 Delimitation of the Study

The study was limited on the determinants of production and performance of honey processing in Kitui County. It involved collecting information from beekeeping farmers and resident of Kitui County.

1.11 Definitions of Significant terms

Credit access the study will consider investor to have access to credit if the person is able to successfully borrow either the full amount, greater or less than the full amount of credit the person applied for.

Farmers Training; Management education and experience do impact the production and performance of honey processing.

Honey processing; This a journey which take place between the harvesting and bottling of honey.

Market demand; Honey production will be determined by the quantity demanded by customers in the market. Entrepreneurial growth in beekeeping will come to a halt unless there is a clear understanding of the market.

Technology Adoption In the context of this research, modern technology refers to the employment of advanced beekeeping technologies such as mobile comb hives, moveable frame hives, and their accessories.

1.12 Organization of the Study

The research is divided into five sections. The first chapter discussed the study's history, study area, problem statement, study objectives, research questions, importance, and organization. The second chapter contains a literature review pertaining to the research objectives, conceptual framework, study gaps, and variable operationalization. In Chapter three, it is about study design, target population, sample size and sampling technique, research instruments, pilot testing, instrument validity and reliability, data collection procedure, data analysis procedures, and ethical considerations. A summary of data is represnted in Chapter four, and a summary of study conclusions obtained from data analysis is presented in Chapter five. It also provides the study's objectives, findings, and research recommendations for the future.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This section contains information about the concept of performance of honey processing projects in Kitui County under variables of technology adoption, credit access, famers training and market demand. It also goes into the conceptual framework, the study's shortcomings, and the operationalization of variables.

2.2 Concept of performance of Honey Processing

Bee hives, both traditional and modern, have been utilized in the past. Traditional/fixed comb bee hives are created from locally accessible materials such bamboo, palm tree logs, twigs, and sticks, and come in a variety of shapes and sizes depending on the region. The Kenya Top Bar Hive (KTB) and the Langstroth Hive are two modern timber hives. Local hives are utilized more frequently than contemporary hives, and local hives are more colonized (Kugonza and Nabakabya, 2008; Ndyomugyenyi et al., 2015). In Europe, modern beekeeping originated in the 18th century, when a better understanding of bee colonies and their biology allowed the construction of movable comb hives that allowed honey to be harvested without destroying the colony. These processes, according to Crane (1999), were refined in Northern America, where European immigrants were raising European honeybees.

Beekeeping in Kenya, according to Paterson (2006), is as old as the country's history and has always been a male-dominated profession. This can be attributable to a number of factors. Beekeeping has long been considered a male-dominated profession, with some male beekeepers even opposing women becoming beekeepers. Women have hitherto been unable to participate in this economic activity due to a variety of practical impediments. Primitive log hives required physical strength to begin with. Two, climbing trees were commonly used to collect honey (where hives were suspended). Beekeeping had long been considered undesirable for women because of these modesty concerns. Honey collection from traditional beehives also required long absences from home, interfering with women's domestic duties.

The majority of farmers in Western Uganda have less than 6 years of beekeeping experience, with only 15% having more than 16 years (Mujuni et al., 2012). Honey production is explained by beekeeping experience and colony size, according to Masuku (2013)'s findings in Swaziland;

an increase in beekeeping experience boosts honey output by 0.41 percent for every 1% increase in beekeeping experience. The output of honey increases by 0.57 percent for every 1% increase in colony size. Honey production is said to be limited by a lack of knowledge and skills, as well as inefficient harvesting methods (Ndyomugyenyi et al., 2015). In Uganda, honey extraction procedures like boiling honey combs and sun heating combed honey were observed as a result of a weak extension (Kugonza and Nabakabya, 2008). According to Musimba et al. (2001), lack of extension contributes to poor levels of output in Kenya; only 5.2 percent of respondents had been trained in modern beekeeping, and traditional harvesting methods were the indicators.

2.3 Technology Adoption on Production and Performance of Honey Processing Projects

Hives used to be hung from trees with a hooked pole or wedged between suitable tree branches and let swarms of bees fill them. Honey is usually harvested late at night, while the bees are sleeping. Using a rope, hives can be carried up trees or dropped to the ground. Honey is typically kept buried near the hive's entrance. This is when the harvesting begins as you travel from one side to the other. The bees are calmed by the smoke produced by a traditional flame made of dried bark or other suitable material. The hive is returned to its original place once the honey is extracted. Honey, wax, pollen, and brood are all collected at the same time because this type of hive only has one chamber with fixed combs, lowering the quality of the final product. Traditional approaches rarely involve routine colony management. Colony management techniques include honey collection and rebating colonies with enough bee lures to increase occupancy. Harvesting procedures used by traditional beekeepers may result in a large loss of bees, lowering the strength of individual colonies and the number of possible wild swarms. Simple, often essential beekeeping operations determine the quantity of marketable honey, which is influenced by quality (Kimalu et al, 2002).

Abeje et al. (2017) investigated the factors that influence beekeepers' adoption of contemporary bee hives in Ethiopia. 268 beekeepers were chosen using random and proportional sample procedures in a multistage sampling method. Following that, the respondent was questioned. According to a descriptive study, demographic parameters such as level of education, age, annual income, and the number of local hives influenced beekeepers' decisions on technology use. During their research, they discovered a variety of barriers to adoption, including a lack of

equipment, drought, predators, and pests. Muya (2014) looked into the elements that influence Kenyan women's adoption of modern beekeeping methods in East Africa. A total of 116 beekeepers were chosen with care. Questionnaires, interviews, and observation guides were used to gather data for the study. According to the study, technical, human, and conceptual skills all influenced the adoption of new technologies. The adoption of new technologies, on the other hand, had an impact on farmers' net benefits and yields.

Bunde and Kibet (2016) investigated the socioeconomic aspects that influence the adoption of contemporary beekeeping methods. Using random and purposeful sampling procedures, 294 beekeepers were chosen. A questionnaire was used to obtain primary data. The findings revealed various barriers to technology adoption, including a shortage of beekeeping materials, a lack of finance, and a lack of extension support. Furthermore, they discovered that using technology increased the revenue of beekeepers' households. Muriuki (2016) investigated the adoption of beekeeping technology in arid and semi-arid countries in a similar way.

Technology is important in Modern beekeeping practices. The main types of hives are used in mobile separator hives, as well as in mobile-motor hives. Other accessories that are part of modern beekeeping, trapper's craft, clothing, smokehouse, beehive tool, bee brush, and equipment for honey extraction and processing. Advanced management practices are also part of advanced production technologies and seasonal, and management-sick, Cologne audit. Colony separation, artificial feeding, and pest control. It is the labor of Greek beekeepers to employ basket beehives in a series of rods that are used to shape the top of the group with the creation of the holder-comb-beehive (Mann, 2011). These cases are made to allow the comb to be taken out, examined, and then restored to the shelf. The Kenyan Top Beehive Bar (KTBH) is a modified Greek basket-basket with moveable, removable upper rods that was invented in the 1970s. The beehive is a wooden box with two sides inclined inwards at a 120-degree angle from the horizontal. This design prevents bees from building combed baskets on the sides. The beehive includes 26 upper rods that are 48 inches long and 3.2 cm broad, with a wax strip on the lower edge that serves as a loading device and bee support in the building's phone. The lid is built of a wooden frame with a galvanized sheet steel light meter on top. The comb can be simply removed for inspection and restored to the shelf, which gives the KTBH a variety of benefits over standard input components. Without harming the brood nest, the honeycomb can be removed.

Since pollen and honey were separated from the collected honey, the quality of the honey has improved. There is improved control, and the low hanging height makes varied driving activities easier and faster.

The movable frame hives, as well as onions utilized by commercial beekeepers in many places of the world, are the most powerful of the hives in the project thus far (Patterson, 2006). In 1851, American clergyman K. S. Langstroth designed the first hive with a moveable frame. The artificial comb foundation was invented and patented. It was formed in 1857, and it revolutionized and commercialized manufacturing (Mann, 2011). The frame can be taken out, examined, won, and then returned to the hive by bees to be loaded with honey. The hive is the most often utilized caste system structure, and it can be found throughout the country. The device's essential components are positioned on the lowest shelf in the room's corner with regal exclusivity, as well as at the front door. Frame hives has several advantages over other types of hives found in the area. Losses can be minimized by using images of the coat of arms that are highly powerful. Honey can also be harvested and frames returned to the hive, resulting in increased earnings. When you use a knot excluder, the quality of your honey improves. They are, however, more expensive than regular beehives, which are the top unit. The essentials of bridge, frame vulnerable wax moth frame hives and management abilities are required for hives (2006). The upper block's multi-chamber beehives were also created and deployed in various parts of the country. These units will offer several advantages over one-room ones that store honey and milk separately. Cabinets have similar dimensions, but in some cases feature upper section rods instead of typical frames and arrows, and are incorrectly referred to as "slats Top and Langstrot" (Muriuki, 2010). In cooler parts of Africa, where honeybees consume in abundance, frame hives have proven to be efficient when managed by professional beekeepers.

However, they have had mixed results in general, and the monies received in most situations do not justify further cash or administration (Patterson, 2006). However, these devices are not always superior to typical top-block beehives, and the possibility for a higher return on investment, as well as sand quality, is an important consideration (Carroll, 2006). However, due to the exclusive use of conventional methods, the employment of a modem, beginning with manufacturing technology, adds to a higher degree of beer management and aims for more

success than predicted (Kigatiira, 2009), In-house bee breeding is a relatively recent industrial technique. Honeybees are maintained in homes to protect them from bad weather, predators, and whoever is in charge at the time. Bees gain access to their hives by drilling holes in the wall that go to each individual component. Another advantage of this beekeeping method is the ability to expand the capacity of small plots of land, since it is a little home (5x5m) with up to 10 beehives. Keep in mind that this is a safe bee housing, which can be costly to construct.

2.4 Credit Access and Performance of Honey Processing Projects

Beekeeping as it is currently conducted is not financially viable. On the other hand, modern beekeeping necessitates the use of protective gear as well as hive training. To get started, you'll need the following resources. Honey must meet certain requirements before beekeepers may sell it to the public, yet testing equipment is both expensive and unavailable in remote locations. Uncertainty about the quality of honey, which exposes farmers to unscrupulous businesses that try to take advantage of them (Vyamana, 2009). Personal savings, extended family, or a tech base are all common sources of funding for new businesses. Often, the criterion for investment is the belief that this is a similar company that has been successful in the past. Beekeeping is a skill that requires a lot of practice. Beekeeping is dependent on the behavior of bees for a certain species and environmental conditions in a specific place, unlike farming, where the gestation period can be predicted. Kenya's most successful modern beekeeping initiative lasted more than five years before reaching sustainable development (Affognon et al 2015). For financiers, a protracted duration of pregnancy is unappealing since it is perceived as a risky period of time. More and more banks and financial institutions are offering consumers just brief grace periods at the start of the payback period (Zacepins, 2015). This helps to explain why the majority of production initiatives must be founded and supported by outside sources. Both the giving and receiving countries' regulations, policies, and ideals must be followed. Projects usually have a table that can be traced back to external influences (Goldberger, 2008). As a priority in your growth goals, the county governments will be able to ensure consistent production funding. Complete, reliable, and precise information is required for financial decisions, including securing business loans, according to Ndubi and Karanja (2008). The capacity to keep suitable records reflects the literacy level once again. Cash flows and other financial details are routinely required by banks as a condition of credit approval.

Security is once again brought to the forefront as the principal stumbling factor to credit access, according to Kamau (2009). According to Kamau (2009), 92% of the businesses surveyed applied for a loan and were denied, while others chose not to apply since they knew they wouldn't be protected in the event of a security breach. As a result, they have access to and so operate as a deterrent to business growth at a time when the majority of entrepreneurs in our study are aware of the need for loans to improve their firm and have chosen the protection that is the principal barrier to obtaining credit. Because they had no say in the security issue, practically all of the respondents launched their businesses with their own money or loans from family members. Beaver (2002) connects this to the history and culture of the financial system.

High credit interest rates may deter farmers from borrowing, limiting their access to capital. Banks are believed to trade on customer deposits, lending at high interest rates to cover their costs while leaving balances to provide interest to depositors (Makena, 2011). The interest rate is mainly calculated as a percentage of the amount borrowed divided by the amount of interest paid over the course of a year. As a result of the high interest rate, the cost of credit rises (Mutai, 2015). The scenario in Kenya, particularly during the peak of the financial crisis in 2008, demonstrates the importance of loans for common and low-income entrepreneurs. A flood of money lenders posing as Pyramid schemes cropped up, offering small investors the opportunity to achieve financial independence through easy borrowing. For Kenyan beekeepers, financial constraints remain a major challenge (Wanjohi & Mugure, 2008).

According to Gichuki et al., (2014), high transaction costs not only boost the cost of borrowing, but also limit access to external loans for some borrower groups. While transaction costs are a limitation for all borrowers, others believe that small and micro enterprises are especially more so. The expenses of evaluation and monitoring are increased by their varied qualities, as well as their relative opacity. a type of loan Increasing evidence shows that low-income people and small enterprises are unable to fund high-return investment initiatives due to a shortage of financing, negatively harming growth and poverty reduction (Gichuki et al., 2014). Nalwelishe (2003) did research on small-scale enterprise financing choices, which was cited by Ondieki, Nashappi, and Moraa (2013).

2.5 Market Demand and Performance of Honey Processing Projects

Bee products have a wide range of markets, just like the items themselves. According to current standards, Kenya had a sizable market in Europe and the Middle East for honey. 2014 (Canale, Cosci, Canovai, Giannotti, and Benelli). Honey and other goods are valued at more than $ 600 million each year around the world. More than three times as much honey is produced in Africa. Other countries must import them from Ethiopia, Sudan, Tanzania, and Uganda because of the honey they produce. There is a substantial unmet demand for bee products in important areas such as Nigeria and South Africa. Antibiotics, antidotes, and treatments for ulcers, burns, as well as anti-inflammatory pharmaceuticals and cough syrups, are all made with bee products in numerous businesses, including the pharmaceutical industry. Products that must be utilized in the oven, as well as distinctive culinary items, are required in the food sector. Each year, up to 75 tons of royal jelly are consumed in China for the production of jelly, chocolate, cake, and wine.

Kenya has around 30 enterprises that buy and process honey for the domestic and international markets. Large corporations, Honey Care Africa, the African Bee, ltd, Items, corporations, He and his sons, Acacia honey, and a variety of others are among them. The demand for honey in Kenya is higher than the entire supply. According to the business journal, Kenya gets 80 percent of its honey from Tanzania, Sudan, Congo, and Uganda, despite some enterprises exporting Kenyan shilling honey to the UAE, Saudi Arabia, China, Turkey, and Africa (Affognon et al 2015).

Honey is largely produced as a revenue crop, allowing hundreds of thousands of beekeepers to supplement their income. More than 95 percent of the total output is sold, with the remaining 5% consumed in the country. At various levels, a huge number of individuals are employed or self-employed in the production and sale of honey, which both give employment and self-employment opportunities for a great number of people. The cultural beehives are especially unsuited for cleanliness and high production levels, according to Johannes (2005). Farmers rely primarily on honey sales and do not see wax as a realistic revenue source. They don't collect honey properly and don't separate honey from wax. The moisture content of the product exceeds the industry standard, posing a challenge for the corporation. Farmers aren't providing enough moisture in their honey, which needs to be addressed.

To establish or adopt a new economic endeavor, you need money. Even when the benefits are obvious, the availability and accessibility of resources is a big stumbling block. A reliable source of financing is required for the adoption of a new activity. Institutional support is typically crucial in establishing the baseline infrastructure, which has a long return period. Small-scale farmers who are left to their own devices may never be able to get long-term successful initiatives off the ground. Beekeeping is a commercial economic activity that requires a ready market as well as competitive prices once the products are supplied. A regulatory framework is essential to safeguard local producers from low-cost imports and counterfeit honey products sold by dishonest middlemen (Smith, Ostwald & Seeley, 2015).

The beekeeping equipment industry is as diverse as the products themselves. If Kenya's honey met accepted standards, it could tap into large markets in Europe and the Middle East. a year ago (Canale, Cosci, Canovai, Giannotti, and Benelli). Each year, honey and other products have a global value of more than $ 600 million. Honey is consumed three times as much as it is produced in Africa. With the exception of Ethiopia, Tanzania, and Uganda, all other countries import or consume all of their honey. Beekeeping products are in high demand in major areas such as Nigeria and South Africa. Pharmaceutical businesses use bee products in antibiotics, anti-venom, ulcer and burn therapies, anti-inflammatory treatments, and cough syrups. In the food industry, bee products are used in baking and other unique dietary preparations. China consumes 75 tons of royal jelly each year for the production of jelly chocolates, candies, and wine. Honey is prescribed to the majority of diabetes patients in hospitals all over the world. Bee wax has roughly 100 commercial uses in the cosmetics industry, ranging from shoe polish to skin care products. Animal feed and veterinary products are also made with beekeeping products.

About 30 businesses in Kenya buy and process honey for both domestic and international markets. In Kenya, where demand significantly outnumbers supply, honey is in limited supply. Despite the fact that some enterprises export Kenyan honey to the United Arab Emirates, Saudi Arabia, China, and Turkey, Kenya imports 80 percent of its honey from Tanzania, Sudan, Congo, and Uganda, according to the Africa Business Journal (Affognon, et al., 2015)

2.6 Farmers Training and Performance of Honey Processing Projects

Finding extension workers who have received up-to-date training in areas such as better production methods, disease and parasite treatments, and so on, according to FAO (2011), is difficult. Conducting trainings and supplying training materials in rural areas is difficult due to the high costs associated with dispersed small-scale farmers. Under an Indian study, Monga and Monocha (2011) discovered that managing colonies in harsh weather conditions was a challenge for 58.3 percent of respondents. The research that focuses on the issues that beekeepers face backs up the findings of these researchers. The limitations, on the other hand, do not discriminate based on gender. The goal of the study was to find gender differences in the challenges that men and women face in order to close such gaps and allow women to reach their full potential. in order to offer suggestions

In a study of a beekeeping operation in Narok, Kenya, Watson and Bett (2012) discovered that the main issues are a lack of skills, notably in managerial practices, and a high level of uncertainty. When they are located in rural areas due to a lack of expertise, especially when other beekeeping industry members are involved in the supply chain as a whole, according to Martin et al. (2012). They have to rely on their vendor and have little information of prices in other countries, which may be found in towns, cities, and export marketplaces. Furthermore, bee products that must be transported in poor circumstances and with a short transit time are more likely to be harmed and lose quality. When it comes to export markets, resource-rich farmers' lack of financial resources is a major stumbling block. All living creatures, including bees, are susceptible to a variety of diseases and pests. Many countries are concerned about bee pests and diseases that have limited influence on Apis mellifera (popular brews, not completely understood and examined, respectively) (Martin et al. 2012).

The extinction of the entire bee family and its surrounds is tied to an early method of beekeeping. The bees were calmed by the smoke, which was used to lead the group. Honey, honeycombs, eggs, larvae, and occasionally the queen bee determine the bee hive's existence. The liquid honey was separated from the brood nest waste using a sieve or basket. The honey produced was of good quality as well. In the woods, there were always new feral communities to exploit. Each bee colony was destroyed after harvest, along with its important queen bee, and production was a "stop-and-start" affair with little consistency (Gebey, Berhe, & Hoekstra, 2010). These harmful industrial processes are not just unsustainable, but they are also unsustainable. As a

result, modern beekeeping necessitates a well-balanced approach. Current beekeeping instruction and practice, which can be traced back to various European natural philosophers in the 18th century, is being researched intensively in both bee colonies and the intricate and secret brewing world (Thomas, 2015). Hubervois was acclaimed as the "father of contemporary beekeeping science" for his book Nouvelles Observations sur Les Abeilles, which established the basic scientific basis for honey bee biology and ecology (Thomas, 2015). Based on Huber's discoveries in the nineteenth century, he, like many other experts, established a number of distinctive production management systems.

Training in beekeeping with a focus on the need to strengthen the confluence of modern technology and old techniques in order to obtain maximum yield. The course covers current equipment, hive management, sanitary and hygienic harvesting procedures, packaging, storage, turnover, and accounting, among other topics (Affognon et al 2015). Component formulation, production, use of modern production equipment, hygiene and accounting skills will all be taught to beekeepers. Each of these abilities can be studied separately as a module. Participants from various beekeeping training institutes should acquire various production skills on a regular basis. As a result, some farmers decide not to take the course and instead opt for the most cost-effective module-studios (Wodajo, 2011).

Honey production, the number of hives beekeepers owned, and their net beekeeping incomes were all unaffected by beekeeping training. Beekeeping training in Tanzania (Wagner et al., 2019) and Ethiopia (Wagner et al., 2019) failed to boost beekeeping profitability or honey yield (Wagner et al., 2019). (Gebeyehu and colleagues, 2010). The number of extension visits had no effect on the amount of money made from beekeeping (Gebeyehu et al., 2010). In research by Aksoy et al. (2018) and Okpokiri et al. (2018), the number of days of beekeeping instruction was associated to honey yields and beekeeping revenue (2018). (2015). This disparity in the impacts of training and extension services shows that, while beekeeping education can be beneficial in terms of time, delivery, and content, it can also be insufficient and ineffectual. This emphasizes the need of focusing on technical beekeeping skills and efforts to improve the quality of beekeeping training interventions rather than the number. Ineffective beekeeping training could be caused by a lack of teaching skills and a concentration on theoretical rather than practical skill

development, insufficient technical beekeeping competency, erroneous concepts and information being given, or beekeepers' slow acceptance of new procedures. While the EHP addresses technical aspects of beekeeping, beekeepers may benefit from expanded capacity building for trainers so that they may upskill and deliver effective, outcome-based training, as well as improved teaching materials. Furthermore, enhancing queen bee breeding skills so that trainees can learn with non-aggressive bees, lowering the number of participants, carefully selecting participants, and assuring access to protective equipment may all help beekeeping trainees enhance their learning results (Schouten & Lloyd, 2019).

Prior knowledge, on the other hand, is the source of rationale. Participating in activities that people are familiar with and good at is easier and more beneficial. Beekeeping is a delicate pastime that requires a great deal of knowledge. Traditional beekeeping practices devastate bee ecosystems and contribute to bee colony extinction. Honey is lost due to inadequate honey collection processes. The products do not fulfill the market's sanitary standards. Thus, for profitable and long-term beekeeping, training and the use of modern equipment are required (Carroll & Kinsella, 2013).

2.7 Theoretical framework

The study has used theories to help grasp the notion of production and performance of honey processing projects.

2.7.1 Production Theory

The theory was proposed by French economist Jean-Baptiste Say in 1803. Velasco defines production theory as the translation of inputs into outputs or products (2011). An input is a resource that a company employs in its manufacturing process to create a product or service. A production function depicts the highest output (Q) a corporation can produce for any given set of inputs while maintaining a defined degree of technology (Velasco, 2011). The production function of a company is written as f (L, K) =Q, where Q stands for total output, L for labor input, and K for capital input, assuming one output with two inputs, labor (L) and capital (K) (K).The theory was used since the bee keepers' goal is to maximize output and, as a result, maximize income. The theory was adopted since it indicates the level of quantity which the bee keepers should expect based on the input and labour used. The theory therefore indicates that for the bee keepers in Kitui County to maximize their output, they have to acquire modern technology, which will facilitate adequate bee keeping and also enhance honey production. The

theory been adapted by the researcher for potential use in implementation of honey production and to achieve enhanced understanding and explanation of certain aspects of production and honey processing in Kitui County.

2.7.2 Theory of Project Implementation

The theory was proposed by Nutt 1996 and defines implementation as a technique or set of practices used by responsible organizational actors to coordinate a change process and achieve the required compliance. The idea of project implementation is used by project managers to achieve predetermined changes in businesses by building settings that allow the changes to thrive (Kamau & Muturi, 2015). Pinto (1989) agrees, noting that implementing a project successfully is a difficult and time-consuming procedure. Another part of the project implementation theory is the project scheduling plan. It entails laying out a strategy or road map for achieving the project's objectives. Pinto (1989) drew connections between different stages of project development. The project schedule plan is produced with the help of the client's consultant (typically the project manager). On the other hand, the consultant must include the customer in the planning process. According to Anyanwu (2003), the level of client involvement in the planning phase has an impact on the project's success. All of the factors in this study are supported by this hypothesis as a factor impacting production and performance of honey processing project in Kitui county. The theory was adopted since production of honey processing requires planning and implementation. The theory explained different process which the bee keepers should adopted when keeping bees from initial stage to processing of honey. The theory also indicates that Increase in production and productivity will be attained by the coordinate implementation of several actions by the various stakeholders in this component of the value chain.

2.8 Conceptual Framework

The framework includes a comprehensive description of the research phenomenon as well as a visual depiction of the variables under investigation (Mugenda & Mugenda, 2006). Technology, credit access, market demand, and farmer training are the elements under inquiry in this study.

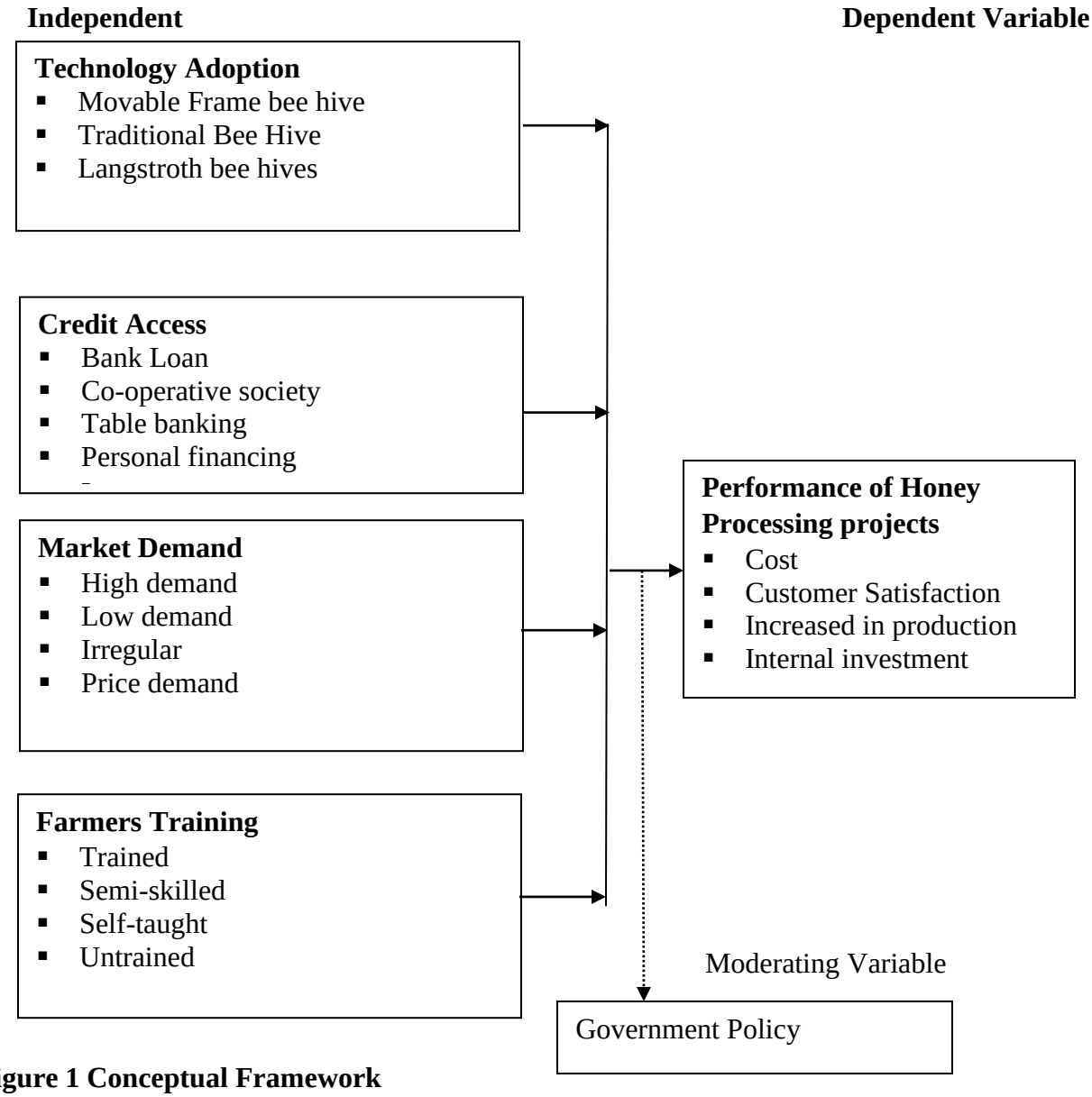

Figure 1 Conceptual Framework

2.9 Knowledge Gaps

Author and Year	Title	Findings	Gaps	Contribution of the Study
Gezahegne (2001)	The journal for sustainable beekeeping.	The average amount of crude honey generated from traditional hives in Ethiopia is 5 kilos per hive per year, according to Ethiopian farmers' management practices.	The study was conducted among Ethiopia farmers in Amhara region to find out whether they have modern technology to harvest honey.	The study will focus on the impact of adequate technology to manage to improve bee keeping in Kitui County
Kumar (2018)	An assessment of constraints facing adoption of beekeeping technology in India.	According to the findings, the beekeeper's knowledge influenced the adoption of technology. The data also demonstrated a positive relationship between agricultural technologies and knowledge.	Farmers had not adopted new technologies, according to the study, which was the biggest problem while harvesting honey.	The study recommended improvement of equipment, wax quality and availability before the adoption of the technology.

Ngurare, (1997).	Marketing of Hive Products Workshop, National Beekeeping Station	Despite the Ministry of Livestock, Agriculture, and Fisheries' efforts to resolve the problem, the study determined that selling hive products in Kenya in general, and in Baringo County in particular, remains a challenge.	The study focused on marketing of honey products in Kenya. The study indicated that marketing of honey was not done. The study will intend to focus on the strategies which will improve marketing of honey for the farmers.	The county government should develop a complete program that will increase honey market demand while removing middlemen.
Adjaloo, M. (2020)	Men and women in rural and peri-urban Ghana are secure in their beekeeping livelihoods.	The findings indicated that both men and women make their end meet through beekeeping and mostly men are the one who are involved in bee keeping.	The study focuses on the difficulties farmers face when it comes to equipment ownership. Institutional support, both governmental and non-governmental, in the form of education, training, and equipment delivery, is critical in ensuring that beekeepers get the most out of their activities.	The study will produce a cooperative answer in terms of contemporary equipment and farmer training.

Aksoy et al. (2018)	Identifying the efficiency of the IPARD program's beekeeping grants:	Beekeeping training was found to be strongly linked with honey yields and beekeeping income in the study..	The study explored the need and benefits of effective beekeeping training.	This research will identify ineffective teaching techniques and place a greater emphasis on theoretical rather than practical skill development, ensuring that farmers have the necessary capabilities.
Sharma and Das (2018)	factors that affecting beekeeping adoption	Several causes were discovered, including inefficient working capital, a lack of expertise, and insufficient safety equipment.	The study looked at beekeepers' perceptions in terms of technological adoption in America, Asia, and Europe, but it did not focus on beekeepers' perceptions in general.	The presents will intends fill the gaps through adoption of modern technology.
Bradbear, 2009)		The study discovered that beekeeping firms require access to financing to purchase beekeeping inputs in order to grow.	The study looked into the importance of having enough money to start a beekeeping business. Based on these findings, this study concluded that beekeeping initiatives should strive to ensure that all accessible capital assets are considered, rather than relying on ones that are not.	The study will attempt to come up with proper credit policies which will ensure farmers have access to capital which will improve their bee keeping activities.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

The study design, sampling processes, data collecting, analysis, and presentation, as well as ethical considerations, are all covered in this chapter.

3.2 Research Design

Descriptive research approach was used in the study. Descriptive studies describe features connected to the selected population that indicate an accurate profile of people, events, or circumstances (Bryman & Bell, 2011). (Saunders, Lewis &Thornhill, 2009). Descriptive studies reveal the characteristics of the target population, revealing a detailed profile of people, events, or circumstances (Saunders, Lewis and Thornhill, 2009).

3.3 Target Population

Cooper and Schilndler (2012) define population as "a group of individuals to be studied," which is used to choose study subjects or samples. Farmers in Kitui County who are involved in beekeeping were the target demographic for the study. The target population was 125 who comprised of 110 bee keepers and 15 county agricultural officers who were selected from two sub-county in Kitui County, which include Mwingi North and Kitui South.

Table 3.1 Target Population

Category	Target Population
Mwingi North farmers	53
Kitui South farmers	57
County Agricultural officers	15
Total	**125**

Kitui County Government (2021)

3.4 Sample Size

A sample, according to Mugenda & Mugenda (2003), is a subset of the total population. To eliminate bias, stratified random sampling is used to ensure that specific subgroups in the sample are correctly represented in proportion to their population numbers. It ensures the inclusion of small groups that might otherwise be overlooked by other sampling approaches. A sample size of 55% of the target population was used in the study. This agrees with Mugenda & Mugenda (2008), who stated that a sample size of 50% or more is ideal for performing a study.

3.4.1 Sampling procedure

Simple random sampling is the preferred strategy for homogeneous groups. Simple random sampling was employed to avoid bias.

In order to determine the sampling ratio, the study employed stratified random sampling technique. This is because according to Cooper (2012), the sampling technique allows researchers to derive proportion of each strata that will be included in the sample size as shown below;

$$\text{Sample Ratio} = \frac{n}{N} = \frac{69}{125} = 0.55$$

Where, n is the sample size and N is the target population.

Table 3.2 Sample Size

Category	Population	Sampling Ratio	Sample Size
Mwingi North	53	0.55*53	29
Kitui South	57	0.55*57	31
County Agricultural officers	15	0.55*15	9
Total	**125**	**0.55**	**69**

3. 5 Data Collection Instrument

For the aims of this study, two data gathering instruments were used. Questionnaires and interview guides are examples of these. The instruments that will be required to conduct the research have been devised and discussed.

The information was gathered using questionnaire with closed-ended, open-ended, and scale/Likert type elements. A semi structured questionnaire (Kothari, 2004) is a paper that consists of a series of questions and is used to gather data from respondents. A questionnaire has the added benefit of making the results more predictable and dependable in big samples. A drop-and-pick approach was used to disseminate the surveys to the target audience. Because the questionnaires are ready to use, they were employed to save time and money while also promoting a simpler research.

A planned discussion between two or more people is what an interview guide is. Oral interviews can assist the researcher in gathering meaningful and reliable data relevant to the research questions and objectives. Oral interviews with beekeepers from each sub-county were conducted.

3.5.1 Pilot testing of the instrument

Ten beekeepers from Kitui Central participated in a pilot research. To guarantee that the sample size stayed the same, the researcher chose to use a different sub county not included in the study. She also wanted to know if beekeepers had the same issues. This was eventually removed from the research. Farmers were given questionnaires, which were collected after two days. The pilot study assisted in identifying ambiguous questions and allowing for their revision until they express the same meaning to all subjects.

3.5.2 Validity of Research Instruments

Before using the surveys, the researchers would assess their face and content validity. The university supervisor's and another expert on the study's opinions were sought, and the instruments were edited afterward. The respondents in the piloting face provided feedback on the questionnaire's overall outlook, and adjustments were made as needed to ensure the questionnaire's face validity while taking into account the experts' advice. The researcher had to check items in each instrument covered the various dimensions of the constructs as stated in the study variables to ensure content validity. Following that, the instruments were tweaked to ensure that all of the study's variables are fairly represented in the questionnaire's questions.

3.5.3 Reliability of Research Instruments

In a pilot study, the research instrument's reliability and validity were assessed. The degree to which a research instrument generates consistent results after numerous trials is referred to as dependability, and the degree to which data analysis results effectively reflect the phenomenon under investigation is referred to as reliability (Mugenda & Mugenda, 2003).The questionnaires were prepared and pre-tested on ten beekeepers were not participating in the study. In addition, the supervisor's expert judgment was taken into account when creating the questionnaires. During the piloting period, a Cronbach Alpha test was performed after the test pre-test. To guarantee that the questionnaire has some internal consistency, questions on factors that fell below this limit were modified. The reliability of the questionnaire was determined using a 0.7 co-efficient criterion.

3.6 Data collection procedure

For this study, the researcher used semi-structured questionnaires to collect primary data directly from respondents (consisting of close and open-ended questions). Data was collected through questionnaires since they allowed the researcher to get information more quickly and conveniently (Kombo and Tromp, 2006).

3.7 Data Analysis Technique

This section discusses the techniques that were used to analyze data and test the variables.

3.7.1 Qualitative analysis

Data acquired through personal interviews and questionnaires was statistically analyzed and reported in percentages, frequencies, and charts using the Statistical Package for Social Sciences (SPSS).

3.7. 2 Quantitative analysis

Linear regression analysis is a method of modeling the relationship between a scalar dependent variable (Y) and one or more explanatory variables, denoted by the letters xi for i=1...n, where n is the sample size. The conditional probability distributions of Y and X are usually the focus of this method.

$Yi = \beta 0 + \beta\ 1\ Xi + ei$

Defined as,

$\beta 0$ the intercept of Y dependant,

$\beta\ 1$ the gradient of X explanatory

ei error term associated with i the observation.

Where,

Y = Performance of Honey Processing

X_1= Technology Adoption

X_2 = Credit Access

X_3 = Market Demand

X_4 =Farmers training

ε = Error term

The strength of each of the independent variables can be determined will be determined by the r2 and r adjusted, the regression analysis reveal conclusions and recommendations. According to the model, Y represents the dependent variable. With a 95% confidence level, the model was

used. The equation determined the statistical mode, which was used in SPSS to generate quantitative data and reports for the study.

3.8 Operationalization of variables

Table 3.3: Operationalization of Variables

Variables	Indicators	Measurement Scale	Data Analysis
Independent			
Technology	▪ Movable Frame bee hive ▪ Traditional Bee Hive ▪ Langstroth bee hives	Nominal scale Ordinal scale	Descriptive analysis Person Correlation analysis Regression analysis
Credit Access	▪ Bank Loan ▪ Co-operative society ▪ Table banking ▪ Personal financing	Nominal scale Ordinal scale	Descriptive analysis Person Correlation analysis Regression analysis
Market Demand	▪ High demand ▪ Low demand ▪ Irregular ▪ Price demand	Nominal scale Ordinal scale	Descriptive analysis Person Correlation analysis Regression analysis
Farmers Training	▪ Trained ▪ Semi-skilled ▪ Self-taught ▪ Untrained	Nominal scale Ordinal scale	Descriptive analysis Person Correlation analysis Regression analysis
Dependent			
Performance of Honey Processing	▪ Cost ▪ Customer Satisfaction ▪ Increased in production ▪ Internal investment	Nominal scale Ordinal scale	Person Correlation analysis Regression analysis

3.9 Ethical issues

The researcher was certain that the research's ethics were followed. Respondents were urged to voluntarily engage in the study. There was strict adherence to confidentiality and discretion. The study's goals were disclosed to participants, who were assured that any information they contribute was used solely for academic purposes. Plagiarism was not tolerated because

borrowed items were recognized. The research tools were accompanied by a letter of graduate approval from the University. In addition, authorization letter from Nacosti was needed to collect study data.

Before engaging in research, potential volunteers can fill out an informed consent form to learn about their rights and benefits (Montalvo & Larson, 2014). The questionnaire was accompanied by an introductory letter. Only those who have read and agreed to the informed consent form was voluntarily and discreetly complete the questionnaire. Furthermore, before to participating in the survey, the consent of the target respondents was asked.

The study subjects should not be pressured into participating in the research as a matter of principle; instead, they should be told about the research's objectives, what is expected of them, and their agreement should be requested (Saunder et al., 2014). Each of the sampled respondents were notified that they have an equal opportunity of participating in the research. If a responder becomes uncomfortable while filling out the questionnaire, he or she was able to drop out of the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter summarizes the information gathered through the use of questionnaires. As a technique to illustrate the investigation's findings, percentages, frequency tables, and data descriptions are used to explain general tendencies. SPSS version 20.0 was used to analyze the data gathered through questionnaires. The findings are given in accordance with the study's objectives and research hypotheses. The study's overall goal was to examine the factors that influence honey processing project production and performance with a focus on Kitui County; to see how technology adoption affects honey processing project performance, to see how credit access affects honey processing project performance, to see how market demand affects honey processing project performance, and to see how farmer training affects performance.

4.2 Questionnaire return rate

Only 52 of the 69 questionnaires that were sent out were returned. This means that 76 percent of the responses were received by the researcher. According to Mugenda & Mugenda (2008), a response rate of 50% is appropriate for analysis and reporting; a rate of 60% is acceptable, and a rate of 70% or higher is extraordinary. The response rate was excellent based on this remark9.

Table 4.1: Response Rate

	Questionnaires issued	**Questionnaires received**	**Percentage response**
Total	69	52	76%

4.3 Background information

The characteristics of respondents were examined in regard to gender, age, and occupation.. The findings were as follows;

4.3.1 Gender

The participants were asked to identify their gender. The response was as follows

Table 4.2 Gender

Category	**Frequency**	**Percent**	**Cumulative Percent**
Male	30	58.5	58.5

Female	22	41.5	100.0
Total	52	100.0	

Source: Research data (2021)

According to the study's findings, there were fewer female respondents than male respondents. Female respondents were slightly more than half (58.5%), while male respondents were slightly more than half (58.5%). (41.5 percent). The study revealed that both genders effectively participated in the study and that both genders had varied perspectives. Male beekeepers were found to be the majority of beekeepers, according to Eforuoku and Etukudo (2017), and to be the most likely adopters of modern beekeeping technologies. Similarly, the findings of Yilmaz (2016) confirm the current conclusion.

4.3.2 Age of the respondents

The goal of the study was to figure out how old the respondents were. The findings were as follows;

Table 4.3 Age of the respondents

Category	Frequency	Percent	Cumulative Percent
Less than 24 years	3	5.9	5.9
25-29 years	16	30.9	36.8
Over30 years	33	63.2	100.0
Total	52	100.0	

Source: Research data (2021)

The study indicated that 30 years was represented by 63.2%, followed by 25-29 years represented by 30.9% while less than 24years was represented by 5.9%. Kothari (2009), argued that the age bracket of the respondent is crucial when collecting data which facilitated reliability

4.3.3 Occupation

The study intended to established the occupation of the respondents and the findings were as follows;

Table 4.5 Occupation

Category	Frequency	Percent	Cumulative Percent
Peasant farmer	12	22.7	22.7
Trader	7	13.2	35.9
Salaried employee	7	13.2	49.1
Student	12	24.5	73.6
Other (specify)	14	26.4	100.0
Total	84	100.0	

Source: Research data (2021)

The study established that majority of the respondents were involved in other activities,22.7% were peasant farmers, 13.2% were traders,13.2 represented salaried employee while student were represented by 24.5%. The study indicated that the information collected was reliable since it was from different sources.

4.4 Performance of Honey Processing Projects

The researcher intended to get feedback on performance of honey projects in Kitui County.

Table 4.6 Performance of Honey Processing Project in Kitui County

Statement	1	2	3	4	5	Mean	Std. Dev
The performance of honey projects depends on the financial skills acquired by farmers through training.	28%	25%	21%	17%	9%	1.9881	1.32168
Lack of adequate technology hinder honey processing	17%	26%	15%	28%	13%	2.0119	1.35766

Farmers have to meet the demand for honey due to lack capital to invest in honey production	32%	21%	19%	11%	17%	2.0595	1.22574
Economic factors sometimes affect honey production in the county	25%	30%	21%	13%	11%	2.2857	1.13617
Average						**2.08**	**1.2603**

The study indicated a composite mean score of 2.08 and SD=1. 2603.The respondents indicated that performance of honey processing projects experience delayed to lack of capital and modern technology. Economic factors sometimes affect honey production in the county which was represented by a mean score of 2.2857, lack of adequate technology hinder honey processing projects in the county government was represented by a mean of 2.0119, farmers have failed to meet the demand for honey due to lack capital to invest in honey production was had a mean score of 2.0595 while the performance of honey projects depends on the financial skills acquired by farmers through training was indicated by average mean of 1.9881. The findings showed that sometimes the farmers lacked adequate training to perform their duties which affected honey production in Kitui County. This statement concurs with Ndyomugyenyi (2015), who stated that lack of knowledge and skills and poor harvesting methods are reported as the major limitations to honey production

4.5 Technology Adoption and Performance of Honey Processing Projects

The respondents were given 5 Linkert questionnaires to give their feedback on effect of technology adoption on implementation of Honey processing projects. The responses are indicated in table 4.7

Table 4.7 Technology Adoption and Performance of Honey Processing Projects

Technology Adoption	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Dev**
New technology adoption increases hive products	26%	21%	13%	19%	21%	2.1310	1.00336

Managerial skills are very vital to implement modern technologies	21%	15%	13%	28%	21%	2.0357	0.99935
The ability of the farmer to grasp the advantages of new technology will determine the likelihood of adoption.	28%	25%	11%	17%	19%	2.0238	1.07520
High yield is not enough to encourage beekeepers to embrace a new technology	25%	13%	6%	21%	36%	2.5238	1.49276
Average						**2.1785**	**1.14267**

The analysis showed a composite mean of 2.1785 and SD=1.14267. The respondents indicated that beekeeper's knowledge influenced adoption of technology. The findings indicated a mean score of 2.5238 agreed that, high yield is not enough to encourage beekeepers to embrace a new technology, new technology adoption increases hive products was represented by a mean score of 2.1310, managerial skills are very vital to implement modern technologies had a mean score of 2.0357 while the ability of the farmer to grasp the advantages of new technology will determine the likelihood of adoption had a mean score of 2.0238.

Famers had not adopted modern bee keeping practices and thus their production was low. The study concurs with Kigatiira (2009), who stated that the employment of modern technology adds to a higher degree of keeping management and thus increase production of honey.

4.6 Credit Access and Performance of Honey Processing Projects

The respondents were given 5 Linkert questionnaires to give their feedback on effect of credit access on implementation of honey processing projects.

Table 4.8 Credit Access and Performance of Honey Processing Projects

Statement on Credit Access	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Deviation**
Costs charged on collateral security discourage borrowing.	26 %	21 %	13 %	19%	21%	1.8214	1.14240

Loan repayment flexibility has an impact on the quantity of money that can be disbursed.	21 %	28 %	13 %	15%	23%	1.9524	1.11835
Access to loans is influenced by government expenditures such as taxes and surplus levy.	28%	25 %	11 %	17%	19%	1.9643	1.25580
Borrowers who are deemed uncreditworthy are altogether denied loans.	25 %	13%	6%	21%	36%	2.0714	.95420
Average						**1.9524**	**1.1177**

The study indicated a composite mean of 1.9524 and SD=1.117. The study indicated that high interest rates affected access to loan from the banks and micro finance institutions. Majority of the respondents indicated that borrowers who are deemed uncreditworthy are altogether denied loans which was represented by a mean of 2.0714, access to loans is influenced by government expenditures such as taxes and surplus levy was represented by a mean of 1.9643, loan repayment flexibility has an impact on the quantity of money that can be disbursed was represented by a mean of 1.9524 while Costs charged on collateral security discourage borrowing was represented by a mean of 1.8214.

Majority of the respondents indicated that borrowers were required to have sufficient collateral to access loan from bank and micro finance institutions. The study is agreement with Kamau (2009) who stated that security was forefront in accessing the loan for the farmers.

4.7 Market Demand and Performance of Honey Processing Projects

The respondents were given 5 Linkert questionnaires to give their feedback on effect of market demand of honey processing projects. The responses are indicated in table 4.9

Table 4. 9 Market Demand and Performance of Honey Processing Projects

Statement on Market Demand	1	2	3	4	5	Mean	Std. Deviation
Beekeepers get low returns as a result of selling raw honey	40%	28%	21%	8%	4%	2.0595	1.19589
Honey market in Kenya is no well diversified particularly in Kitui County	28%	9%	13%	15%	34%	2.0952	1.13667
Honey products that have been refined have lower pricing, which helps to alleviate poverty.	30%	15%	21%	17%	8%	1.9405	1.22574
The number of middlemen in the market and the volume of crude honey arriving on a given trading day affect the price offered.	25%	19%	8%	21%	28%	2.1905	1.25608
Before investing in large-scale production, beekeepers need to know if there will be a market.	38%	25%	13%	9%	15%	2.1190	1.38325
Average						**2.08094**	**1.2395**

The study indicated a composite mean score of 2,08094 and SD=1. 2395.The respondents indicated that bee keepers were being exploited by the middle who acquired their products at low prices. The number of middlemen in the market and the volume of crude honey arriving on a given trading day affect the price offered with a mean score of 2.1905, on whether before investing in large-scale production, beekeepers need to know if there will be a market, the

response was represented by a mean of 2.1190, honey market in Kenya is no well diversified particularly in Kitui County was represented by a mean of 2.0952, beekeepers get low returns as a result of selling raw honey was represented by a mean of 2.0595 while honey products that have been refined have lower pricing, which helps to alleviate poverty was represented by a mean of 1.9405.

The farmers sometimes failed to find market for their products and thus selling their goods at lower prices than the expected market price. Martin et al., (2012), stated that bee keeping require not require not only a physical structure such as a building and its associated expenditures, but also skilled management and financial investments.

4.8 Farmers Training and Performance of Honey Processing Projects

The respondents were given 5 Linkert questionnaires to give their feedback on effect of farmers training on implementation of honey processing projects. The analyses are indicated in table 4.10

Table 4. 10 Farmers Training and Performance of Honey Processing Projects

Statement on Farmers Training	1	2	3	4	5	Mean	Std. Deviation
In order to learn current beekeeping methods, beekeepers must first discover their own distinctive way of dealing with bees and then develop a suitable plan	26%	21%	19%	13%	21%	2.8214	1.2624
Every trainee should be given time to get to know their unique beekeeping style	28%	21%	13%	15%	23%	1.9624	0.87810
For beekeeping training to be effective, it should preferably take the form of vocational education	28%	25%	11%	17%	19%	1.9943	0.89238
Farmers usually access Training facilities without any delay	25%	13%	6%	21%	36%	2.1614	0.96716
Average						**2.2348**	**1.1177**

The study indicated a composite mean of 2.2348 and SD=1.1177. The respondents indicated that farmers were not properly training by the county on bee keeping activities. The study indicated that in order to learn current beekeeping methods, beekeepers must first discover their own distinctive way of dealing with bees and then develop a suitable plan which was represented by a mean of 2.8214, Farmers usually access Training facilities without any delay was represented by a mean of 2.1614 , for beekeeping training to be effective, it should preferably take the form of vocational education which was represented by a mean of 1.9943 while every trainee should be given time to get to know their unique beekeeping style was represented by a mean of 1.9624.

Farmers had not discovered their best way of training and most of the lacked skills to carry their activities is indicted by the study. This statement concurs with Aksoy (2018) who stated that the number of days of beekeeping instruction was associated to honey yields and beekeeping income. This gap in the effects of training and extension services illustrates that the length, delivery, and substance of beekeeping education can be beneficial to beekeepers' outcomes, but it can also be insufficient and ineffective..

4.9 Inferential Statistics Analysis

The relationship between the variables was determined using regression analysis. Regression analysis was used to determine the relationship between the variables. Inferential analysis is used in this study to see if there is a link between an intervention and an outcome, as well as the magnitude of that link.

4.9.1 Regression Analysis

The study used multiple regression analysis to identify the determinants of production and performance of honey processing projects. The results are discussed below;

Table 4.11 Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	. .928a	. .862	. 850	. 40911

Table 4.8 indicates that the coefficient of determination is 0.862 which represents 86.2% of variation in performance of honey processing projects is explained by, technology adoption,

credit access, market demand and farmers training. The value of R square and adjusted R is relatively high which indicates the variation can be explained using the regression model

Table 4.12 ANOVA (Analysis of Variance)

	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	49.114	4	12.279	73.360	.000
Residual	7.867	47	.167		
Total	**56.981**	**51**			

a. Predictors: (Constant): determinants of production

The study conducted the ANOVA test to test the significance between determinants of production and performance of honey processing projects. The table indicate that the p-value of 0.000 was establish. This showed that all the four variables were significant performance of honey processing projects.

Table 4.13 Coefficients of Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.233	.227		1.024	.000
Technology adoption	0.339	.165	0.404	2.057	.001
Credit Access	0.27	.254	0.009	0.106	.029
Market demand	0.447	.211	0.340	2.117	.000
Farmers Training	0.230	.218	0.211	1.053	.038

a. Dependent Variables: Performance Honey processing projects

$Y = 0.233 + 0.339X_1 + 0.27X_2 + 0.447X_3 + 0.230X_4$

The regression's Beta () Coefficients reveal that all of the independent variables evaluated had a positive connection with the dependent variable. All of the variables tested were statistically

significant, with p-values less than 0.05, according to the findings. According to the study's research in table 4.13, a unit change in technological adoption, financing access, market demand, and farmer training results in 33.9 percent, 27 percent, 44.7 percent, and 23% changes in honey processing project performance, respectively.

4.9.2 Test for normality

The goal of normality tests is to compare the selected sample distribution shape of a normal curve. The assumption is that if the sample has a normal shape, the population will also have a normal distribution. The assumption of normalcy is subsequently made. The sample distribution is not shaped like a normal curve, according to a significant test. For small and medium samples with n = 2000, Shapiro-W Wilk's is recommended. Because there were only 51 people in the sample, the Shapiro Wilks W test was utilized. The following hypothesis about normalcy are assumed:

H0: the observed distribution fits the normal distribution.

Ha: the observed distribution does not fit the normal distribution. If we accept the H0, we accept/assume normality

Table 4.14: Shapiro – Wilk test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Honey processing	.410	365	.068	.618	365	.068

a. Lilliefors Significance Correction

H0 = Normality

The researcher failed to reject H0 (the data did not deviate from a normal distribution) since the sig. or p value of the Shapiro-wilk test of normality is more than 0.05 honey processing, standing at 0.068. Shapiro & Wilk (1965) and Razali & Wah (1995) supplied customary thinking that informed the interpretation (2011).

4.10 Interview Schedule Questions

From the interview schedule the following findings were revealed as discussed below

When asked if there are any variables that influence the adoption of new technology, the respondents stated that they were unable to obtain modern bee hives owing to a lack of funds. In addition, the respondents stated that they rarely attend training and hence lack the necessary knowledge to fulfill their duties. Weather pattern was considered to affect bee keeping in Kitui county as the study indicated that drought sometimes affected the production of honey. The respondents indicated that they indeed experienced challenges when accessing loan from the bank due to lack of collateral. Farmers experienced played a big role in honey production as shown from respondents. The respondents revealed the prices of honey products were very low due to existence of middle men. The respondents indicated that county government failed to assist the farmers especially in training and access to finance. The respondents indicated that the main customers were people from other counties and supermarket.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the research findings derived from data analysis based on the research goals. The conclusion is drawn in relation to the study's goal. It then makes recommendations and proposals for additional research into the factors that influence honey processing project performance.

5.2 Summary of the Findings

The study indicated that performance of honey processing in Kitui County need more resource to ensure farmers maximize their returns. The findings are discussed as below based on technology adoption, market demand, credit access and farmers training.

5.2.1 Technology Adoption

The study indicated that technology adoption was very crucial in bee keeping activities in Kitui County. A composite mean of 2.1785 and SD= 1.14267 indicated that adoption of modern technology will improve performance of honey processing in Kitui County. The respondents also indicated that farmers needed adequate managerial skills to adopt modern technology which was to be achieved through farmers training. The study is in agreement with Kigatiira (2009), who stated that the employment of modern technology adds to a higher degree of keeping management and thus increase production of honey. The respondents indicated that they lacked funding to adopt modern bee keeping practices which affected performance of honey processing projects. The study respondents indicated that the county government had little to do to ensure there is adequate processing of honey in Kitui County.

5.2.2 Credit Access

Credit access is crucial on performance of honey processing in Kitui County. With a mean of 1.9524 and SD=1.1177 the borrowers failed to access credit due to lack of credit worthiness which greatly affected performance of honey processing in Kitui County. The respondents indicated that the cost of loan application was very high and took very long for loan to disbursed. Majority of the respondents indicated that borrowers were required to have sufficient collateral

to access loan from bank and micro finance institutions. The study is agreement with Kamau (2009) who stated that security was forefront in accessing the loan for the farmers.

5.2.3 Market Demand

According to the findings, market demand had a significant impact on honey processing performance in Kitui County. Middlemen hampered the implementation of honey processing projects in Kitui County, as indicated by a mean of 2.08094 and SD=1.2395 The study also revealed that market was a problem, as they were sometimes unable to convince customers to purchase their products. According to Martin et al., (2012), beekeeping necessitates not only a physical structure such as a building and its associated costs, but also skilled management and financial investments. The respondents indicated that the market rate of honey products favorable and the farmers were being exploited by the middlemen.

5.2.4 Farmers Training

Farmers training play a vital role on performance of honey processing in Kitui County. A mean of 2.2348 and SD=1.1177 indicated that beekeepers must find their own distinctive way of dealing with bees and develop a suitable plan on bee keeping. The respondents indicated that every farmer should know their unique bee keeping style which improve performance of honey processing projects in Kitui County. This assertion is in line with Aksoy (2018), who found a link between the number of days of beekeeping instruction and honey yields and beekeeping income. This gap in the effects of training and extension services illustrates that the length, delivery, and substance of beekeeping education can be beneficial to beekeepers' outcomes, but it can also be insufficient and ineffective. Farmers lacked the abilities to accomplish their day-to-day duties, according to the interviewees, because training was not considered vital.

5.3 Conclusions

The respondents believed that technology has an impact on the performance of honey processing plants in Kitui County. The study revealed that farmers lacked modern technology to conduct bee keeping activities and this affected their projects.

Credit access affects performance of honey processing projects in Kitui County. The respondents indicated that bank and micro finance institutions required collateral to facilitate processing of loan.

The study indicated that market demand affected performance of honey processing projects in Kitui County. The study revealed that involvement of middlemen was the biggest threat since farmers could not get direct access to the market.

In regards to farmers training, the respondents stated indeed it affect performance of honey processing projects in Kitui County. The respondents indicated that training was never conducted and thus farmers lacked adequate skills to perform their duties.

5.4 Recommendations

The study recommends that the Kitui county government should come up with strategies to improve bee keeping activities in the organization. The farmers which adopt modern technology which will improve honey production. The county government should organize training programs for the farmers which will assist the farmers improve their bee keeping activities. The county government should come with strategy to finance farmers through which they should provide funds which are meant for agriculture.

Collection centers should be constructed and the county government should ensure that access to market for honey product is made available on time. The middle men who exploit farmers should be eliminated by the county government and farmers should have direct access to the market.

The research specifically proposes that the county government give institutional support for beekeeping awareness programs and infrastructure improvements. The county government can also assist with training programs by offering free beekeeping training through its agriculture experts or by collaborating with other educators.

5.5 Suggestions for Further Studies

The study was limited to performance of honey processing in Kitui Government specifically in two sub counties. The study recommends other studies should conducted in other Kitui Sub county which were not covered in this study and come up with challenges which affects bee keepers.

There is a need for more research into how socio-ecological factors influence the number and quality of honey bee floral resources across land areas.

The study should be carried in wet regions since the carried study was carried under arid and semi-arid regions and research on factors influencing bee keeping in the regions.

5.6 Contribution to the Body of Knowledge

The study has shown that honey processing in Kitui play a very crucial role to the farmers. Through adoption of modern technology, the farmers will be able to maximize their returns. The bank and micro financial institutions should not request additional security. Banks should offer loan to farmers based on their current collateral. Through elimination of middle men farmers will be able to get direct access to the market and thus no exploitation by brokers. Training of farmers through workshops and cinemas will ensure they are equipped with skills to perform their day today activities.

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APPENDICES
APPENDIX I: INTRODUCTION LETTER

Good Morning/Good Afternoon.

I'm working on determinants of production and performance of honey processing projects with reference to Kitui County. The findings of this research will only be used for academic purposes. The findings will never be attributed to any of the participants individually. Please share your honest thoughts.

I would be grateful if you could take part in the study. Your participation in the study will be chosen completely at random.

Signature: _____

Lilian Ngomo,
University of Nairobi

APPENDIX 1I: QUESTIONNAIRE

The goal of this Questionnaire is to gather information that will aid in the analysis of the factors that influence honey processing project production and performance in Kitui County: The confidentiality of the information provided by responders is assured, and it will only be used for academic purposes. Please check the corresponding box. The first section of the questionnaire contains background information, while the second section contains questions depending on the study's objectives.

SECTION I: BACKGROUND INFORMATION

1. Gender [ ]
   Female [ ]
   Male
2. Age of respondents (Years)
   Less than 24years [ ]
   25-29 years [ ]
   Over 30 years [ ]

3. What is your occupation apart from bee keeping practices
   Peasant farmer [ ]
   Trader [ ]
   Salaried employee [ ]
   Student [ ]
   Other (specify) [ ]

SECTION II: TECHNOLOGY ADOPTION

Kindly Indicate which technology you have adopted to improve the performance of honey processing based on the Likert scale

Technology Adoption	**1 SD**	**2 D**	**3 N**	**4 A**	**5 SA**
New technology adoption increases hive products					
Managerial skills are very vital to implement modern technologies.					
The ability of the farmer to grasp the advantages of new technology will determine the likelihood of adoption.					

High yield is not enough to encourage beekeepers to embrace a new technology.					
In order for new technology to be adopted, beekeeping must be profitable, or at least profitable in comparison to other options.					

SECTION III: CREDIT ACCESS

Credit Access	**1 SD**	**2 D**	**3 N**	**4 A**	**5 SA**
Costs charged on collateral security discourage borrowing.					
The loan is determined by adequate collateral.					
Loan repayment flexibility has an impact on the quantity of money that can be disbursed.					
Access to loans is influenced by government expenditures such as taxes and surplus levy.					
Borrowers who are deemed uncreditworthy are altogether denied loans.					

SECTION IV: MARKET DEMAND

. **Market demand**	**1 SD**	**2 D**	**3 N**	**4 A**	**5 SA**
Beekeepers get low returns as a result of selling raw honey					
Honey market in Kenya is no well diversified particularly in Kitui County.					
Honey products that have been refined have lower pricing, which helps to alleviate poverty.					
The number of middlemen in the market and the volume of crude honey arriving on a given trading day affect the price offered.					
Before investing in large-scale production, beekeepers need to know if there will be a market.					

SECTION V: FARMERS TRAINING

Farmers Training	**1 SD**	**2 D**	**3 N**	**4 A**	**5 SA**
In order to learn current beekeeping methods, beekeepers must first discover their own distinctive way of dealing with bees and then develop a suitable plan.					
Every trainee should be given time to get to know their unique beekeeping style					
For beekeeping training to be effective, it should preferably take the form of vocational education					
Farmers usually access Training facilities without any delay					

SECTION V: PERFORMANCE OF HONEY PROJECTS

Performance of Honey projects	**1 SD**	**2 D**	**3 N**	**4 A**	**5 SA**
The performance of honey projects depends on the financial skills acquired by farmers through training.					
Lack of adequate technology hinder honey processing projects in the county government					
Farmers have failed to meet the demand for honey due to lack capital to invest in honey production					
Economic factors sometimes affect honey production in the county					

Thank you for the participation

APPENDIX 1II: INTERVIEW

1. What are some of the factors which you consider to be affecting modern technology in bee keeping?.....
2. Do farmers attend training to improve their skills on bee keeping? Yes/No (Tick one)
3. List the economic factors which affect production of honey in the county?
4. Do you encounter any challenges when access loan to micro finance institutions? Yes/No
5. Does experience of farmers play a role in production of honey processing? Yes/No
6. How do you rate the prices of honey products in the market?
7. Does county government ensure production and processing of honey is county government is successful.
8. What is your suggestion on improvement of honey production in county government?
9. How can you rate farmers training on bee keeping in county government?
10. Which are your regular customers who buy your bee products?

Thank you for the participation