

**FACTORS THAT INFLUENCE PROFITABILITY OF POULTRY FARMING
ENTREPRISES IN KIRA TOWN COUNCIL, WAKISO DISTRICT - UGANDA**

By

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCES
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DECLARATION

I, **Yvonne Natukunda**, hereby declare that this dissertation is my original work and has never been submitted to any other institution for any academic award.

Signature.....

Yvonne Natukunda

Date:/...../.....

APPROVAL

This is to certify that **Yvonne Natukunda** conducted a study under my supervision and the dissertation entitled “**Factors that Influence Profitability of Poultry Farming Enterprises in Kira Town Council, Wakiso District**”, has been submitted with my approval for examination.

Signature:

Dr. Rose Namara (UMI Supervisor)

Date:/...../.....

DEDICATION

I dedicate this work to my husband for his endless financial and moral support, encouragement, guidance and patience; my family members for their love, care and endless support, which have enabled me to achieve my education and career goal.

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I wish to acknowledge all those who helped and guided me throughout this study. My sincere thanks go to my supervisor Dr. Rose Namara and the technical team at Uganda Management Institute for their unwavering support and guidance. I also thank the farmers and Key Informants who willingly and ably contributed to this study.

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TABLE OF CONTENTS

DECLARATION.....	i
APPROVAL	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xii
ABSTRACT.....	xiii
CHAPTER ONE	1
INTRODUCTION.....	1
1.1. Introduction.....	1
1.2. Background to the Study.....	1
1.2.1. Historical Background	1
1.2.2. Theoretical Background.....	5
1.2.3. Conceptual Background.....	6
1.2.4. Contextual Background.....	7
1.3. Statement of the Problem.....	9
1.4. General Objective of the Study.....	10
1.5. Specific Objectives	10
1.6. Research Questions	10
1.7. Research Hypothesis	10
1.8. Conceptual Framework	11

1.9.	Scope of the Study	12
1.10.	Significance of the Study	12
1.11.	Justification of the Study	13
1.12.	Operational definition of Terms and Concepts	14
CHAPTER TWO		16
LITERATURE REVIEW		16
2.1.	Introduction.....	16
2.2.	Theoretical Review	16
2.3.	Feeds and Profitability	17
2.4.	Poultry Diseases and Profitability.....	19
2.5.	Knowledge and Profitability	22
2. 6.	Summary	23
CHAPTER THREE		25
METHODOLOGY		25
3.1.	Introduction.....	25
3.2.	Research Design.....	25
3.3.	Study Population.....	25
3.4.	Sample Size.....	26
3.5.	Sampling Techniques and Procedure.....	26
3.6.	Data Collection Methods	27
3.7.	Data Collection Instruments	27
3.7.1.	Questionnaires.....	27
3.7.2.	Interview Guides	27
3.8.	Validity and Reliability.....	27

3.8.1. Validity	28
3.8.2. Reliability.....	29
3.9. Procedure of Data Collection.....	29
3.10. Data Analysis	29
3.10.1. Quantitative Data Analysis	29
3.10.2. Qualitative Data Analysis	30
3.11. Measurement of Variables	30
CHAPTER FOUR.....	31
PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA.....	31
4.1. Introduction.....	31
4.2. Response Rate	31
4.3. Respondents' Profile.....	32
4.3.1. Gender of Respondents	32
4.3.2. Number of Years spent in Poultry Farming.....	33
4.3.3. Training in Poultry Management	34
4.3.4. Size of the Stock of Birds	35
4.3.5 Type of Birds Preferred by the Famers and Profitability.....	36
4.4. Poultry Feeds and Profitability in Poultry Farming.....	37
4.4.2. Descriptive Statistics on Profitability in Poultry farming	41
4.4.3. Testing the First Hypothesis	127
4.5. Poultry Diseases and Profitability.....	142
4.5.1. Poultry Diseases.....	142
4.5.2. Testing the Second Hypothesis	145
4.6. Farmer's Knowledge and Profitability.....	146

4.6.1. Farmers' Knowledge.....	146
4.6.2. Testing the Third Hypothesis.....	149
CHAPTER FIVE	151
SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.....	151
5.1. Introduction.....	151
5.2. Summary of Major Findings	151
5.2.1. Feeds and the Profitability of Poultry Enterprises	151
5.2.2. Poultry Diseases and the Profitability of Poultry Enterprises.....	152
5.2.3. Famer's Knowledge and the Profitability of Poultry Enterprises	153
5.3. Discussions	153
5.3.1. Feeds and the Profitability of Poultry Enterprises	153
5.3.2. Poultry Diseases and the Profitability of Poultry Enterprises.....	155
5.3.4. Famer's Knowledge and the Profitability of Poultry Enterprises	157
5.4. Conclusions.....	158
5.4.1. Feeds and the Profitability of Poultry Enterprises	159
5.4.2. Poultry Diseases and the Profitability of Poultry Enterprises.....	159
5.4.3. Famer's Knowledge and the Profitability of Poultry Enterprises	160
5.5. Recommendations.....	160
5.5.1. Feeds and the Profitability of Poultry Enterprises	160
5.5.2. Poultry Diseases and the Profitability of Poultry Enterprises.....	160
5.5.3. Famer's Knowledge and the Profitability of Poultry Enterprises	161
5.6. Limitations of the Study.....	161
5.7. Contribution of the Study.....	162
5.8. Areas for Further Research	162

REFERENCES..... 163

APPENDICES i

Appendix I: Questionnaire i

Appendix II: Interview Guide to Key Informants..... i

Appendix III: Letter from Uganda Management Institute i

LIST OF TABLES

Table 4.3.1: Gender of the respondents	32
Table 4.3.2: Years in poultry farming	33
Table 4.3.3: Undergone training in poultry management	34
Table 4.3.4: Size of the stock of birds	35
Table 4.4.1: Descriptive statistics of poultry feeds	37
Table 4.4.2: Descriptive statistics of profitability on poultry enterprises	41
Table 4.4.3: Correlation between feeds and profitability	44
Table 4.5.1: Findings on poultry diseases	45
Table 4.5.2: Correlation between poultry diseases and profitability	48
Table 4.6.1: Descriptive statics of farmers' knowledge	50
Table 4.6.2: Correlation between farmers' knowledge and profitability	52

LIST OF FIGURES

Figure 1: Conceptual framework11

LIST OF ABBREVIATIONS

AI	Avian Influenza
FAO	Food and Agricultural Organization
FCR	Feed Conversion Ratio
HPAI	Highly Pathogenic Avian Influenza
KI	Key Informants
LGAs	Local Government Areas
NAADS	National Agricultural Advisory Services
ND	Newcastle Disease
SPSS	Statistical Package for Social Scientists
TOC	Theory of Constraints
UBOS	Uganda Bureau of Statistics

ABSTRACT

The study aimed at investigating factors that influence profitability of poultry farming enterprises in Kira Town Council. Factors were feeds, diseases and farmers' knowledge. This was a correlation study, which applied both qualitative and quantitative approaches. The study population comprised farmers and Key Informants. Quantitative data was collected using a questionnaire following a 5-likert scale and qualitative data was collected using interview guides. Data was analyzed using different statistical techniques which included descriptive statistics mainly mean and standard deviation, Pearson Product Moment Correlation coefficient to establish a causal influence of factors on profitability of poultry enterprises. The study established that the three factors (feeds, poultry diseases and a farmer's knowledge) were strong predictors of profitability. Multiple regression results revealed that farmers' knowledge has the strongest influence on profitability, followed by poultry diseases and then feeds. Major recommendations from the study were that Government should try to subsidize inputs on feeds and feed additives. Government could ensure that farmers get easy access to extension workers, such that delays in treating birds reduce, hence limiting the mortality rate. Farmers should also form farmers' associations to share their views, look for markets and get more information concerning poultry farming. In addition to that, farmers should take record keeping seriously so that they get to know their costs, output and be able to determine whether they are making profits or losses.

CHAPTER ONE

INTRODUCTION

1.1. Introduction

Poultry egg and meat are important sources of high quality proteins, minerals and vitamins to balance the human diet. Poultry is a convenient livestock for small farms and for family subsistence, because of the relatively small size of individual birds. Eggs in their natural state are less perishable than meat and dairy products, and may be processed in many ways for safe storage and transportation (Animal Planet, 2008). This research intended to assess factors that influence the profitability of poultry farming enterprises in Kira Town Council, Wakiso District. Factors in this study were conceived as the independent variable while profitability was the dependent variable. While several factors have been documented to account for the profitability of poultry farming enterprises, this study only focused on feeds, poultry diseases, knowledge and skills as documented from the works of (Byarugaba, 2007). This chapter presents the background to the study, statement of the problem, purpose of the study, objectives, research questions, hypotheses, conceptual framework, significance, justification, scope, operational definitions of terms and concepts.

1.2. Background to the Study

1.2.1. Historical Background

In the last few years, agricultural production has experienced significant development due to an increasing demand for food by the growing population (FAO, 2010). The demand has called for the need to intensify some agricultural sectors such as poultry farming, which would have been catering for the growing population but rather had minimal attention. Globally, a number of

researchers have noted the importance of poultry farming and factors that affect its profitability. Wintle and Lepper (2011) provided a history of the poultry industry in New Zealand that Missionaries in the Bay of Islands were the first recorded poultry farmers in 1814. Many early settlers had a few chickens in the backyard to supply eggs at that time. Chicken meat was a luxury, eaten perhaps only once or twice a year. Domestic poultry also included ducks, geese and turkeys, but chickens were by far the most popular and numerous. The intensive system, where birds were kept indoors throughout their productive life, was first used in 1915 and soon became the most widespread.

Wintle and Lepper (2011) added that in the early 1900s, half of New Zealanders kept hens for eggs in their backyard. The authors reported that today, the country's hens produce 83 million dozen eggs – most of them consumed locally. “The poultry industry is booming, but it is not without its issues and debates. Feed makes up 60–70% of the total cost of producing eggs. The remaining costs relate to livestock housing and care, and egg processing, packaging, storage, distribution and marketing”. [http://www.TeAra.govt.nz/en/poultry-industry/1/1,\).](http://www.TeAra.govt.nz/en/poultry-industry/1/1,)

Animal Planet (2008) provided that modern poultry industry began in the late 19th century in Europe and America as breeders began to stress meat and egg production. Although eggs were artificially incubated in ancient China and Egypt, this method of hatching poultry was not used on a commercial scale until the 1870's. The first college department of poultry husbandry was established in 1901 at the Connecticut Agricultural College (now the University of Connecticut). Discoveries and inventions relating to the scientific housing, feeding, and breeding of poultry led to the rapid expansion of the industry after the 1930's. Production and consumption of poultry products increased markedly during World War II when meat from other livestock was scarce.

Since 1945, improved methods of storing and distributing poultry meat and eggs have helped stimulate consumption of these foods. Today, millions of chickens and turkeys are raised on farms and they outnumber their wild relatives. <<http://animals.howstuffworks.com/birds/poultry-info.htm>>.

According to (Mehta & Nambiar, 2007, p2), India whose poultry industry represents a major success story was largely a backyard venture before the 1960s. The authors observed that poultry industry has been transformed into a vibrant agri-business, and today India is the third largest egg producer in the world (after China and the United States of America). A worrisome feature of the accelerated growth and the ongoing structural change seems to be its potential impact on the future of small and marginal producers. While several studies on the theme have contended that vertical coordination in agricultural supply channels help to lower the transaction costs and market risk of smallholders, it has proved difficult to support the contention in the case of poultry.

In Uganda, poultry has existed from time immemorial and it has been part of the culture. Poultry production was comprised of chicken as the main type of poultry. There were other species, including, turkeys, and guinea fowls, ducks, pigeons, geese and ostriches (Byarugaba, 2007). Byarugaba described that poultry production in the country was conveniently categorized into two; namely; commercial or free-range unlike the FAO categorization principally based on bio-security levels.

Variations among these two systems were common in terms of numbers, types of birds, bio-security and management. The commercial system was mainly used to refer to production with improved hybrid breeds, recently also with local breeds, under intensive confined management

of uniform stocks and age-groups primarily for commercial purposes (Byarugaba, 2007, p5). From the historical understanding of the researcher in this study, chickens used to be reared in small quantities since some families acquired them as gifts, or bought one or two for special functions and cultural testimonies. It was evident that majority of the interested farmers would take pride in having some of their chickens lay eggs and leave them to hatch for multiplication. These later started working as a source of income especially in special seasons such as Christmas and New Year. According to the Wikipedia, Uganda's poultry industry was growing rapidly by the late 1980s, relying on imported chicks from Britain and Zambia. Several private companies operated feed mills and incubators. The major constraint to expanding production was the lack of quality feeds, and the government hoped that competition among privately owned feed mills would eventually overcome this problem. In 1987 the Arab Bank for Economic Development in Africa, the Organization of Petroleum Exporting Countries, the International Development Bank, and the Uganda government funded a poultry rehabilitation and development project worth US\$17.2 million to establish hatchery units and feed mills and to import parent stock and buy chicks.

Byarugaba (2007) gave that the high growth rate of the Ugandan population and increases in urban migration had increased demand for food. These factors had put pressure on land, resources for food production and other necessities. This led to a focus on farming systems and enterprises that maximized yield per unit area and poultry production had been identified as one of the enterprises that fell within this category. He however noted that the marketing of poultry in Uganda was not streamlined. He emphasized that development of the commercial sector is also still limited by occurrence of diseases, expensive feeds and inefficient management.

1.2.2. Theoretical Background

This study adopted the Theory of Constraints developed by Goldratt (M.Goldratt, Cox, & Whitford, 1986), which was initially applied to production scheduling and later to various areas such as Operations, Finance and Measures, Project Management, Marketing, Sales, Managing People, Strategy and Tactics. However, these applications were in engineering industries and products. “The strategic thinking processes of (TOC) Theory of Constraints were designed to help combat an enormous problem faced by organizations-the tendency of organizations and their management to study, construct and implement solutions in isolation”. Chaudhari and Mukhopadhyay (2010) explained that the Theory of Constraints' Strategic Thinking Process was applied in one of the leading integrated poultry businesses in India to identify and overcome the policy constraints in the business and therefore, recommended it for other researchers. After overcoming the policy constraints, overwhelming improvements in through put and Inventories were observed, the authors reported.

TOC is a management philosophy developed by Goldratt in 1984 in a series of books and articles. It is a systems approach based on the assumption that every organization has at least one factor that inhibits the organization's ability to meet its objectives. The normal objective for a business is to maximize profit. TOC emphasizes the maximization of profit by ensuring that the factor that limits production is used most efficiently (Bushong & Talbolt, 1999). The TOC applies the cause-and-effect thinking processes used in the hard sciences to understand and improve all systems particularly, organizations (Mabin & Balderstone, 1999). This study used the TOC to help the researcher understand the interdependencies between and across processes that contribute to delivering poultry products and services; and understand their impact on the overall profitability of poultry farming enterprises. Overall, the TOC emphasized fixing the

weakest link in the chain of the system constraint and temporarily ignoring the non-constraints. In this way, the theory had a profound impact on process improvement. Rather than spreading limited time, energy, and resources across an entire system (which may or may not result in tangible results), teams focused on that part of the system with the potential to produce immediate system improvement (Marton & Paulova, 2010). This gave justification for the researcher's selection of a few factors (feeds, poultry diseases and knowledge) among the so many listed by different authors, which were investigated in this study on how they influence profitability of poultry farming enterprises.

1.2.3. Conceptual Background

The key concepts in this study were: Poultry farming, factors and profitability.

Poultry farming was referred to as raising birds commercially or domestically for meat, eggs, and feathers. Chickens, ducks, turkeys, and geese are the birds of primary commercial importance. Guinea fowl and squabs are chiefly of local interest (Garrigus, 2011).

According to the Random House Kernerman Webster's College Dictionary (2010), a factor refers to one of the elements contributing to a particular result or situation. Collins English Dictionary (2003) defines a factor as an element or cause that contributes to a result. According to (Amos, 2006), factors affecting the production of poultry (broilers and layers) in Nigeria included age of poultry producer, cost of feeding and veterinary cost, while for broilers they included production experience. In relation to that, (Byarugaba, 2007) also gave the following as key constraints to the poultry industry in Uganda. Breeding, feeds and feeding, poultry diseases, lack of knowledge and skills, inadequate capital, marketing, power supply, availability of factory logistics and infrastructure.

Hofstrand (2009) while talking about understanding profitability refers to it as either accounting profits (net income) or economic profits. “People often mistakenly believe that a profitable business will not encounter cash flow problems. Although closely related, profitability and cash flow are different. An income statement lists income and expenses while the cash flow statement lists cash inflows and cash outflows. An income statement shows profitability while a cash flow statement shows liquidity”.

1.2.4. Contextual Background

Poultry that are well fed managed to grow well, resisted diseases better, and produced to the best of their genetic potential. Feeds form 60-70% cost of production in any poultry enterprise on optimum management. Where costs of feeds are not controlled, their expenses can go up to 90% of total cost of poultry production (Eneku, 2012). Poultry feeds emerged as one of the biggest challenges farmers face and this was in terms of cost, quality and availability. Mayanja (2012) reported in the Campus journal of 23rd August 2012 – “it is disheartening to learn that as a country Uganda is soon surrendering the few remaining jobs in the poultry industry to foreigners due to the adulteration of chicken feeds on the Ugandan market”.

The obvious malpractices by traders included adding sand to fish meal (“mukene”) and oyster shells, lower quantities of feed other than the stated labels on bags and poor preservation with consequent deterioration in nutrient content. These were done to reduce cost of processing feeds, increase the weight and maximize profits without considering the losses farmers incurred. Unfortunately, there was no active regulatory body at the time of this study that routinely checks quality and quantity of these feeds in the market so as to protect farmers from unprofessional conducts in feed trade. The unstable cereal production and frequent changes in feed prices could greatly affect the feed industry. For example, the price of maize bran, the bulk feed in a poultry

ration in Uganda rose from Shs.250 in August 2011 to Shs.1500 in April 2012 where it stabilized around the same price for four months (Eneku, 2012). This greatly affected return on investment in poultry and many breed multipliers were forced to destroy chicks as farmers were no longer buying around the period of showering feed prices.

Harris (2008) gave a report by Mr. Donohue that feed costs were always a significant issue in the poultry industry, and that had especially been the case over the past year. Mr. Donohue mentioned that costs were rising steadily, and he predicted that the cost per bushel of corn could reach \$5.65 to \$5.75 by May 2012. “The average live production cost of broilers recently surpassed 35 cents and could easily reach 38 to 40 cents in the next few months with little prospect of relief”, he added. According to Altahat et al., (2012), higher prices of purchased or breeding pullet, higher feed price, higher cost of labor, higher cost of veterinary service and medicine, higher other costs including building and machinery depreciation, repairs and maintenance and miscellaneous costs, higher feed quantity to be converted to eggs and higher mortality rate were associated with lower profitability of laying hen enterprises.

The situation described above clearly indicated the need to investigate further into the factors that influence profitability of poultry farming enterprises. It raised the question of whether there were alternative measures being put in place to ensure a stable improvement or progress in the productivity of poultry enterprises. The TOC applied the cause-and-effect thinking processes used in the hard sciences to understand and improve all systems particularly, organizations (Mabin et al., 1999). This study therefore, looked at poultry enterprises of broilers and those of layers in Kira Town Council, since very little was known or had been documented concerning the area in this regard. Individual farmers and well established poultry enterprises were interviewed to assess the factors influencing their profitability.

1.3. Statement of the Problem

The main reason for investment into poultry farming is always to get profit, but what becomes the end result remains an issue. Poultry farming is being promoted as one of the choice enterprises for income generation, protein source and socio-cultural functions. Due to poultry's flexibility, requiring small space compared to other enterprises, being feasible in urban and peri-urban areas, the government has tried to encourage the unemployed and low income earners to partake poultry farming (FAO, 2010).

Despite the fact that several factors influencing poultry profitability have been documented worldwide by a number of researchers, the industry has still performed poorly with farmers left helpless and discouraged. Wasake (2011) in his analysis on investment in the poultry sub sector in Uganda reported that the high feed situation is pretty serious and from recent news many Ugandan poultry farmers were driven out of business. Sarwar (2012) in his study reported that the poultry industry was facing many challenges, the most important threats being the Newcastle disease and avian influenza viruses that have adversely affected the investment and growth rate of poultry industry in many countries.

However, no specific study had been carried out to identify the factors that influence profitability of poultry farming enterprises in Kira Town Council, yet this situation should be addressed or else stability of the poultry industry will remain a hassle.

1.4. General Objective of the Study

The general objective of this study was to assess factors that influence profitability of poultry farming enterprises in Kira Town Council, Wakiso District.

1.5. Specific Objectives

- i. To investigate the influence of feeds on profitability of poultry farming in Kira Town Council.
- ii. To analyze the influence of poultry diseases on profitability of poultry farming.
- iii. To assess the influence of a farmer's knowledge on profitability of poultry farming in Kira Town Council.

1.6. Research Questions

- i. What is the influence of feeds on profitability of poultry farming in Kira Town Council?
- ii. What influence do diseases have on profitability of poultry farming in Kira Town Council?
- iii. What influence does a farmer's knowledge have on profitability of poultry farming?

1.7. Research Hypothesis

- i. Feeds influence the profitability of poultry farming enterprises.
- ii. Poultry diseases influence the profitability of poultry farming enterprises
- iii. A farmer's knowledge influences profitability of poultry farming enterprises.

1.8. Conceptual Framework

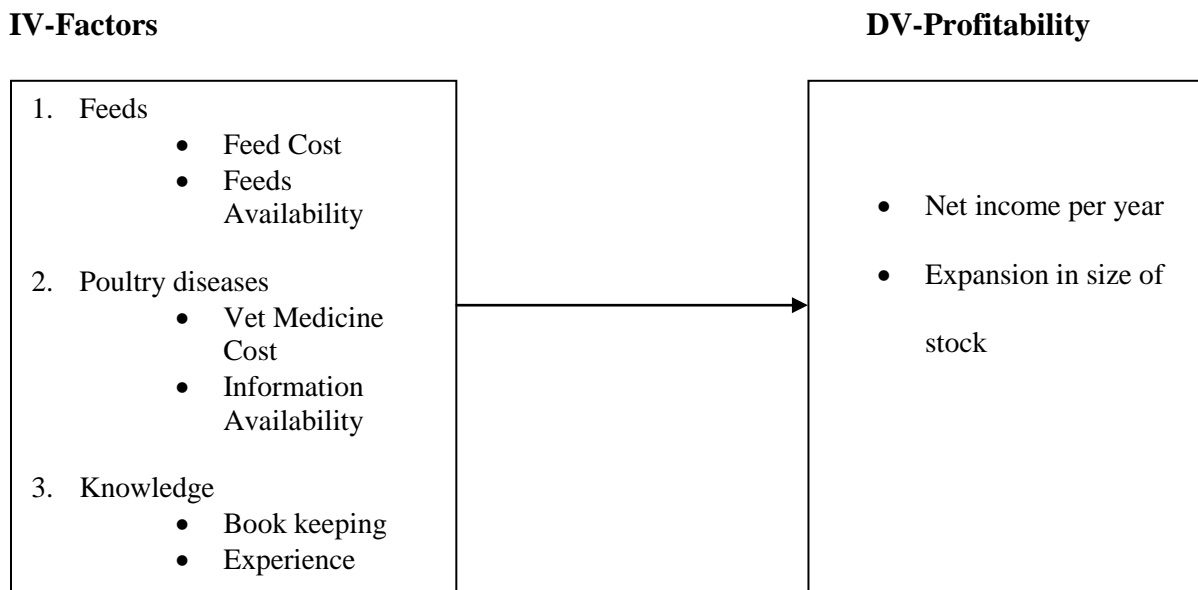


Fig.1: A Conceptual Framework showing the relationship between profitability and factors that influence poultry farming enterprises.

Source: Adapted & modified by the researcher from Simatupang, Wright and Sridharan (2004), Theory of Constraints.

The conceptual framework in figure 1 indicated factors that influence profitability of poultry farming enterprises. It also portrayed the relationship by showing the link of one variable to another and how they influence profitability. The independent variable was factors and profitability was the dependent variable. The reason why the two variables were chosen was to see the relationship that exists between them. Therefore, factors on profitability were measured through feeds, poultry diseases and a farmer's knowledge, while profitability by net income per year and expansion in size of stock. Profitability should improve if the factors above are dealt with. It was conceptualized from the framework that there was a correlation between the factors and profitability.

1.9. Scope of the Study

The study on factors that influence profitability of poultry farming enterprises was conducted in Kira Town Council, Wakiso District - Central Uganda. Wikipedia (2012) provided that Kira Town is an Urban Local Government within Wakiso District Administration, in the constituency of Kyadondo East with an estimated population of 140,774 people, according to the census of 2002. In 2011 the Uganda Bureau of Statistics (UBOS) estimated the population of the town to have increased to about 179,800. Kira town is bordered by Gayaza to the North, Mukono town to the East, Lake Victoria to the South, the city of Kampala to the West and Kasangati to the Northwest. The town lies approximately 17 kilometers northeast of the central business district of Kampala capital city. The town has six administrative units (wards) and these include Kira, Bweyogere, Kirinnya, Kireka, Kyaliwajjala and Kimwaanyi.

The study considered a period of 5 years from 2009 to 2013, because the researcher was interested in farmers who had spent a minimum of 2 years in poultry farming, considering even those who were not with stock at the time of the study but had been farmers within the period of interest to get the status of current trends. A total of 106 farmers were interviewed from 6 wards in Kira. In addition, 4 Key Informants were purposively selected and interviewed. Structured questionnaires and interview guides were used. The study was specifically seeking to understand the factors that influence profitability of poultry farming enterprises and document recommendations to address the challenges at hand, in Kira Town Council.

1.10. Significance of the Study

The study results avail career information to prospective students of management studies. The results enrich research knowledge on poultry farming and enable easy access for students at college and University levels to nurture their careers, by giving them relevant and current

information. The results inform prospective farmers about challenges faced by the poultry industry and this should influence proper planning for the future. The results are also expected to influence the Government of Uganda to make some policy changes regarding market regulations, for the poultry industry to grow. Lastly the study improved on the skills, knowledge and academic qualification of the researcher.

1.11. Justification of the Study

Baajaja (2012), reported in the Okaz newspaper that another reason for the price hike — as the minister of agriculture recently pointed out — was an increase in the prices of poultry feed. He quoted the Minister saying that the price of wheat reached \$400 and maize was going for a similar price. Both of these grains were major poultry feeds and represented more than 65 percent of the cost of poultry farming. “Hence the question, why didn’t we establish new poultry farms in the pattern of the existing ones? Since poultry farms are profitable projects in view of the continuous and consistent demand for the products of egg laying hens, broiler chickens and eggs, we are in need of more local poultry industries to meet the growing demand for white meat”. Byarugaba (2007) provided that key constraints regarding the feeding of poultry were feed availability, feed quality and feed costs.

A few studies had established the factors that influence the profitability of poultry farming enterprises in Uganda. Yet, the poultry industry has been key in availing alternative sources of protein to the growing population, creating jobs for the unemployed and low income earners and even providing manure for other agricultural sectors. Amos (2006) provided that poultry production was one of the most promising sources of addition income to family earnings and increased household protein intake and quick return from micro level investment in Nigeria. The

Poultry Sub Sector Analysis Report (2006) provided that poultry development was considered by some community based organizations as a potential candidate activity for income generation among the poor and marginalized groups' especially rural women many of whom owned a few chickens.

Poultry is one of the important sectors, which can provide more earnings if this industry is properly organized and supported. This study unearthed the real situation of poultry sector in Kira Town Council and the findings provided useful information on this so often neglected but important industry. At the time of this study, there were no studies detailing the factors that influence profitability of poultry farming enterprises in Kira Town Council, Wakiso District.

1.12. Operational definition of Terms and Concepts

The key terms and concepts in this study were: Poultry farming, profitability, enterprise, farmers, mukene, commercial poultry farming, farm and Net income.

Poultry farming: Poultry farming in this study was regarded as the raising of domesticated birds, in this case chickens (layers and broilers) for purposes of farming meat or eggs for food and financial gains.

Profitability: Profitability in this study meant the ability of a farm/enterprise to earn an extra income after all expenses have been made and/or be able to expand. It was based on the farmers' expression.

Enterprise: An enterprise in this study was an industrious, systematic activity, which was meant or perceived as directed toward profit.

Farmers: A farmer in this study referred to a person engaged in keeping chickens for meat and or eggs, meant for commercial gains.

Mukene: Mukene is a local name for Silver fish in Uganda. In this study, it was one of the chicken feed components.

Commercial Poultry Farming: This meant farming characterized by complete indoor housing system with commercial feeds from either feed suppliers or mixed by farmers themselves.

Farm: In this study, a farm meant premises with one or more poultry houses under common management, including company-owned and contract farms.

Net income: Net income referred to the amount in cash, a poultry enterprise earned after investing, running the business, paying all of its' bills, and remaining with some money to make more money e.g. buying buildings, equipment, inventory, etc.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter presents a review of related literature on factors that influence profitability of poultry farming enterprises in Kira Town Council, Wakiso district – Uganda. The first section explores general literature on feeds and how they influence the profitability of poultry farming enterprises. The second section analyses the influence of poultry diseases on profitability of poultry farming enterprises and the third section explores the extent to which the farmer's knowledge affects profitability of poultry farming enterprises.

2.2. Theoretical Review

The Theory of Constraints which guided this study assumes that every organization has at least one factor that inhibits the organization's ability to meet its objectives. In a case study carried out by (Chaudhari & Mukhopadhyay, 2010), the authors applied the Theory of Constraints' Strategic Thinking Process in one of the leading integrated poultry businesses in India to identify and overcome the policy constraints in the business. The authors reported that after overcoming the policy constraints, overwhelming improvements in through put and inventories were observed. However, the theory did not recognize that in most situations the constraining factors may be more than one and if all of them are not addressed, the expected results cannot be achieved.

The Theory of Constraints guided the researcher in this study to identify the most constraining factors, considering how respondents shared their experiences. It was helpful to this study because the independent variables of feeds, diseases and farmer's knowledge had a role to play

in influencing the profitability of poultry enterprises. If the most restraining factor identified in this study is worked on, farmers should be able realize profits.

2.3. Feeds and Profitability

Poultry feeds are referred to as "complete" feeds, because they are designed to contain all the protein, energy, vitamins, minerals, and other nutrients necessary for proper growth, egg production, and health of the birds (Smith, 1914). According to Altahat et al., (2012) feed price was found to be the factor which has the highest negative impact on profitability. This was also asserted by (Welch, 2012) that, “the price of corn began to rise in 2006, and since then, the broiler chicken industry alone had to spend an extra \$22.5 billion in higher feed costs”, putting companies under severe financial stress, pushing some out of business and causing others to reduce production. In agreement with the above authors, (Yegani, 2012) reported in the World Poultry Magazine, that feed cost and continuous efforts to get a better understanding of available alternative feed ingredients has been one of the biggest challenges faced by the poultry industry. Kyesimira and Batte (2011) provided that notwithstanding the price of maize bran, the country has also been hit by the scarcity of mukene, which phenomena has been attributed to depleting fish in Uganda's fresh water sources making the commodity very expensive due to high demand.

Al-Masad (2010) investigated factors affecting profits of broiler industry in Jordan using a quantitative approach, and a profit function regression model as a decision support tool in commercial broiler production. In the author's field observations, the most important factors affecting profit in the study were the price of feed and feed conversion rate. Bandara and Dassanayake (2006) conducted a similar study in major broiler production areas in Sri Lanka and data was collected from 120 broiler rearing farmers. The authors used the profit function

regression model as a decision support tool in small scale commercial broiler production and observed that the most important factors affecting profit in their study were the feed conversion ratio and the price of feed. The authors also found that except the cost of labor all the other factors were significant in the model and thus were the determinants of profitability. “The effect of feed price also has a great impact on profitability because feed price was varying according to the brand, purchased amount, the distance between the farm and the market and the dealer”, they asserted.

Amos (2006) carried out an analysis of Backyard Poultry Production in Ondo State, Nigeria using multistage sampling technique to select the respondents. Firstly, two Local Government Areas (LGAs) namely Ondo West and Owo LGAs were purposively selected because of the large population of poultry producers in the area. Secondly, random sampling technique was used to select the respondents (Poultry farmers). Forty-six poultry farmers (Twenty-three layers and twenty-three broiler farmers respectively) were randomly selected in each LGA. A set of 23 questionnaires was administered to layer farmers and another set of 23 to broiler farmers from each LGA making a total of 92 questionnaires. Primary data were collected through the use of structured questionnaire and interview schedule administered to the poultry producers selected in the study area. The study revealed that Cost of feed had a negative coefficient which meant that the higher the output the lower the cost of feeding per bird. The researcher implied that the cost of feed per bird for large flock will be lower compared to cost of feed per bird for small flock especially if the feed is purchased in bulk directly from the depot and fed to the birds according to prescription. However, the author did not consider the fact that most farmers may not have the capacity to purchase in large quantities and that is why the researcher will stratify farmers according to flock size in this study, to establish the actual problem.

Chandrakumarmangalam and Vetrivel (2011) carried out an analysis on factors influencing production and profitability of Poultry Eggs in Tamilnadu – India. Approximately 200 poultry farm entrepreneurs were interviewed. The researchers selected probability-sampling method, under which stratified techniques were used. Their findings from the industry data in Namakkal district were evident that number of farms closed in the period 1995-2001 was 1200 and new farms opened in the same period were 150. The reason behind that small size was that farms were unable to withstand the rise in feed cost and other working capital expenditures. Limitations of the study were that: Estimation of the total profit/loss for the previous years was difficult. Most of the farmers do not keep correct accounts of their receipts and expenditures or any other statistical data. Most of them are given by the respondents only from their memory which may not be accurate.

However, all the authors failed to address the issue of possible alternative measures to availability of cheap feeds for the poultry enterprises apart from Amos (2006) who concluded that for farmers to avoid high expenditure on feeds, they need to stock flock in large quantities. In addition to that, the authors used different methods and sample sizes to collect the data and this makes it difficult for one to conclude on one factor or the other.

2.4. Poultry diseases and profitability

According to (Poultry sub sector analysis report, 2006), the major disease that severely affects traditional small-scale poultry production is Newcastle Disease (ND), the highly infectious viral disease. “The extremely high mortalities reported for ND is a major factor that discourages peasants from investing much of their time and scarce resources in expanding flock size”. The report provided that there was a general lack of extension and veterinary services but almost 90%

of the farmers described their chicken having suffered clinical symptoms consistent with Newcastle Disease (ND), Infectious Bronchitis (IB), diarrhea and Infectious Coryza (IC). According to the same report, there was a close relationship between the prevalence of diseases, poor poultry management, and the associated technical problems. The lack of well organized veterinary services was a major constraint to the commercial production of indigenous chicken.

Byarugaba (2007) agrees with the poultry sub sector analysis report, that there are variations in numbers of birds during the year because of the occurrence of certain diseases such as Newcastle disease, which wipes out 60-100% of them when it strikes. He argues that farmers therefore, sell many of the birds prior to such disease occurrence in order not to incur losses during outbreaks. The Poultry Sub Sector Analysis Report (2006) recommended that some of the technical constraints could be overcome by the provision of training and extension services. However, (Byarugaba, 2007) differed from the report mentioning another constraint to disease control that the laboratory diagnostic facilities are not available in up-country areas and where they are available, they are expensive. "In addition, there are very few extension workers trained and skilled in the diagnosis and treatment of poultry diseases", he emphasized.

On the other hand, (Grepay, 2009) analyzed the main factors affecting poultry production in Libya and provided that veterinary health care for chicks is one of the most important factors affecting poultry production. He observed that the periodical veterinary control is necessary to discover any kind of poultry diseases early. In disagreement with the above authors, Windhorst (2007) reporting on changes in poultry production and trade worldwide in the *World's Poultry Science Journal*, argued that outbreaks of Avian Influenza impact on production and consumption, resulting in serious financial problems of major producers and new spatial patterns of production and trade flows.

State, Birungi and Haan (2009) in their report on the role of poultry in peoples' livelihoods in Uganda; examined how local poultry livelihoods are organized, procured and executed under the shock of Highly Pathogenic Avian Influenza (HPAI). The populations for this study were household members in randomly selected villages in five districts. Some of the farmers interviewed, did not possess chickens at the time, but participated in the study because they had lost their entire chicken stocks during the previous six months, following an outbreak of Newcastle disease (ND). Most respondents from both the survey and FGDs noted that their poultry farming had decreased (52.9 percent) over the last ten years, but 30 percent claimed it had increased. Among the explanations for decreased poultry were diseases which are a major challenge for rural populations. The reasons given for decrease were that households are close to each other, there are more outbreaks of diseases, including new diseases, and veterinary services are lacking, while rural subsistence farmers cannot afford private services. The study noted that people have knowledge about poultry diseases and how they are spread, however there was need for public education on the dangers of poultry disease outbreaks and the good practices that can minimize their effects, through posters, radio messages, information for local leaders, and more accessible veterinary services for rural farmers. "The capital available to farmers is therefore reduced, especially when birds die, and the disease outbreak brings poverty to the household, because there is no physical capital to convert into financial capital".

State, Birungi and Haan (2009) recommended that, given the severity of disease outbreaks and their impacts on people's livelihoods and poultry, there should be interventions in poultry livelihoods in Uganda, public information and education programmes on poultry production, Institutional reform, bringing the poultry sector into the forefront of national poverty reduction strategies, increased investment in research and development. According to Amos (2006)

Veterinary cost had a negative coefficient, implying that the average cost of vaccination for large flock was lower than average cost of vaccination per bird for small flock. However, some literature such as the (Poultry sub sector analysis report, 2006) did not clearly bring out the sample size and design that were used to come up with their conclusions and recommendations in their studies. This makes it difficult to compare their results with those of other researchers and draw a conclusion on whether poultry diseases influence the profitability of poultry farming enterprises.

2.5. Knowledge and profitability

According to (Bandara & Dassanayake, 2006), in their quantitative analysis on factors affecting profitability of small scale broiler production, with regard to qualitative findings of the study certain highlights could be found. “Technical knowledge of farmers on broiler rearing was not satisfactory and in some cases was poor. This was quite noticeable among the farmers who handled small batches”. Byarugaba (2007, p7) argues that although the Ugandans have kept poultry for a long time, their knowledge and skills in improved management may be limited in some cases. There are few trained, knowledgeable and skilled extension workers. Consequently the delivery of advisory services to farmers for commercial production is still weak. Improving production in rural poultry requires community participation through farmer training programmes by extension agents for increasing management skills and control of diseases as well as organizing appropriate marketing channels that do not exploit the farmers. This is in relation with the poultry sub sector analysis report produced by (Poultry sub sector analysis report, 2006), that there is a general lack of awareness amongst resource poor communities most directly concerned with indigenous chicken production and the importance of keeping their flocks healthy, productive and of an economically reasonable size.

According to the (Learner Guide, Primary Agriculture, 2006), in order for an agri-business to function profitably, management of income and expenditure is of the utmost importance. The manager or farmer should have a clear understanding of fixed costs, running costs, income and how to calculate the surplus amount of money available, $\text{Surplus} = \text{Income} - \text{Expenses}$. Cash and credit should be recorded by making use of some recording system. This clearly highlighted the gaps brought up by the researchers above and gave more reason to assess the extent to which knowledge of the farmer influences profitability.

2. 6. Summary

According to the secondary literature reviewed, the researcher observed that factors influencing profitability were majorly feed conversion ratio and the price of feed, though it was also found that except the cost of labor all the other factors were significant in the poultry industry and thus were the determinants of profitability. It was however imperative to note that the researchers in the literature reviewed, did not agree on the factors that influence profitability. Bandara and Dassanayake (2006) concluded that the feed conversion ratio (FCR) was found to be the factor which has the highest impact on profitability showing the coefficient of - 4.45, while Altahat et al, (2012) concluded that the feed price was found to be the factor which has the highest negative impact on profitability showing the coefficient of -3.01.

On the other hand, (Grepay, 2009) concluded that the most important factors influencing poultry production were: feeding process, selection of chicks and veterinary health care. The researcher in this study however, realized that (Grepay, 2009) did not show the sample design and methodology of coming up with his conclusions. Earlier works such as Byarugaba (2007), FAO (2009), (Poultry sub sector analysis report, 2006) and Altahat, et al., (2012), were in agreement

with the findings in the literature reviewed regarding feed cost and poultry diseases as key factors influencing the profitability of poultry farming enterprises. Knowledge of farmers had limited literature regarding its effect on profitability, which gave the reason as to why the researcher in this study had to investigate further about the issue.

Several studies were reviewed giving varying explanations on factors that influence the profitability of poultry farming enterprises and generally the major categories were as highlighted above. However, most of these studies had been largely carried out in developed countries, with a few exceptions in developing countries and very few in Uganda. Therefore, it was hard to think that the factors identified in these studies could be directly inferred to Uganda as a country. Also, the literature largely covered other sectors of poultry farming; but little was documented on profitability in Uganda. Social researchers found out that profitability is influenced by a number of factors, which vary depending farmers' location, accessibility to information and experience in the business among others.

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This chapter presents the research design, study population, sampling strategies, data collection methods, instruments, procedure, data quality control, measurement of variables and data analysis techniques that were used in the study.

3.2. Research Design

The researcher was interested in delineating the important variables associated with profitability. This was a correlation design because the researcher wanted to determine whether or not, and to what extent an association existed between the independent and dependent variables of this study as described by Onen (2009). The researcher assessed factors that influence profitability of poultry farming enterprises in Kira Town Council and according to Amin (2005), correlation research is sometimes treated as a type of descriptive research, primarily because it does describe an existing condition. The study applied both qualitative and quantitative methods of data collection. This was methodological triangulation, which used more than one research method or data collection technique because each tapped different dimensions of a problem (Amin, 2005).

3.3. Study Population

The study population consisted of individuals involved in poultry farming from the 6 wards that make up Kira Town Council, Wakiso District. A list of farmers was obtained from the NAADS official list of poultry farmers in Kira Town Council who had been in poultry farming for at least 2 years. The study also involved representation of the following: farmers, NAADS officer,

service providers such as veterinary doctors/extension workers and suppliers of birds/feeds as key informants. The total population studied was 110 respondents.

3.4. Sample Size

One (1) extension worker, 1 NAADS officer, 1 supplier of feeds and 1 for birds/ pullet were purposively selected as key informants. For the farmers, out of 168, a sample of 118 farmers were selected using Krejcie & Morgan table of sample size determination, but only 106 were accessed.

3.5. Sampling Techniques and Procedure

The researcher used a simple random sampling technique to determine a sample from the population. A sampling frame was obtained from NAADS' official list of poultry farmers in Kira Town Council, and using the simple random sampling technique a representative number of respondents were selected from the accessible population. The researcher used probability sampling to select respondents as described by Onen (2009). Purposive sampling was also used to select 6 Key Informants (KI) who had the required information with respect to the objectives of this study, of which 4 were accessed for the actual interviews. "Cases of subjects are therefore handpicked because they are informative or they possess the required characteristics" (Mugenda & Mugenda, 2003).

From the list of 168 farmers, a sample of 118 was selected using Krejcie & Morgan table of sample size determination and 106 were accessed and responded to questions in the questionnaires.

3.6. Data Collection Methods

The researcher used both qualitative and quantitative methods to collect data as described by Amin (2005). Data was collected through interviews and by use of a questionnaire survey to minimize the weakness of using one method and enhance reliable findings.

3.7. Data Collection Instruments

Questionnaires and interview guides were used as the main tools for collecting data. The selection of these tools was guided by the nature of data the researcher was interested in and objectives of the study. The questionnaires collected quantitative data, while interview guides collected qualitative data to generate themes for descriptive statistics.

3.7.1. Questionnaires

According to Sekaran (2003), questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest. The questionnaire had only structured items. Selected respondents were required to answer all questions. Questionnaires were administered to 106 farmers from 6 wards of Kira Town Council.

3.7.2. Interview Guides

According to Sekaran (2003), face-to-face interviews provide rich data, offer the opportunity to establish rapport with the interviewees, and help to explore and understand complex issues. Unstructured face-to-face interviews were administered to 4 KIs out of the 6 selected, to generate in-depth data on the study.

3.8. Validity and Reliability

In order to ensure quality of the research findings, the researcher carried out reliability and validity tests of the research instruments, which were used in data collection as discussed below.

3.8.1. Validity

The researcher ensured that instruments collect justifiable and truthful data during the study. To gain confidence of the respondents, the researcher avoided names and any other thing that could deter respondents from providing correct and unbiased information. The researcher also ensured content validity through judgment of the items by 2 experts (1 senior researcher in Agriculture/Veterinary and research + a researcher and veterinary doctor) and calculated the content validity index using a formula as indicated below.

$$\text{CVI} = \frac{\text{Number of items rated relevant by both judges}}{\text{Total number of items in the instrument}}$$

Questionnaire results

$$1^{\text{st}} \text{ expert} = 34/42 = 0.83 \text{ and } 2^{\text{nd}} \text{ expert} = 31/42 = 0.74$$

$$\text{CVI for 2 experts} = (0.83 + 0.74) / 2$$

$$\text{CVI} = 1.57 / 2$$

$$\text{CVI} = 0.785$$

Interview guide results

$$1^{\text{st}} \text{ expert} = 13/16 = 0.81 \text{ and } 2^{\text{nd}} \text{ expert} = 14/16 = 0.88$$

$$\text{CVI for 2 experts} = (0.81 + 0.88) / 2$$

$$\text{CVI} = 1.69 / 2$$

$$\text{CVI} = 0.85$$

Where;

CVI means Content Validity Index.

Where CVI results of 0.79 (questionnaire) and 0.85 (interview guide) were generated, the instruments were considered valid because for an instrument to be accepted as valid, CVI should be 0.7 or above (Amin, 2005).

3.8.2. Reliability

Reliability was determined by pre-testing the data collection instruments and checking the results with what the researcher got after actual data collection. Reliability is expressed numerically, usually as a reliability coefficient which is obtained by using a correlation. In this study, the researcher used test-retest reliability by administering the instruments to 8 respondents (pre-testing) and comparing the results. A general reliability of 0.776 was obtained which was considered acceptable.

3.9. Procedure of Data Collection

After review and approval of the proposal, the researcher was given an introductory letter from Higher Degrees Department of Uganda Management Institute (UMI). This enabled the researcher to proceed and collect data using the same letter, which acted as an assurance to the respondents that the study was purely academic. The researcher asked for permission and guidance from LCs and other leaders who enabled access to the targeted respondents. With the help of research assistants, questionnaires were administered to the selected farmers in addition to the attached letter on the research instruments explaining the purpose of this research and assuring respondents of confidentiality.

3.10. Data Analysis

Data collected was processed using both quantitative and qualitative approaches.

3.10.1. Quantitative Data Analysis

Data from the field was cleaned, compiled, sorted, edited and coded to have the required quality, accuracy and completeness. It was entered into the computer using Statistical Package for Social Scientists (SPSS 18) for analysis. Data was analyzed according to research questions, objective

by objective. Frequency tabulations were used to describe sample characteristics using descriptive statistics of mean, percentage and frequencies. Inferential statistics of Pearson's Correlation coefficient was used to establish the strength of significance between the study variables. Regression analysis was used to examine the relationship between factors under study and profitability of poultry farming enterprises.

3.10.2. Qualitative Data Analysis

Data from interviews was analyzed using content analysis building on the emerging themes and sub themes from the field notes. Data from open ended questions was coded and arranged according to themes of the study. The researcher scrutinized the data generated from the field, made analysis, collated it and drew conclusions, which were presented in paraphrases. Direct quotations from the study were also recorded and used to enrich the findings.

3.11. Measurement of Variables

The researcher measured variables using the likert scale where statements were followed by the five category responses continuum of strongly agree, agree, no opinion, disagree and strongly disagree. The respondents selected responses that best described their reaction or answer. Then the responses were weighed from 1 to 5 and averaged for all items. The researcher used this measurement because of its flexibility and ease in its construction (Amin, 2005).

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.1. Introduction

This chapter focuses on the results obtained from the analysis of factors that influence profitability of poultry farming enterprises in Kira Town Council. First, the respondents' profiles are outlined and explained using descriptive statistics. Then an explanation of feeds, poultry diseases and farmers' knowledge is given in comparison with the extent to which they relate with profitability of poultry enterprises. The corresponding hypotheses tested in this study, are explored, using tests of significance, spearman correlation coefficients and their meanings drawn in line with the research objectives.

4.2. Response Rate

A response rate is defined as the proportion of individuals selected in a sample who are eligible and ultimately participate in the survey. Response rates are used as a common metric for evaluating survey quality under the premise that a high response rate will produce findings that are more representative of the population of interest (Johnson, 2012). A response rate of 50% and above is considered representative. In this study, the sample was 118 farmers and the study managed to get 106 of the respondents creating a 90 % response rate. The obtained number of Key Informants (KIs) was 4 out of 6 the initial expected number, which amounts to 67% response rate. The study engaged 110 respondents out of the 124 expected, which amounts to 89% overall response rate. This means that the data obtained from the respondents could equitably represent the anticipated population.

4.3. Respondents' Profile

Profiling of the respondents was done and information in this section was collected on their gender, years in poultry farming, whether they had had training in poultry farming and the size of the stock of birds which they kept.

4.3.1. Gender of Respondents

Information concerning gender of the persons involved in poultry farming in the surveyed area of Kira Town Council was collected and the results presented in table 4.3.1 below.

Table 4.3.1 Gender of the Respondents

		Frequency	Percentage (%)	Cumulative Percent
1	Female	64	60.4	60.4
2	Male	42	39.6	100.0
	Total	106	100.0	

Source: Data from field

From the above table, statistics show that majority (60.4%) of the respondents interviewed were female while the rest (39.6%) were male. The results mean that females are more involved in poultry farming as compared to their male counter parts in Kira town council. This suggests that issues concerning profitability of poultry enterprises are mainly faced and could be better explained by women.

4.3.2. Number of years spent in Poultry Farming

Corresponding information was also gathered on the number of years which the interviewed respondents had spent in the poultry enterprise. This was categorized as can be seen in table 4.3.2 below.

Table 4.3.2 Years in Poultry Farming

		Frequency	Percentage (%)	Cumulative Percent
1	Less than 2 years	4	3.8	3.8
2	2-5 years	56	52.8	56.6
3	6-9 years	25	23.6	80.2
4	10 years & above	21	19.8	100.0
	Total	106	100.0	

Source: Data from the field

Results from table 4.3.2 above indicate that majority (52.8%) of the respondents had spent between 2-5 years, followed by those that had spent 6-9 years in the business at (23%) and then those that had spent 10 years and above at 20%. It is also important to note that very few (4%) of the respondents interviewed had spent less than 2 years in the business. This means that the greatest percentage of the people interviewed had spent relatively some good time in the poultry enterprise. Therefore, the views on profitability in this study were more authentic since the people interviewed had a relatively good experience in the poultry industry.

4.3.3. Training in Poultry Management

It was also relevant to ascertain whether the respondents had attained training in what they were doing. Information was collected concerning this and table 4.3.3 below shows the results obtained.

Table 4.3.3 Undergone training in Poultry Management?

		Frequency	Percentage (%)	Cumulative Percent
1	Yes	30	28.3	28.3
2	No	76	71.7	100.0
	Total	106	100.0	

Source: Data from field

Statistical results above show that only 28% of the respondents had attained formal training in poultry management while majority (72%) had not. This means that information obtained from the study on profitability was mainly from people who had obtained knowledge through experience but had not attained formal training. This lack of formal training in management of poultry enterprises is likely to affect profitability of farmers in Kira town council.

4.3.4. Size of the Stock of Birds

The size of the stock in poultry farming is an important factor in profitability of the enterprise. Data was gathered concerning this subject from the farmers in the study area and the results presented in table 4.3.4 below.

Table 4.3.4 Size of Stock

		Frequency	Percentage (%)	Cumulative Percent
1	Small (< 500 birds)	59	55.7	55.7
2	Medium (501-1000 birds)	29	27.4	83.0
3	Large (> 1000)	18	17.0	100.0
	Total	106	100.0	

Source: Data from the field

Study results show that majority of the poultry farmers (56%) had a stock of less than 500 birds while those with 501-1000 were 27% and those with over 1000 birds comprised of 17% of the respondents. The results show that poultry farmers in Kira were mainly small holding farmers. This implies that the ability of an enterprise to earn profits after all expenses have been deducted will be slow in most of the enterprises in Kira town council since the size of stock is positively related to the level of profits, other factors constant.

4.3.5 Type of Birds preferred by the Famers and Profitability

Key informants (KIs) were asked about the type of birds that most farmers would prefer to keep and their responses obtained. Most of them cited broilers as the most preferred type of birds by the farmers for reasons that they were able to grow in a short time, get sold off easily and were convenient for low income earners. However, during the discussions with KIs, it was observed that though broilers seem to be preferred, they do not yield better results compared to layers at the end of the day and most farmers only invest in them because they are kept for a short time.

One was quoted;

“Most farmers prefer broilers, because they take a short time to grow and are easily managed. i.e. they require fewer workers compared to layers”(**KI, One**).

Another key informant also said:

“Initially farmers preferred broilers basing on the fact that they would mature very fast, earn fast and since Kira Town Council is in the city centre there was easy access to the market. Broilers were also easy for low income earners and people with limited space. Only those who have good capital go for layers and in most cases they are the ones who have enough space, able to wait for a period of 4 to 5 months before birds become productive” (**KI, Two**).

Broilers were the most preferred type of birds kept in Kira town council. They were preferred by the farmers mainly because of the small time frame in which they would mature. This would enable farmers to get profits in a short time. The results imply that in the short run, farmers' profitability would increase, but this would have been greater even in the long run if farmers mainly kept layers.

4.4. Poultry Feeds and Profitability in Poultry Farming

This study presented descriptive statistics (in form of percentages) on the variables under study and then followed by inferential statistics to test the relationships between those variables and make conclusions thereof. Spearman correlation coefficients and tests of significance were used to accomplish this. For ease of analysis, poultry farmers who strongly agreed and those who agreed were recorded into the same category “agreed” while those who disagreed and those who strongly disagreed were recoded as “disagreed”. Thus the five categories were reduced to three. i.e. agreed, neutral and disagreed in making analysis out of the descriptive statistics . This was done in this section as well as sections 4.4 and 4.5. The table 4.4.1 below presents the responses of poultry farmers on questions regarding poultry feeds.

Table 4.4.1 Descriptive statistics on Poultry Feeds

		1	2	3	4	5
1	The distance to the sales store where you buy feeds reduces your profits	13.2%	33.0%	1.9%	46.2%	5.7%
2	Do you weigh food given to birds?	37.7%	27.4%	.0%	28.3%	5.7%
3	You give the same quantity of food over time	13.2%	33.0%	1.9%	46.2%	5.7%
4	Giving the same quantity of food over time helps increase production or maximize profit	8.5%	28.3%	26.4%	17.0%	19.8%
5	For the time you have been into poultry farming, you have been able to realize profits	13.2%	33.0%	1.9%	39.2%	12.7%
6	Feeds are generally available	15.1%	71.7%	.9%	5.7%	5.7%
7	Feeds are available but expensive	11.2%	35.0%	1.9%	40.2%	11.7%
8	Feeds are available but of poor quality	10.1%	36.1%	1.9%	41.1%	10.8%
9	Feeds have generally not been a problem towards the achievement of my goals	13.2%	33.0%	1.9%	46.2%	5.7%

Key 1 = Strongly Agree 2 = Agree 3 = No Opinion 4 = Disagree 5 = Strongly Disagree

Source: Data from the field

Results show that 51.92% of the poultry farmers agreed that the distance from their business location to where they bought feeds affected their profitability, followed by 46.2% who

disagreed while 1.9% were neutral. This means that the impact of distance on profitability of the poultry enterprises could have depended on the area within Kira town council where the business was located because those that were affected and those that were not, almost constituted the same percentage of responses. It implies that the distance from the business location to where farmers bought feeds reduced the profitability of some farmers while it increased on the profitability of almost an equal number of respondents. This was subject to where the farmers stayed in Kira Town council. Those who stay far from the town council could eventually be more affected.

Majority of farmers (65.1%) weighed food they gave to the birds while 34.9% never did. This means that majority of the farmers gave the right quantity of feeds to the birds. The effect of the weights given on profitability would then be dependent as to whether they gave the birds the recommended quantities.

Giving the same quantity of feeds to birds overtime did not help maximize profits. Those who disagreed were 36.8 % of the respondents while the same percentage (36.8%) also agreed to the above statement. On the other hand, 26.4% of the farmers were neutral. This could be attributed to the fact that some had an increase or a reduction in the number of birds kept and thus had to change the amount of feeds given to birds. This implies that giving the same amount of feeds was not a predictor of the level of profitability of a poultry enterprise in Kira Town Council.

The effect of feeds on the achievement of goals and on the realization of profits by the farmers was significant (agree = 46.2%, neutral = 1.9%, disagree= 51.9%). This means feeds were generally seen as a problem by majority of the poultry farmers in the process of attaining their goals. This implies that the cost of feeds generally reduced the profitability of most of the enterprises in Kira.

In an interview with key informants concerning the cost of feeds, results indicated that feeds played a key role in the poultry industry. It was clearly demonstrated by most of the key informants that when the weather is bad, it automatically affects availability of feeds, which eventually leads to high costs and scarcity in the markets, impacting on the farmers' stock, level of production and end results. One key informant had this to say:

“This depends on different seasons and location. Availability of quality feeds leads to high production, and when the costs are high, also farmers do not gain much. In Uganda, the availability of feeds is ruled by market prices and weather conditions” (KI, Two).

Another key informant also said:

“Availability affects cost. In Uganda, when feeds are scarce, the prices go high. Currently the prices are high because the season has been bad – those who grew maize made a lot of losses and this has led to scarcity. Currently maize bran is at 600 to 700= Ugandan Shillings. Even fish is still very expensive due to limited availability from lakes and this highly reduces the profits farmers make. It is only farmers who keep birds in large quantities that tend to benefit a lot and yet majority in Uganda are small scale farmers. 70% of poultry production is contributed by feeds, so the higher the cost, the lower the number of birds and production” (KI, Three).

The results actually imply that weather greatly influenced the cost of feeds and this would in turn affect profitability of the enterprises.

On the availability of feeds, 86.8% agreed that feeds were available followed by 12.3% of the participants who disagreed while 0.9% were neutral. On the other hand 12.3% did not affirm to this while only 0.9 5% were neutral. Similarly, those who said the feeds were available but not of

poor quality were 51.9%. The same percentage (51.9%) consented that though available, the feeds were not expensive. This means that feeds are generally available, not of poor quality and affordable by the poultry enterprises. This implies that the availability, quality, cost of feeds did not reduce on the profitability of the enterprises in Kira.

However, an interview with the key informants seemingly produced contradicting results. It was noted that most of them cited the quality of most of the feeds available on the market to be poor. One dealer was quoted to say:

“Most of the feeds on market are of poor quality and this affects the industry. It is unfortunate that a big number of suppliers are up to getting money but do not mind the quality” (KI, Four).

The results above imply that actually farmers were not really aware that most of the feeds sold to them were of poor quality. This affected the profitability of the dealers who genuinely invested in good quality products. As for the farmers, since most of them were dealing with a small number of birds, buying expensive feeds would not be an option and that is the main reason why many of them were quoted to say the feeds were available and cheap.

4.4.2. Descriptive statistics on Profitability in Poultry farming

Eleven questions were presented to the farmers regarding profitability of poultry enterprises and results presented in table 4.4.2 below

Table 4.4.2 Descriptive Statistics on Profitability of the Poultry Enterprises

	Questions on profitability	1	2	3	4	5
1	You have made profits in your enterprise	56.6%	26.4%	1.9%	13.2%	1.9%
2	When you are able to save or increase your income, it means you have made profits	21.7%	51.9%	4.7%	21.7%	.0%
3	When you are able to expand the size of your stock, it means that you have made profits from your enterprise	19.8%	39.6%	11.3%	29.2%	.0%
4	You are able to tell that the enterprise is making profits if you pay your bills easily	21.7%	51.9%	4.7%	21.7%	.0%
5	On average, are you able to save 300,000 UGX and above per month?	23.6%	34.0%	.0%	25.5%	16.0%
6	There are poultry farmers associations in this area	20.2%	11.9%	3.3%	21.7%	42.9%
7	Poultry farmers associations in the area help organize trainings for farmers	21.7%	9.9%	4.7%	42.0%	21.7%
8	Poultry farmers associations provide advantage when it comes to selling eggs/birds by identifying markets	18.4%	50.9%	3.2%	21.7%	5.8%
9	The number of birds has increased from what you started with	20.3%	58.5%	9.9%	5.7%	5.6%
10	The stock of birds has increased because you have been able to make profits out of the enterprise and buy more	22.1%	50.1%	5.2%	17.5%	5.1%
11	The stock of birds has increased because you got a loan	20.3%	38.8%	1.6%	21.7%	17.6%

Key 1 = Strongly Agree 2 = Agree 3 = No Opinion 4 = Disagree 5 = Strongly Disagree

Source: Data from the field
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Source: Data from the field

Findings show that an extremely minimal correlation ($\rho = 0.038$) exists between feeds and the profitability of poultry enterprises in Kira. The coefficient of determination, which is a square of the correlation coefficient ($R^2 = 0.014$) was computed and expressed as a percentage to determine the variance in profitability due to feeds. These results imply that feeds accounted for a very negligible 0.14% variance in profitability. The significance value of 0.698 which is far above the critical significance value of 0.05 affirms that there is no variant relationship between the two variables. Therefore, the hypothesis “Feeds influence the profitability of poultry farming enterprises” was rejected. The implication of these findings is that feeds had no significant effect on profitability of the poultry enterprises in Kira town council.

4.5. Poultry Diseases and Profitability

In order to ascertain how poultry diseases relate to profitability in poultry enterprises, use of descriptive statistics was made to bring out the views of the farmers on poultry diseases. Then inferential statistics were used to draw overall conclusions on the subject matter.

4.5.1. Poultry Diseases

To understand the views of farmers on poultry diseases, table 4.5.1 below presents percentages of responses to each of the 9 items and means drawn thereafter.

Table 4.5.1 Findings on Poultry Diseases

		1	2	3	4	5
1	You know some diseases that affect poultry farming	46.6%	40.6%	11.8%	.0%	1.0%
2	You have experienced some diseases since you started farming	54.6%	38.5%	0.9%	3.5%	4.3%
3	You vaccinate	48.2%	50.9%	0.9%	.0%	.0%
4	If you vaccinate, do you follow any vaccination schedule?	41.2%	36.1%	12.0%	3.7%	7.0%
5	You do consult veterinary personnel while treating your birds	55.9%	40.4%	2.0%	0.0%	1.7%
6	Would you say treatment of your birds has been costly?	34.1%	53.9%	.0%	6.0%	6.0%
7	Poultry diseases kill so many birds because farmers are usually unaware of the symptoms of the diseases	44.5%	33.0%	6.5%	7.0%	8.0%
8	Poultry diseases kill so many birds because farmers take long to seek treatment	31.8%	53.2%	7.0%	8.0%	.0%
9	Poultry diseases kill so many birds once they attack a firm because farmers are usually not aware of where to find veterinary personnel	41.2%	58.8%	0.0%	0.0%	0.0%

Key 1 = Strongly Agree 2 = Agree 3 = No Opinion 4 = Disagree 5 = Strongly Disagree

Source: Data from the field

Study results reveal that 87.2% of the farmers knew the diseases that affected poultry while only 1.0 % never affirmed and 11.8% were neutral. This implies that regarding poultry diseases, the farmers in Kira town council were well informed through experience as farmers. Evidence shows

that a great percentage of farmers (77.3%) had experienced these diseases with the exception of 12.0 % who were neutral and the 10.7% who disagreed. This knowledge of diseases by poultry farmers would imply a great step towards profitability if the right kind of medication were offered to the birds, and at the right time.

With the above results in perspective, farmers were asked as to whether they vaccinated and the results show that majority (99.1%) of the farmers vaccinated and as to whether they followed a particular vaccination schedule, majority (77.3%) of them were found to do so. It essentially implies that farmers were aware of the possible dangers that poultry diseases would cause and had thus decided to adopt vaccination and its associated schedules. This firm grip on vaccination, if handled well would greatly improve the profitability of poultry enterprises.

Majority of the farmers (96.3%) highlighted that they consulted veterinary personnel when treating their birds and 88.0% of them admitted that they found this process of consultation and treatment costly. The implication of this is that though farmers were involved in consulting veterinary personnel in treating birds, they did it because they had no other way out but it was expensive for them to handle. This implies that their profitability reduces as a result of the costs of consulting and hiring veterinary personnel.

An interview with key informants highlighted that the influence of poultry diseases on profitability of poultry farming enterprises was of serious concern. KIs interviewed had different views but one outstanding issue was that though extension workers, veterinary personnel and other related services exist, they have not been accessible or cheap to all farmers especially those in places far from towns. Though it had been stipulated that the farmers who were able to reach Kira Town Council could access free services, it was noted that the technical people to provide the same were not always available. One key informant was quoted to say:

“It is not very easy for farmers to access veterinary services at times, reason being that extension workers and veterinary doctors are very few. Other farmers fear to consult them thinking they will be charged a lot of money. In fact farmers usually treat their birds by following the advice got from fellow farmers, though a very small percentage of farmers consult veterinary personnel, get advice and treat as guided”(**KI, Two**).

Discussions with KIs clearly put it that farmers gambled a lot when it came to diseases and this normally led to losses instead of profits. Extension workers are few and the few are always not available and sometimes farmers hesitate to look for them because of fear of possible charges. A small percentage of farmers consult, otherwise the rest have resorted to self-treatment. This means that the inability of the farmers to access free or affordable services from the extension workers would greatly affect profitability of poultry enterprises in the area.

On the other hand 85% of the farmers admitted that the loss of their stock was mainly due to delay in seeking treatment, inability to identify the symptoms of the disease and not knowing where they would seek treatment when an outbreak struck. These are noted to have led to great losses. This means that farmers would only seek treatment when the situation became intense and the process of identifying the right veterinary personnel came at a cost. This implies that the whole process of delaying to seek treatment and not consulting beforehand reduced on the profitability of their enterprises.

An interview with a key informant further confirmed that most farmers were using rudimentary means to treat their birds and only sought professional treatment when things got worse. One key informant was quoted saying that:

“Some farmers treat their birds locally; others try human drugs such as Ampiclox, Aloe Vera, and others. Other farmers buy drugs dispensed in shops but these sometimes get wrong information, which leads to loss of birds” (KI, Three).

This means that failure to use the required type of treatment would lead to major losses and this would reduce on the profitability of poultry enterprises.

4.5.2. Testing the Second Hypothesis

The second hypothesis stated that: *Poultry diseases influence the profitability of poultry farming enterprises.* The table below shows spearman correlation values and the significance levels when relating diseases in poultry and profitability.

Table 4.5.2 Correlation between Poultry Diseases and Profitability

			Poultry Diseases	Profitability
Spearman's rho	Poultry diseases	Correlation Coefficient	1.000	.227*
		Sig. (2-tailed)	.	.019
		N	106	106
	Profitability	Correlation Coefficient	.227*	1.000
		Sig. (2-tailed)	.019	.
		N	106	106

*. Correlation is significant at the 0.05 level (2-tailed).

The findings in table 4.5.2 above present a relatively weak positive correlation ($\rho = 0.227$) between poultry diseases and profitability and a corresponding coefficient of determination ($\rho^2=0.051$). This means that diseases account for 5.1% variance in profitability. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation (p = 0.019) is less than the recommended critical significance at 0.05. The relationship between the two variables was significant.

Therefore the hypothesis *Poultry diseases influence the profitability of poultry farming enterprises* was accepted. The findings imply that poultry diseases had a significant effect on the profitability of poultry enterprises in Kira town council. The weak correlation implied that an outbreak of diseases was related to a reduction in profitability and vice versa. Findings from the interviews further confirmed that actually diseases influenced profitability.

One extension worker said that:

“Diseases influence profitability a lot because they can affect the growth rate, which finally affects production or end results. Also a lot of money is spent treating birds and this reduces the profit margin” (KI, One).

This affirms the fact that without doubt, to a certain extent, diseases influenced profitability of the poultry enterprises in Kira Town Council.

4.6. Farmer’s Knowledge and Profitability

Like in the previous sections 4.4 and 4.5 above, to analyze the relationship between farmers’ knowledge and profitability, descriptive statistics are presented first then inference drawn.

4.6.1. Farmers’ Knowledge

The farmer’s responses on the six questions assessing the level of knowledge of the farmers are presented in the table below.

Table 4.6.1 Descriptive statistics on farmers’ Knowledge

		1	2	3	4	5
1	Do you keep any records of your farm concerning cash receipts or payments?	55.7%	23.6%	.0%	18.9%	.9%
2	Do you keep any records of your farm concerning stock or eggs collected/sold?	28.3%	49.1%	1.9%	18.9%	.9%
3	Keeping records is important in helping the farmers to set targets	50.9%	44.3%	.0%	1.9%	.0%
4	Do you use records to measure performance?	28.3%	49.1%	1.9%	18.9%	.9%
5	For one to be able to do the right things in poultry, it should take them one year and above	33.0%	29.2%	.0%	24.5%	13.2%
6	Would you say that most of the losses on the farm are due to lack of experience?	28.3%	49.1%	1.9%	18.9%	.9%

Key 1 = Strongly Agree 2 = Agree 3 = No Opinion 4 = Disagree 5 = Strongly Disagree

Source: Data from the field

Regarding record keeping, statistics show that 80.2% of the farmers kept information on cash receipts or payments, followed by 19% who did not. The study results also revealed that 78.3% of the farmers kept stock records while 19.8% did not. Those that were neutral comprised of 1.9% of the respondents. This means that record keeping is well adhered to by the farmers in the area. Keeping track of incomes and expenditures helps farmers to measure whether they are making profits or losses, especially when the right records are kept.

Additionally, 97.2% of the farmers acknowledged that keeping records enabled them set targets for their businesses followed by 1.9 % who disagreed while 0.9% was neutral. Also important to note was that 78.3% of the farmers used the records they kept in measuring their performance while 19.8% never did. Those that were neutral constituted 1.9% of the respondents. The findings imply that record keeping was an influential factor in helping the farmers measure the

economic progress of their enterprises. This implies that the profitability of their enterprises partly depended on how well they kept their records.

Farmers also acknowledged that most of the losses in the poultry enterprises were due to lack of experience in the area (78.3%), followed by 19.8% who did not agree while 1.9% were neutral. Majority of the farmers (62.3%) recommended that for one to be able to do the right things in poultry, they should have experience of at least one year. Those who did not affirm to this were 37.7%. The results imply that experience is an important factor if one is to minimize losses in a poultry enterprise. The results imply that lack of experience would greatly reduce the profitability of poultry enterprises in the area and otherwise.

An interview with key informants confirmed that the knowledge of farmers on key issues in the business was such an important factor. A farmer's knowledge was found to be critical for a poultry enterprise to yield high results and succeed. Important to note was that the longer the farmer in business, the more capacity one has to plan and manage the enterprise effectively, leading to high profits. One key informant was quoted to say that:

“Farmers’ knowledge matters because it enables them to identify quality birds/feeds, market and appropriate handling of birds to make profits. Being knowledgeable also helps a farmer to plan for the best seasons” (KI, Two).

Another one was quoted saying:

“Knowledge determines profitability in terms of management, looking for market, prices and other things. It helps a lot when the farmer knows where to get what, where and how” (KI, Four).

The results affirm that lack of knowledge by the farmers would become a hindrance towards the growth and the overall profitability of poultry enterprises in the area.

4.6.2. Testing the Third Hypothesis

The third hypothesis stated that: *A farmer's knowledge influences profitability of poultry farming enterprises.* Using spearman correlation coefficients and the associated level of significance for the two variables, the results are presented in table 4.6.2 below.

Table 4.6.2 Correlation between Farmers' Knowledge and Profitability

			Farmers' Knowledge	Profitability
Spearman's rho	Farmers' Knowledge	Correlation Coefficient	1.000	.337**
		Sig. (2-tailed)	.	.000
		N	106	106
	Profitability	Correlation Coefficient	.337**	1.000
		Sig. (2-tailed)	.000	.
		N	106	106

** . Correlation is significant at the 0.01 level (2-tailed).

The findings present a positive correlation ($\rho = 0.337$) between a farmer's knowledge and the profitability of poultry enterprises. The corresponding coefficient of determination ($\rho^2 = 0.113$) implies that farmer's knowledge accounts for 11.3% variance in profitability. The obtained significance value (p) of 0.00 implies that the relationship between the two variables is significant since it is less than the critical value of 0.01 in this case. Therefore the hypothesis, *A farmer's knowledge influences profitability of poultry farming enterprises* was accepted.

The findings imply that an improvement in the farmer's knowledge was associated to a corresponding improvement in the profitability of poultry enterprises. The results are in agreement with the findings from interviews where it was concluded by most of the key

informants that a farmer's knowledge influenced profitability a lot. This was because when a farmer knew what to do and where to get goods and services; it reduced on the losses and enabled good management. One key informant asserted that:

“Overtime a farmer's knowledge and understanding of signs and symptoms of diseases through experience were key. Meaning that due to the knowledge attained, they can be able to detect certain diseases early and buy drugs without spending a lot of money on extension workers or veterinary personnel” (KI, four).

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

In this chapter, the researcher summarizes and discusses major findings of the study, draws conclusions and highlights recommendations of the study.

5.2. Summary of Major Findings

The purpose of the study was to assess factors that influence profitability of poultry farming enterprises in Kira town council. Factors were conceptualized as feeds, diseases and a farmer's knowledge. Major findings of the study revealed that the three factors were strong predictors of profitability as presented below.

5.2.1. Feeds and the profitability of poultry enterprises

Feeds were not found to have any influence whatsoever on profitability of the poultry enterprises in Kira Town Council. Evidence shows that they just accounted for 0.14% variance in profitability. Findings from the qualitative study clearly showed that *feeds contribute 70% of the cost in raising birds*, which means that, according to the findings of this study, feeds may not be ignored since they were reported to have a compound effect on profitability.

It was further established that distance from the business location to where farmers bought feeds reduced the profitability of some farmers while it increased on the profitability of almost an equal number of respondents. However, this was subject to where the farmers stayed in Kira Town council. Those who stay far from the town council could eventually be more affected.

The study also revealed that weather greatly influenced the cost of feeds and this would in turn affect profitability of the poultry enterprises.

Findings on objective one also revealed that actually farmers were not really aware that most of the feeds sold to them were of poor quality. This affected the profitability of the dealers who genuinely invested in good quality products. As for the farmers, since most of them were dealing with a small number of birds, buying expensive feeds would not be an option and that is the main reason why many of them were quoted to say the feeds were available and cheap.

5.2.2. Poultry Diseases and Profitability of Poultry Enterprises

Poultry diseases were found to have an effect on the profitability of poultry enterprises. Improvement in disease handling would correspondingly lead to a 5.1% increase in profitability and vice versa.

Results showed that farmers were aware of the possible dangers that poultry diseases would cause and had thus decided to adopt vaccination and its associated schedules. This firm grip on vaccination, if handled well would greatly improve the profitability of poultry enterprises.

The study findings confirmed that though majority of the farmers (96.3%) highlighted that they consulted veterinary personnel when treating their birds, 88.0% of them admitted that they found this process of consultation and treatment costly. This implied that their profitability reduces as a result of the costs of consulting and hiring veterinary personnel.

In addition to that, the study established that extension workers were few and the few were always not available and sometimes farmers hesitated to look for them because of fear of possible charges. The inability of the farmers to access free or affordable services from the extension workers would greatly affect profitability of poultry enterprises in the area.

Study findings revealed that 85% of the farmers admitted that the loss of their stock was mainly due to delay in seeking treatment, inability to identify the symptoms of the disease and not knowing where they would seek treatment when an outbreak struck.

5.2.3. Famer's Knowledge and Profitability of Poultry Enterprises

Knowledge of poultry farmers was found to affect their profitability according to the findings in this study. An improvement in one's knowledge on poultry farming was associated with a corresponding 11.3% increase in profitability and vice versa. The Theory of Constraints which anchored this study emphasizes maximization of profit by assuring that the factor that limits production is used most efficiently. This means that according to this research, for farmers to maximize profits, they need to be knowledgeable.

The findings also established that record keeping was an influential factor in helping the farmers measure the economic progress of their enterprises.

Results of the study revealed that lack of experience would greatly reduce the profitability of poultry enterprises in the area.

Study findings confirmed that an improvement in the farmer's knowledge was associated to a corresponding improvement in the profitability of poultry enterprises.

5.3. Discussion

5.3.1. Feeds and Profitability of Poultry Enterprises

The first hypothesis stated that; *Feeds influence the profitability of poultry farming enterprises.* Spearman correlation coefficient presented an insignificant correlation between feeds and profitability. The findings of the quantitative study implied that feeds did not affect the

profitability of poultry farming enterprises in Kira town council. These findings differed greatly from those of the qualitative study which emphasized the fact that feeds were such an important factor in determining profitability of the poultry enterprises (contributing about 70% of the cost in rearing birds). This was in line with what Altahat et al., (2012) found out. He discovered that feed price was found to be the factor which has the highest negative impact on profitability. This was also asserted by (Welch, 2012) that, “the price of corn began to rise in 2006, and since then, the broiler chicken industry alone had to spend an extra \$22.5 billion in higher feed costs”, putting companies under severe financial stress, pushing some out of business and causing others to reduce production. In agreement with the above authors, (Yegani, 2012) also reported in the World Poultry Magazine, that feed cost and continuous efforts to get a better understanding of available alternative feed ingredients had been one of the biggest challenges faced by the poultry industry. The difference with the findings from the quantitative study was a result of the fact that most of the farmers were mainly small holding farmers and could afford to buy cheap and poor quality feeds. It is thus worthwhile to conclude that feeds are such an integral part on the profitability of poultry enterprises. What remains unconcluded is whether the results from farmers elsewhere in Uganda would yield the same.

Findings in the quantitative study also indicated that feeds were generally available, of good quality and were not relatively expensive; this perhaps explains why on the overall, feeds were not a major profit determinant in the study area according to farmers. This greatly differs with the qualitative study findings and earlier findings by Kyesimira and Batte (2011). The latter noted that the price of maize brand in Uganda, the scarcity of mukene, which phenomena was attributed to depleting fish in Uganda's fresh water sources made feeds scarce and very expensive due to high demand. However, this was likely to have settled with time changing the price

trends. The qualitative study findings also revealed that *“The costs of feeds are very high especially maize brand. Farmers were complaining and this had also reduced the demand for our birds. What makes matters worse is that most feeds on market are of poor quality and this affects the industry. It is unfortunate that a big number of suppliers are up to getting money but do not mind the quality”* as shared by one of the Key Informants. The similarity of these findings was that Kyesimira and Batte (2011) and the key informants were reporting from a national and an informed perspective. It thus means that generally, good quality feeds were scarce and could affect the profitability of farmers especially those operating on a large scale. The Theory of Constraints emphasizes fixing the weakest link in the chain of the system (Marton & Paulova, 2010). This means that feeds being a key component of poultry enterprises, it is important that measures are put in place to ensure their availability at reasonable costs and in good quality, otherwise the industry cannot survive even if diseases do not exist or farmers are knowledgeable without addressing the issues of feeds.

5.3.2. Poultry Diseases and Profitability of Poultry Enterprises

The poultry subsector analysis report (2006) presented that the major disease that severely affects traditional small-scale poultry production is Newcastle Disease (ND), the highly infectious viral disease on top of other diseases. In this study findings revealed that most farmers knew the diseases that affected poultry and Newcastle Disease was well known. The results concurred with earlier findings by State, Birungi, & Haan (2009) in their study on the role of poultry in peoples' livelihoods in Uganda who asserted that; people have knowledge about poultry diseases and how they are spread. They however recommended that there was need for public education on the dangers of poultry disease outbreaks and the good practices that can minimize their effects. In relation to the above findings, this study's results showed that farmers

were aware of the possible dangers that poultry diseases would cause and had thus decided to adopt vaccination and its associated schedules. This firm grip on vaccination, if handled well would greatly improve the profitability of poultry enterprises.

The second hypothesis stated that *Poultry diseases influence the profitability of poultry enterprises* and the findings in this study affirmed the truth of the above statements. The findings in this study agree with Byarugaba (2007) that variations in numbers of birds during the year were because of occurrence of certain diseases which wiped out 60-100% of them, when they hit and this affected their profitability. He argued that farmers therefore, sold many of their birds prior to such disease occurrence in order not to incur losses during outbreaks. State, Birungi, & Haan (2009) also asserted that in their study, a number of respondents interviewed had lost their entire chicken stocks due to a disease outbreak. This was because the households were close to each other and there were more outbreaks of diseases, including new diseases that the farmers were not familiar with. In agreement to the above authors, this study's findings revealed that 85% of the farmers admitted that the loss of their stock was mainly due to delay in seeking treatment, inability to identify the symptoms of the disease and not knowing where they would seek treatment when an outbreak struck. The similarity in the findings was due to the fact that all these studies were done in Uganda where the environment is almost the same nationally and this worth concluding that diseases affect profitability of poultry farmers.

The findings in this study highlighted that some farmers consulted veterinary personnel when treating their birds and almost all of them admitted that they found this process of consultation and treatment costly. Amos (2006) agrees that veterinary cost had a negative coefficient in relation to profitability, implying that the average cost of vaccination was generally expensive especially where small flock was involved. It should be noted that most of the respondents in this

study had less than 500 birds. In this study, many farmers reported that they had lost their birds mainly because they delayed to seek treatment and when they decided to, they could not find the right consultations in time to stop the outbreak. Byarugaba (2007) agrees that there are very few trained workers in Uganda skilled in the diagnosis and treatment of poultry diseases and this affects the poultry farmers greatly when seeking consultations. The similarity was due to the fact that consultants in all cases were rare and could only be obtained at a cost. It is thus conclusive that lack of available and affordable veterinary personnel was a key factor in hindering profitability of poultry enterprises. What remain unconcluded are measures that can be put in place, in the short run to fill the gaps.

5.3.4. Farmer's Knowledge and Profitability of Poultry Enterprises

The findings in this study show that most of the poultry farmers kept records concerning stock of their products as well as cash receipts, though they were not properly kept. This was an indicator of farmers' knowledge in poultry management. In concurrence, the learners guide on primary agriculture (2006) presents that; in order for an agri-business to function profitably the management of the income and expenditure is of utmost importance. The manager or farmer should have a clear understanding of fixed costs, running costs, income and how to calculate the surplus amount of money available. Cash and credit should be recorded by making use of some recording system. Theory of Constraints is a systems approach based on assumption that every organization has at least one factor that inhibits the organization's ability to meet its objective (Bushong & Talbot, 1999). This meant that in this study, knowledge of a farmer was found as a management gap that needs to be addressed, for the poultry enterprises to maximize profit.

Farmers also acknowledged in this study that most of the losses in poultry enterprises were due to lack of experience in poultry farming. It is also important to note that majority (71.7%) of the

farmers had not attained formal training in poultry farming. This lack of training could have had an effect on the parameters on which the farmers depended to determine their profitability. Chandrakumarmangalam & Vetrivel (2011) in their study discovered that the estimation of total profit/loss for the previous years becomes difficult as most of the farmers do not keep correct accounts of their receipts and expenditures or any other statistical data [especially where lack of training was involved]. Most of them could only get figures from their memory which was likely to be less accurate. In agreement with that, Byarugaba (2007) argued that although Ugandans have kept poultry for a long time, their knowledge and skills in improved management has been limited in some cases and this greatly impacts on the productivity of a poultry farmer.

The third hypothesis stated that: *A farmer's knowledge influences profitability of poultry farming enterprises*. The findings in this study affirmed to the truth of the above statement. There are few trained, knowledgeable and skilled farmers and extension workers. Consequently the delivery of advisory services to farmers for commercial production remains weak according to the poultry subsector analysis report (2006) and this negatively impacts on the profitability of poultry enterprises. Improving profitability in poultry therefore, requires farmer training programmes by extension agents to increase management skills and control diseases as well as organizing appropriate marketing channels that do not exploit the farmers. What is left unexplained is whether availability of extension workers and training of farmers would systematically guarantee proper record keeping and other poultry management best practices.

5.4. Conclusions

In view of the findings that are presented in this study, the researcher concluded that the three factors (feeds, poultry diseases and a farmer's knowledge) were strong predictors of profitability.

Multiple regression results revealed that a farmers' knowledge had the strongest influence on profitability, followed by poultry diseases and then feeds as presented below.

5.4.1. Feeds and Profitability of Poultry Enterprises

The study concluded that feeds in Kira town council were generally available but most of them were not of good quality and thus not expensive. 51.9% of the farmers interviewed cited that they had not attained the desired profitability levels. This meant that feeds were generally seen as a problem by majority of the poultry farmers in the process of attaining their goals. The researcher therefore, concluded that the cost of feeds generally reduced profitability of most of the poultry enterprises in Kira. The overall effect of feeds on profitability of poultry farmers was significant in the sense that most of the farmers were using cheap, poor quality feeds. This means that the profits attained by poultry farmers in Kira had a direct link with feeds even without their consent.

5.4.2. Poultry Diseases and Profitability of Poultry Enterprises

The study concluded that farmers consulted veterinary personnel in treating their birds though they found this expensive. Delaying to seek treatment was identified as a major cause to the death of many poultry birds in this study. On the overall, 85% of the farmers admitted that the loss of their stock was mainly due to delay in seeking treatment, inability to identify the symptoms of the disease and not knowing where they would seek treatment when an outbreak struck. Diseases impacted seriously on the profitability of poultry enterprises and in case of an outbreak, profitability would be greatly hampered.

5.4.3. Farmer's Knowledge and Profitability of Poultry Enterprises

In conclusion, farmers kept records on farm stock as well as cash receipts. However, lack of experience was identified as a major cause of death of many birds in this business and a farmer's knowledge greatly impacted on the overall profitability of the poultry enterprise. This was based on views from both the farmers and key informants.

5.5. Recommendations

This study's recommendations were drawn out of the views presented by the poultry farmers and Key Informants on the variables under study and are presented in the sections below.

5.5.1. Feeds and Profitability of Poultry Enterprises

It was recommended that Government should try to subsidize inputs on feeds and feed additives. For example here in Uganda, products such as maize bran become costly sometimes due to power tariffs. By subsidizing the costs, feeds would become cheaper. It was also recommended that suppliers of feeds should try to be empathetic and aim at supplying quality rather than quantity. In addition to that, it was emphasized that farmers should follow feed formulas to avoid over or under feeding the birds. Other recommendations concerning feeds included: Government to standardize feeds through the agricultural sector and also put a ban on exportation of maize grain. There should be a policy on exportation of maize so that its by-products benefit local farmers.

5.5.2. Poultry Diseases and Profitability of Poultry Enterprises

The study recommends that suppliers of birds should try to supply quality birds by treating the parent stock properly, to avoid passing on of diseases from the first stage. If Government could ensure that farmers get easy access to extension workers, delays in treating birds would reduce,

hence limiting the mortality rate. The study also recommends that farmers always consult professionals instead of self medication. Lastly, the study recommends that government empowers more extension workers to train farmers on poultry management.

5.5.3. Famer's Knowledge and Profitability of Poultry Enterprises

This research revealed that a farmer's knowledge is very important in maximizing profits. It is therefore, recommended that farmers work hard to get knowledge about market prices, feeds, drugs and other products, to reduce losses that occur due to ignorance. They should do a lot of consultations, read newspapers, listen to radios and watch TVs to acquire enough knowledge on poultry farming. Farmers should also form farmers' associations to share their views, look for markets and get more information concerning poultry farming. In addition to that, the study also recommends that farmers take record keeping seriously so that they get to know their costs, output and be able to determine whether they are making profits or loses. Government should also try and organize workshops for farmers to gain knowledge and skills.

5.6. Limitations of the Study

The researcher anticipated that poultry farmers had associations in which they belong and these were expected to make it easy for one to find the targeted respondents. However, the situation on ground was different because poultry associations do not exist but this was eventually addressed by the researcher working closely with the NAADS coordinator of Kira Town Council to get a sampling frame. In addition to that, some of the respondents gave neutral answers and this left a question of whether the options asked were relevant to them or not.

5.7. Contribution of the Study

This study contributes to the existing body of knowledge in the poultry industry. The study further makes practical recommendations that aim at improving profitability of poultry farming enterprises in Kira Town Council.

5.8. Areas for Further Research

This study was an investigation of factors that influence the profitability of poultry farming enterprises in Kira Town Council. There could be other factors apart from these ones that may influence profitability. These need to be investigated in other studies.

The study was carried out in Kira yet different areas may have different issues and conditions that favour or affect them. A similar study may therefore be undertaken in other regions or sectors to unearth the truth on ground and save farmers from losses.

In addition to that, the study revealed that farmers associations were not in existence, yet they would be playing a key role in linking them to markets and attending to the common problems. It is important therefore, for another study to investigate why there are no associations, what hinders their operation and what can be done to have them in place.

Establish how local farmers can be protected from poor quality feeds, substandard drugs, high taxes and competition from imports of the same products. Research should be carried out on drugs and vaccines on market, because farmers vaccinate but birds still die.

Further studies could also be done on government supported farmers through NAADS, versus the private farmers to establish whether there are success stories or lessons to learn?

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APPENDICIES

Appendix I: Questionnaire

UGANDA MANAGEMENT INSTITUTE

QUESTIONNAIRE TO FARMERS:

**TOPIC: FACTORS THAT INFLUENCE THE PROFITABILITY OF POULTRY
FARMING ENTERPRISES IN KIRA TOWN COUNCIL, WAKISO
DISTRICT**

Dear respondent, my name is Yvonne Natukunda, a student at the Uganda Management Institute (UMI). The main purpose of this study is to find out the factors that influence profitability of poultry farming enterprises in Kira town council.

The results will be used for academic purposes only leading to the award of a Masters Degree in Management Studies (Project Planning & Management) of Uganda Management Institute. You have been identified as one of the respondents due to your experience and the unique information you have about the topic. You are kindly requested to answer all questions in this questionnaire.

Your answers will be kept with utmost confidentiality and will only be used for research purposes.

Thank you.

SECTION A: Background information of the respondent

Farm/Enterprise Location (village & ward): _____

Instructions: For questions 1-13 below, tick (✓) the most appropriate option where applicable in the space provided.

No.	Question		Response
1.	Gender of respondent	Female	1
		Male	2
2.	Highest level of education attained	Post Graduate	1
		Bachelors Degree	2
		Diploma	3
		A-level	4
		O-level	5
		Primary	6
		None	7
3.	Years of service in poultry farming	Less than 2	1
		2 – 5	2
		6 – 9	3
		10 & above	4
4.	Undergone training on poultry management	Yes	1
		No	2
5.	What type of birds are you keeping?	Layers	1
		Broilers	2
		Both layers & broilers	3
		Others	4
6.	What is the size of your stock?	Small (< 500)	1
		Medium (501 – 1000)	2
		Large (>1000)	3

No	Question		Response
7.	Where do you purchase/acquire your feeds from?	Retail store	1
		Whole sale store	2
		Garden	3
		Mix own feeds	4
8.	How far is that sales store/garden from the farm?	<15kms	1
		15 – 30kms	2
		30 – 45kms	3
		>45kms	4
9.	How do you transport the feeds?	Vehicle hire	1
		Motor cycle hire	2
		Private means	3
		others	4
10.	On average, how much do you spend on feeds in a week (Ugandan Shillings)?	< 100,000	1
		100,000 – 300,000	2
		300,000 – 500,000	3
		> 500,000	4
11.	How do you access information on poultry diseases and treatment options?	Suppliers of birds give leaflets & handouts	1
		Read books	2
		News papers & TVs	3
		Experienced farmers	4
		Extension workers	5
		No information at all	6
12.	What is the commonest operation cost that you spend on concerning feeds?	Milling	1
		Transport	2
		Additives	3
		Labor	4
13.	What is the commonest operation cost that you spend on concerning poultry diseases?	Drugs	1
		Vaccines	2
		Veterinary consultations	3
		Vitamins	4
		Literature	5

For sections B, C, D and E the questions have codes ranging from 1 to 5 as seen below.

	1	2	3	4	5
Scale	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree

Tick (✓) the most appropriate answer

Section B: Influence of feeds

	Objective Area	Options				
		1	2	3	4	5
	Influence of Feeds					
1.	The distance to the sales store where you buy feeds reduces your profits					
2.	You weigh food given to birds					
3.	You give the same quantity of food over time					
4.	Giving the same quantity of food over time helps increase production or maximize profit					
5.	For the time you have been into poultry farming, you have been able to realise profits					
6.	Feeds are generally available					
7.	Feeds are available but expensive					
8.	Feeds are available but of poor quality					
9.	Feeds have generally not been a problem towards the achievement of my goals					

Section C: Influence of poultry diseases

	Objective Area	Options				
		1	2	3	4	5
	Influence of Poultry diseases					
1.	You know some diseases that affect poultry farming					
2.	You have experienced some diseases since you started farming					
3.	You vaccinate					
4.	If you vaccinate, do you follow any vaccination schedule?					
5.	You do consult veterinary personnel while treating your birds					
6.	Would you say treatment of your birds is costly?					
7.	Poultry diseases kill so many birds because farmers are usually unaware of the symptoms of the diseases					
8.	Poultry diseases kill so many birds because farmers take long to seek treatment					
9.	Poultry diseases kill so many birds once they attack a firm because farmers are usually not aware of where to find veterinary personnel					

Section D: Influence of farmer's knowledge

	Influence of Farmer's Knowledge	1	2	3	4	5
1.	Do you keep any records of your farm concerning cash receipts or payments?					
2.	Do you keep any records of your farm concerning stock of eggs/birds, collected/sold?					
3.	Keeping records is important in helping the farmers to set targets					
4.	Do you use the records to measure your performance?					
5.	For one to be able to do the right things in poultry farming, they should have spent one year and above working in the same kind of enterprise					
6.	Would you say that most of the losses made on the farm are due to lack of experience?					

Section E: Profitability

	Farmer's Profitability	1	2	3	4	5
1.	You have made profits from your poultry enterprise					
2.	When you are able to save or increase your income, it means you have made profits from your enterprise					
3.	When you are able to expand your size of stock, it means you have made profits from your enterprise					
4.	You are able to tell that the enterprise is making profits if you pay bills easily					
5.	On average, you are able to save 300,000 UGX and above per month?					
6.	There are poultry farmers' associations in this area					
7.	Poultry farmers' associations in the area help organize trainings for farmers					
8.	Poultry farmers' associations provide advantage when it comes to selling eggs/birds by identifying markets					
9.	The number of birds has increased from what you started with					
10.	The stock of birds has increased because you have been able to make profits out of the enterprise and buy more					
11.	The stock of birds has increased because you got a loan/donation					

Thank you.

Appendix II: Interview Guide to Key Informants

**TOPIC: FACTORS THAT INFLUENCE THE PROFITABILITY OF POULTRY
FARMING ENTERPRISES IN KIRA TOWN COUNCIL, WAKISO
DISTRICT**

Dear respondent, my name is Yvonne Natukunda, a student at the Uganda Management Institute (UMI). The main purpose of this study is to find out the factors influencing the profitability of poultry farming enterprises in Kira town council.

The results will be used for academic purposes only leading to the award of a Masters Degree in Management Studies (Project Planning & Management) of Uganda Management Institute. You have been identified as one of the respondents due to your experience and the unique information you have about the topic. You are kindly requested to answer all questions in this questionnaire.

Your answers will be kept with utmost confidentiality and will only be used for research purposes.

Thank you.

Pre-interview session

- Set the tone of the interview by first greeting the interviewee and then engaging him/her in a casual conversation to create a calm and relaxed atmosphere.
- Provide an overview of all the interview sessions and the topic under study.
- Explain to the interviewee that the exercise is confidential and only intended for academic purposes.

Interview Questions:

Section A: Background information of the respondent

1. Profession and current occupation or job
2. Place or location of operation
3. Do you have an idea about what type of birds most farmers prefer to keep? And why?
4. What is your opinion about rewards to people who invest in poultry farming?

Section B: Influence of feeds

5. What is your opinion on the (cost and availability) of feeds for poultry in Uganda?
6. Do you have an idea on how feeds affect poultry farmers in Kira Town Council? Kindly explain.
7. How does cost and availability of feeds affect/influence the number of birds farmers tend to keep?

Section C: The influence of poultry diseases

8. Is it easy for farmers to access veterinary services? How do poultry farmers normally treat their birds?
9. What challenges do they face in treating poultry diseases?
10. How do the diseases impact on production of poultry?

Section D: Influence of farmer's knowledge

11. How do farmers acquire knowledge and skills of managing poultry farms? Probe (are there any organized trainings? By who?)
12. Please comment on the influence of a farmer's experience to the performance of poultry enterprises in Kira Town Council. Do you think that experience matters?
13. Generally, what is your view about the influence of a farmer's knowledge to the profitability of poultry enterprises?

Section E: Profitability

14. Of the three, (poultry diseases, feeds and farmer's knowledge) which factor would you say has more influence on poultry profitability in Kira town council? Please explain
15. What good practices would you recommend to improve performance/production of the poultry industry in Uganda?
16. From your experience, how do farmers tell that they are making profits from the poultry enterprises?

Thank you.

Appendix III: Letter from Uganda Management Institute



UGANDA MANAGEMENT INSTITUTE

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256-75-2259722
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Plot 44-52, Jinja Road
P.O. Box 20131
Kampala, Uganda
Website: <http://www.umi.ac.ug>

Your Ref:

Our Ref: G/35

02 April 2013

Ms. Yvonne Natukunda
12/MMSPPM/27/029

Dear Ms. Natukunda,

FIELD RESEARCH

Following a successful defense of your proposal before a panel of Masters Defense Committee and the inclusion of suggested comments, I wish to recommend you to proceed for fieldwork.

Please note that the previous chapters 1, 2 and 3 will need to be continuously improved and updated as you progress in your research work.

Wishing you the best in the field.

Yours sincerely,

Gerald Karyeija (PhD)
AG. HEAD, HIGHER DEGREES DEPARTMENT



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Your Ref:

Our Ref: G/35

02 April 2013

TO WHOM IT MAY CONCERN

MASTERS IN MANAGEMENT STUDIES DEGREE RESEARCH

Ms. Yvonne Natukunda is a student of the Masters Degree in Management Studies of Uganda Management Institute 27th Intake 2011/2012 specializing in Project Planning and Management, **Reg. Number 12/MMSPPM/27/029.**

The purpose of this letter is to formally request you to allow this participant to access any information in your custody/organisation, which is relevant to ~~his~~ ^{her} research.

~~His~~ ^{Her} Research Topic is: ***"Factors that Influence the Profitability of Poultry Farming Enterprises in Kira Town Council, Wakiso District - Uganda."***

Gerald Karyeija (PhD)
AG. HEAD, HIGHER DEGREES DEPARTMENT