FACTORS CONTRIBUTING TO UNPROFITABLE YIELD OF COFFEE IN THE DAUGHTERS OF MARY NGORONGORO FARM IN KARATU DISTRICT

By

Sr. Margaretha Magha

A Dissertation Submitted in Partial Fulfillment of the Requirements for Award of the Degree of Master of Science in Accounting and Finance (MSc A & F) of Mzumbe University

2013

FACTORS CONTRIBUTING TO UNPROFITABLE YIELD OF COFFEE IN THE DAUGHTERS OF MARY NGORONGORO FARM IN KARATU DISTRICT

CERTIFICATION

We, the undersigned, certify we have read and hereby recommend for acceptance by the Mzumbe University a dissertation entitled: **Factors Contributing to Unprofitable Yield of Coffee in Daughters of Mary Ngorongoro Farm in Karatu District**, in partial fulfillment of the requirements for award of the Degree of Master of Science in Accounting and Finance (MSc A & F) of Mzumbe University

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Major supervisor

_____

Internal Examiner

Accepted for the Board of School of Business

DEAN, BOARD OF SCHOOL OF BUSINESS

DECLARATION AND COPYRIGHT

I, Sr. Margareth Magha of the Congregation of the Daughters of Mary – Tabora, hereby declare that, this "Dissertation" is my own and original work that has not been submitted for a degree or professional award to any University or other Institution of higher learning.

Signature ……

Date……

DEDICATION

This research work is dedicated to the Daughters of Mary Tabora and Management Team of Daughters of Mary Ngorongoro Farm for their support towards my studies

ACKNOWLEDGEMENT

The accomplishment of this dissertation was made possible through the financial, technical and moral support from a number of different people and institutions. It is not possible to mention each and every one here, but I humbly wish to mention just a few of them.

First of all, I thank my Almighty God for giving me strength, good health, knowledge and courage to conduct this research work despite all obstacles and pitfalls that I encountered especially during the final stages of this study. I wish to send my special gratitude to my sponsor The Congregation of the Daughters of Mary –Tabora for her "good will" towards my intellectual development, encouragement, materially and morally support. Sincere thanks to the Management of Mzumbe University and particularly the lectures and other staff for supporting the accomplishment of my academic goal. I am highly indebted to my supervisor Professor Jeremia Kirway for his endless help during my research work. It is really through his academic advice and corrections that I managed to produce this paper.

I also wish to extend my gratitude to Sr. Prisca Maliya Manager of Daughters of Mary Ngorongoro Farm together with the Management team and other community members, for allowing me to carry out my research study at their farm area. I appreciate the assistance of Mr. A. Materu TACRI Officer and Mr. P. Wayda Extension Coordinator of coffee production in Karatu. Lastly I have to mention Tanzania Coffee Board for supporting me update reports of market for coffee specifically of Ngorongoro Farm. Finally May the Almighty God blesses each and every one who assisted me in accomplishment of this dissertation.

LIST OF ABBREVIATIONS

CBD -	Coffee Beery Disease
CDMT -	Congregation of Daughters of Mary Tabora
CRF -	Coffee Research Foundation
GDP -	Gross Domestic profit
KDA-	Karatu District Authority
MKUKUTA-	Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania
NSGRP-	National Strategy for Growth and Reduction of Poverty
TACRI -	Tanzania Coffee Research Institute
TCB -	Tanzania Coffee Board
TEC -	Tanzania Episcopal Conference

ABSTRACT

Coffee production yield is an area of study that can be studied from different angles. The issue in this study was to study the practice Factors contributing to unprofitability yield of coffee production in Daughters of Mary at Ngorongoro farm as a case study. The objectives of the study were to determine availability of management system in Ngorogoro farm, determine the human resource capability, to examine whether climate was reasonable for coffee production, to identify the types of tools used in farming and processing and also to identify the availability of coffee market. Data were collected through questionnaires and documentary review. Though data analysis was done manually, the collected data were sorted, processed and tabulated before analysis. The research findings revealed that, the farm does not have a stable management system in running coffee production. Many personnel working in different departments of coffee production and processing were insufficient in number and were incompetent. The people around the farm who are engaged as workers of the farm were mostly primary school leavers without any training regarding coffee production. They thus rely mostly on working experience.

The study also revealed that the stools used in agriculture and processing are not sufficient. Processing machines are manually operated and uses old technology. Inappropriate tools used cause high cost of production and thus low profit. The price of coffee depend on quality coffee product. This implies that good quality gets high price and low quality gets low price. Moreover, the study revealed that, the market of coffee is readily available around the world. The study recommends that, the farm must form a sustainable management system with competent personnel. This can be done through training of staff in different departments in order to step up coffee production. It is further recommended that this is the time of using modern technology and tools in coffee production to maintain quality and increase the quantity of coffee in international market.

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CHAPTER ONE
INTRODUCTION

1.1 Background Information

Coffee producers in Africa accounted for about 12% of global supply and less than 11% of global exports of the product for the 2009/10 season (Mafusire, et al., 2010). These contributions to the global coffee market are almost equal to Indonesia, the third largest world producer of the product. Notwithstanding the small contribution of African countries to the global coffee market, the commodity constitutes a large proportion of both GDP and exports share in some of the continent's small economies (Mafusire, et al., 2010).

The Roman Catholic Church in Tanzania has several projects in different Regions and most of these projects are in rural areas. The main objective of the church is to spread Christianity throughout the country, particularly in rural areas where majority of people might not have heard about the word of God. In its endeavor to make believes live a happy life, the church has acquired farms, schools, health facilities and livestock. All these projects were started by church to bring services closer to the people and to generate income to the church organizations so as to enable them to run their operations smoothly.

The Roman Catholic church has several farms in Tanzania, this include Tumaini Farm in Tengeru - Arumeru District, TEC Oldiani coffee estate and Daughters of Mary in Karatu District. Most of these farms are in the Northern zone where the climate is relatively favorable for agriculture. According to needs of funds to support these services and sustain their life. The organization introduced farm project at Karatu in Arusha Region called Ngorongoro Farm. The purpose of the project is to generate income for the better service in future. The core value is integrity which means "what they are and the way they live be caught through

exemplary role – modeling and coaching by moral leaders and mentors (Hhando, 1975).

The zone has approximately 200,000 coffee farmers with an average of 0.5 ha per farmer. The estimated area under cultivation is 60000 ha with an average production of 8000 tons of parchment per year reflecting a very low productivity of 225 kg /ha .Potential production is 45000 tons with productivity of at least 665kg/ha. The zone has a long history of growing Arabica coffee with Kilimanjaro coffee having attained an excellent reputation especially in some of our traditional markets in Japan and Germany and recently in the U.S.A. Farmers still continue to regard coffee as a reliable and priority cash crop for improving their live hoods (Temu, 2008).

1.1.1 Historical Background of the Congregation of Daughters of Mary-Tabora

The Congregation of The Daughters of Mary-Tabora (CMDT) which have their Mission, Vision and objectives that all members must follow in all activities carried on by them.

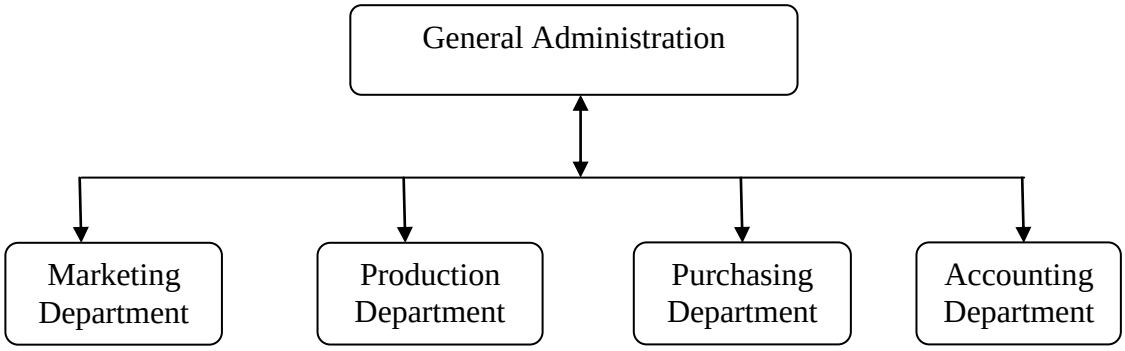
Mission: The members commit themselves to the spreading of the kingdom of God embracing their Charism of Love and Service. Their apostolate is focused on teaching, catechesis and health care.

Vision: Work in faith and save all people with integrity.

Objectives: The Daughters of Mary is to devote her time, personal talents and abilities to her community, so that these are put into service according to the Charism of the Congregation (The Constitution of the Congregation, 2011).

The agricultural project it is managed by church leaders through manager for day to day activities. The farm consists of large scale agriculture with more than 400 (four hundred) Hectares of land, area of 75 and 200 hectares are used for coffee and wheat crops respectively. The administration team of Daughters of Mary – Ngorongoro farm was indicated in figure 1.

Figure 1: Daughters of Mary- Ngorongoro farm



Source: (TEC Memorandum of 1975).

An organization is a group of persons constituted to achieve certain specific objectives. The achievement of these objectives largely depends upon proper co ordination and integration of human effort in an organization. The people working in an organization are interrelated their activities are also interrelated because what each member performed is for the common organizational objectives. Coordination and integration of various human activities is possible only if there is an effective system of communication in the organization, which provide for exchange of information and sharing of various ideas. The more effective system of communication, the better the relations between workers and between workers and management (Ngorongoro Farm Memorandum of 1997).

1.2. Statement of the Problem

The church has several projects, but not all of them are performing well. For example, the Daughters of Mary has schools, health facilities and farms in different districts in Tanzania mainland. The organization has a farm in Karatu District where crops such as coffee and wheat are grown. Despite the conducive environment for farming in Karatu, the output from the farm is not good. One would expect a farm which is managed by church would have high yield compared to those that are managed by the local community. It is not clear why yield products from the farm are low return that cause farm to run in lose instead of generating high income. While the form is under the control of a manger and other factors of production are available. This study therefore, intends to assess factors contributing to unprofitable yield of coffee in Daughters of Mary Ngorongoro Farm in Karatu District.

1.3. Objectives of the Study

1.3.1 The Overall Objective

The overall objective of the study is to assess factors contributing to unprofitable yields of coffee in Daughters of Mary Ngorongoro farm in Karatu District.

1.3.2 The Specific Objectives

Specifically, the study aims to:

i. To examine the availability of management system
ii. To determine the human resource capability
iii. To examine the tools used in farming an processing coffee production
iv. To determine the changes climate if it still favorable of coffee production
v. To Identify the availability of coffee markets

1.4 Research Questions

In order to achieve the above objectives the study was guided by the following questions:-

(i) Is the management system available?

(ii) What is the capability of human resource?

(iii) Are the tools used standard and sufficient?

(iv) Is the climate still favorable for coffee production?

(v) Is the coffee market available?

1.5 Significance of the Study

Coffee is one of cash crops in Tanzania, it is an export that if the yield of coffee is good, it is likely to increase the availability of foreign income and hence reduce poverty among Tanzanians. The Daughters of Mary are concerned with provision of social services to areas where they operate. It is thus concerned with education and health care of the community. The study is therefore in line with the Millennium Development Goals which aim at reducing mortality for less than five years and of pregnant mothers and that of providing education for all. The study is further in line with the National Strategy for Growth and Reduction of Poverty(NSGRP) or Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania (MKUKUTA), as is commonly known in Kiswahili. Through the study the goals of vision 2025 are likely to be achieved.

1.6. Limitations and Scope of Study

Sevela limitations were faced while conducting the study. These include limited time since the nature of study required sufficient time with workers of the farm. Access to certain classified information was also another constrain faced during the study. The researcher further faced the problem of getting sufficient funds for the study.

All in all various efforts were made to collect reliable and sufficient data. This study was limited to Daughters of Mary Ngorongoro Farm. The findings from the study may not be generalized to other farms not visited.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The aim of this chapter was to review existing related literature on business management especially in coffee production in Tanzania and around the world. The chapter explores both Theoretical and Empirical literature reviews that related to key concepts of management and communication. The literature shows how coffee is produced in Tanzania and around the world, establishment of coffee and soil improvements, coffee diseases, coffee harvesting and processing in the factory. The challenges of smallholder coffee productivity, quality and profitability in Tanzania and the market of coffee around the world. The chapter ended with conceptual framework which summarized the assumptions of study and summary.

2.2 Definition of Key Concepts

2.2.1 Management

Management is the process used to accomplish organizational goal through planning, leading and controlling people and other organizational resources. Today management is becoming more progressive many managers are being educated to guide, train support, motivate and coach employee rather than to tell them what to do. Managers of high tech firms realize that workers often know much more about technology that they do. Thus most modern managers emphasize teamwork and co operation rather than discipline and order giving (Dias and Shah, 2009)

2.2.1.1 Functions of Management

(a) Planning

A management function that includes anticipating trends and determining the best strategies and tactics to achieve original goals and objectives

(b) Organization

A management function that includes designing the structure of the organization, creating conditions and systems, in which everyone and everything work together to achieve the organizations goals and objective. Many of today's organizations are being designed around the customer. The idea is to design the firm so that everyone is working to please the customer.

(c) Leading

Creating a vision for an organization guiding, training, coaching and motivating others to work effectively to achieve the organization's goals and objectives.

(d) Controlling

A management function that involves establishing clear standards to determine whether or not an organization is progressing toward or not an organization is progressing toward its goals and objectives, rewarding people for doing a good job, and taking corrective action if they are not (Locker, 2006).

2.2.1.2 Business

Business can be defined as a person, partnership or corporation that seeks to provide goods and services to others at a profit. The business environment consists of surrounding factors that either help or hinder the development of business. The five elements in the business environment are:-

i. The economic and legal environment
ii. The technological environment
iii. The competitive environment
iv. The social environment
v. The global environment

A business owner can keep abreast of changes in the environment by reading the news paper and various business publications. That way, she/he is constantly up to date on changes and can adjust her / his business accordingly. Business owners who are not aware of the environment around them necessarily have less success than those who are aware. Finally business owners need to be aware of stakeholders in each of the business environments (Dias and Shah, 2009).

2.2.2 Effective Business Communication

Communication is a two way process in which there is an exchange and progression of ideas towards a mutually accepted direction or goal. The importance can be gauged from the fact that we are communicating in form or the other almost every moment of our lives. Human being is a social animal, is constantly interacting with other individuals. Human being possesses the ability to communicate, which is much more than a composition of certain physical attributes, vocal chords, articulator and soon. He has the ability to symbolize or to understand concepts in terms of image or symbols. It is this ability that helps him / her to communicate.

(a) Basic Purpose of Communication

What is the purpose of communication? A response to a query of this nature would be more beneficial if attempts were made to understand the business situation where success or failure of issues is always measured in terms of man – hours spent in the completion of a task. Example: Suppose the boss issues instruction to his subordinate to complete a certain project in a particular manner with in a stipulated timeframe. The subordinate does it to the best of his ability. However, the end result is a miserable failure because the manner of completion does not match with the expectation of the boss. A lot of time has been wasted as a result of miscommunication on the part of the two members of the same organization. In fact, more time would now be spent on rectifying the errors that

had crept up in the first instance, it would be seen that double the time necessary has been taken (Locker, 2006).

(b) Communication Network

An organization is a composite of many individuals working together, towards its growth. They are constantly interacting with each other and with people outside the organization. The communication network in an organization is of two types.

i. Internal communication

Internal communication is interaction between members of the organizations. It could be both formal and informal communication. Large organizations with hundreds of people working find it very difficult to have direct interaction with each and everyone. They adopt a number of strategies e.g. newsletters, annual report to communicate the essential message. In such large setups, it is neither possible nor necessary to transmit all information to every member. Informal communication is prevalent in organizations with an initial manpower of approximately about 20 people, all of when have direct interface with other on a daily basis. Almost all messages are volleyed back and forth in an informal manner. The communication network can be effective through the channels of communication as follows:-

a) Vertical
b) Horizontal
c) Diagonal

ii. External communication

Communication is an ongoing process. It does not only take place with people within the organization but with people out side the organization as well. If the organization has to survive in the competitive environment, it has to adopt the latter

form of communication also. The image of the organization is contingent upon the relationship that it maintains with people outside. External communication could again be oral or written conventional wisdom says that effective communication is the key to success in business. A solution to a business communication problem must both solve the organizational problem and meet the needs of the writer or speaker, the organization and the audience. Business is an extremely exciting area to study in part because business affects each of us in our daily lives (Kaul, 2006).

2.3 Coffee

Coffee is a brewed beverage with a distinct aroma and flavor, prepared from the roasted seeds of the *Coffea* plant. The seeds are found in coffee "cherries", which grow on trees cultivated in over 70 countries, primarily in equatorial Latin America, Southeast Asia, South Asia and Africa. Green (unroasted) coffee is one of the most traded agricultural commodities in the world. Coffee is slightly acidic (pH 5.0–5.1) and can have a stimulating effect on humans because of its caffeine content. It is one of the most consumed drinks in the world (http:en.wikipendia.org/wiki/coffee).

2.3.1 Cultivation

Propagation is usually by seed; however, budding, grafting, and cuttings have been used. Traditional method of plants on virgin soil is to put 20 seeds in each hole 3.5 x 3.5m at the beginning of rainy season. Half are eliminated naturally. In Brazil, a more successful method is to raise seedlings in shaded nurseries. At 6-12 months, seedlings are taken to fields, hardened, and then planted on contoured fields 2-3 m apart in 3-5 m rows. Holes are prepared 40 x 40 x 40 cm and 4 seedlings placed in each. Plants may be shaded by taller trees or left undshaded. Coffee is often intercropped with food crops, such as corn, beans, or rice, during the first few years. Clean weed control is necessary throughout the entire season. Pruning is common practice in some districts. Mulches and green manure are commonly used with chemical fertilizers coming more and more into use. Typical application consists of

175 g N per bush, 100 g P, and 175 g K. P and K added in two applications and N added over a longer period with 4-5 applications. Other elements added as soils require them. Shading tends to favor leaf and shoot growth at the expense of root growth. It may be useful when plants are young, but later shading may reduce yields, especially when the trees are fertilized (Michael, 2007).

2.3.2 Coffee production in Tanzania

Coffee production in Tanzania is a significant aspect of its economy as it is Tanzania's largest export crop. Tanzanian coffee production averages between 30-40,000 metric tons each year of which approximately 70% is Arabica and 30% is Robusta (Mafurise, 2012). The main growing regions of Arabica are in North Kilimanjaro, Mbeya, Matengo Highlands, Mbinga, Usambara Mountains, Iringa, Morogoro, Kigoma and Ngara. The main growing region of Robusta is the Bukoba area of the Kagera Region. Harvest time is traditionally October to February. Ninety percent of the nation's coffee farms are smallholder, with the remainder being plantations; there are approximately 270,000 workers in the coffee industry (Mafurise, 2012).

2.3.3 Coffee Production around the World

Coffee trees produce their best beans when grown at high altitudes in a tropical climate where there is rich soil. Such conditions are found around the world in locations along the Equatorial zone, between latitudes 25 degrees North and 30 degrees South.

Besides location, other factors affect the quality and flavor of coffee. These include the variety of the plant, the chemistry of the soil in which it is grown, the weather, particularly the amount of rainfall and sunshine, and the precise altitude at which the coffee grows. Such variables -- combined with the way the cherries are processed after being picked -- contribute to the distinctions between coffees from countries,

growing regions and plantations worldwide. The combination of factors is so complex, that even from a single plantation one finds variation in quality and taste. Coffee is grown in more than 50 countries around the world. Here are just a few:

America: Hawaii, Mexico, Colombia and Brazil

Africa: Ethiopia, Kenya and Ivory Coast

Asia: Indonesia and Viet man (Davids, http:/www.ncausa.orgn/i4a/pages/index.cfm)

2.4 Coffee Establishment

The successful growth and development of Coffee trees and their subsequent productivity is highly dependent on the initial establishment of the seedlings. It is at this time when crucial root development takes place, and if impended in any way, the future trees will manifest weakness throughout their life. The situation becomes very critical if the tap root hits a hard pan in the first 3-4 years of establishment. The trees start to die randomly from about the fourth year.

2.4.1 Seed materials and seedbed management.

The seedbed should be made up of sand about 2.5" deep. It should be level and not too wide (max 10ft) to facilitate easy management. Sow seeds at a spacing of 1" x 1.5" at a depth of 1" apply a light thin mulch cover e.g. grass over the seedbed, cover with a heavy shade at 2ft above the seedbed, ensure regular watering and avoid flooding as seeds will rot. Close spacing is only suitable for area of high rainfall or with irrigation.

(a) Transplanting and pot maintenance

Prepare a rich potting mixture that is crucial in establishment of the seedlings. Recommended potting media: soil: sand: manure = 3:2:1.

i) These components should be homogeneously mixed, with 2g furadan per debe of mixture. The polybag pot should be 1ft x 1.5ft and must

have drainage holes at the bottom. Arrange pots in rows of up to 10 for case of nursery maintenance operations.

ii) Gently up roof the seedling soon after the two cotyledons have opened up. Apply adequate water and plant in a pre-dug hole in the centre of the pot. Cover the seedbed at a height of 4ft with a thick shade and reduce shade progressively to have none at 8 months for gradual hardening. Ensure watering and hand – weeding continues throughout this period as necessary.

From the 4th month, maintain biri-weekly foliar feeds. Avoid use of urea or foliar feeds with high nitrogen content as they may lead to weak seedlings.

i) In case seedlings tend to crowd due to growth, increase the spacing.
ii) Transport to the field when 1ft high.
iii) Do not keep the seedlings longer than 12 months before transplanting to avoid roof coiling in the pots. Seedlings which have coiled root do not establish effectively and will be stunted in growth as they cannot effectively take up nutrients from the soil (Michael, 2007).

(b) Planting holes

i) Spacing – the convention is 9ft x 9ft (2.74m x 2.74m) which gives 537 trees per acre capability. Soil conversation is important especially if the land is sloppy. Construct benches and plant grasses on the bench faces. Contour planting also helps prevent soil erosion.

ii) Peg as per the spacing requires using accurate measures.

Dig holes at least the size of 2ft in diameter and depth. Keep the top soil (top 6") separate as this will be used as planting media. This should be done 3 – 5 months before expected planting date. Fill up the holes with top soil, 1 debe manure or decomposed pulp, 150g lime, 10g furadan and 100g TSP or 200g

SSP where acidity is below optimum. This should be done at least one month before the rains or better still 3month.When the rains have set open up the centre ensuring the spacing is maintained remove the pot carefully, transport with care not to disturb the roots. Plant the seedling to the nursery level and ensure the polybag I disposed off safe away from the field. Press then soil firmly as you full up the holes (Kiiru, 2010).

2.4.2 Field maintenance of the seedlings

i) If no rains, water regularly. The roots are till shallow and water requirement have to be checked. Do not allow wilting
ii) Mulching will help good water retention; uppers weed growth and improve soil structure. Ensure no direct contact with the stems. Apply at least 6 depth of match in all rows for first two years
iii) Weed control; do not allow weeds due to their competition with coffee for nutrients. However no herbicides should be used for the first one year, therefore use the appropriate hand weeding methods.
iv) Nutrition; apply maintenance fertilizer equivalent to 40kg/ ha per year e.g. using NPK 17:17:17, apply 80g per three times a year.

2.4.3 Pruning

Pruning is both a science and art in coffee production a science because the removal of unwanted vegetation to concentrate energy in the needy area e.g. berry development. An art because pruning give the tree the desired hope e.g. capping.

a. Coffee pruning is the number one of the most critical factors for good production and contributes significantly in promotion of productivity levels. Rejuvenates the plant through the removal of unproductive wood, selection of bearing wood and through the promotion of new suckers which will develop into new stem. One should limit the number

of stems on each tree to a maximum of 3. A higher number will result in lower productivity due to increased competition for nutrient. Many stems, does not mean higher production. It is also important to remove most of the inner primaries after they crop to encourage light penetration. This also assists the stems to lean out and create space for the development of the new suckers.

b. Main pruning, Main pruning is the removal of all the exhausted wood that had cropped in the previous season is done immediately after the crop.

c. Handling, a light pruning operation that involves the selection of bearing wood for the subsequent season's crop, is done during bean expansion stage in well a selecting only the desire bearing wood for next season crop (Gettic, 2006).

(a) Reasons for Pruning

i. Bearing wood for next seasons cropping
ii. Remove excessive growth which is also depleting food reserves and available nutrient.
iii. Open the tree to allow free air and light penetration for effective photosynthesis
iv. Remove exhausted wood whose crop has already been harvested.
v. Select Maintain the suitable crop leaf ratio
vi. Tree regeneration through change of cycle i.e. conversion
vii. Help in spray penetration
viii. Assists in discouraging proliferation of pests that thrive in a micro-climate nurtured by the thick coffee bush.
ix. Facilitate harvesting – capped trees are easier to pick from
x. Achieve quality produce through higher proportions of grades AA and AB

(b) First pruning

i. Discerning removal of unwanted suckers do not allow to grow above 6mm, Conversion cutting of stems and growing new replacement suckers.
ii. Sucker selection – choose the best uniform and well spaced axial shoots
iii. Chimney opening –removal of crass- crossing primaries that had borne a crop in the previous season at the centre of the tree
iv. Stripping – removal of most of the developing bearing wood in preparation for cutting off the tem
v. Capping –cutting off the fresh apical shoot at the desired height for 9"x9"
vi. Spacing, cap at 6-5ft with 3 stems.
vii. "Skirt-lifting-cutting off any branches touching the ground, thus lifting up the canopy. This is necessary to avoid bridges for arts to group which consequently encourage scale pests infestation (Ncube, 2010).

(c)Main pruning

i) Due after harvesting of the main crop and involves removal of exhausted wood that had borne crop and final selection of strong well placed bearing wood.
ii) When pruning it is necessary to maintain a conical shape of the tree. Cut back the primaries at the top more and lesser as you move to the bottom of the tree.
iii) Ensure that the tree is open and well a crated as more branches do not necessary translate to higher production.

(d) Handling

This is process of thinning out lush and unwanted growth, Select well placed bearing wood for the next seasons.

(e) Conversion

i. This is the renewal of the bearing stems by cutting down the old ones and replacing with your new ones.

ii. Start preparing for the conversion one year before by removing the centre tem, then the following year after crop harvest remove the second stem and immediately start growing new suckers. The stem to come off almost all wood other than the ones cropping, but minding crop leaf ratio to allow all nutrients to only be directed to berry filling.

iii. Start growing new sucker 3 months before the removal of the second tem i.e. October for medium to high altitude. The suckers will be grown with one old stem to ensure no crop is last. All primaries towards the sucker to have adequate light. Ensure no branches from the old tem are encroaching on the new suckers.

iv. Select well placed healthily sucker of uniform. The cut should be done using a pruning saw and must be smooth and sloping at 45. This ensures no water collection on the stem cut which could lead to stump totting or root infections

v. For late crop zones clean the base in September to start growing the suckers in October. Start by selecting 4 healthy well spaced sucker 3 months after suckers start growing later thinning to 3. The selection should be done carefully to ensure proper spacing and uniformly. Suckers are susceptible to attacks by yellow tea mites and hot & cold conditions leading to crinkle leaf. Efforts must be made to keep off these conditions which will slow down the growth rate and vigor. Spray captan (at 90 gms per 20 Lts of water) and thiovic (at 80 gms per 20lts of water) for crinkle leaf and mites control respectively. Well grown suckers come into production from 2^{nd} your optimizing productivity in the 3^{rd} year (Ndikumana, 2010).

2.5 Nutrition and Soil Improvement

i) It is normal for soil, after years of cultivation, to start becoming exhausted and deficient in certain essential elements that support normal plant growth.

ii) Fertilization is a physical process by which deficient elements are returned to the oil and thereby made available again for plant uptake

iii) Fertilization can be realized by use of organic manure and compost or through the application of inorganic fertilizers such as NPK, CAN, ASN and urea, among many other mineral nutrients formulations

iv) It is recommended that start utilizing inorganic fertilizer only after having employed organic methods which are cheaper, available at form level, safer to use are effective over an extended period.

v) Inorganic fertilizers are more complicated to us because the timing and rate of application have to be carefully adhered to. Applying fertilizer at the wrong time can result in excessive vegetative growth (stem, ranch and leaf formation) at the expense of how to cover it and fruit development.

vi) The entire nutrition of the coffee trees comes from the available soil nutrients pools, foliar feeds and the commercial or manure fertilizers. It is necessary to get a soil and leaf analysis done by coffee research foundation (CRF) for your farm at least once every two years. This will enable you to identify deficient nutrients and levels of supplementation required.(Michael, 2007)

2.6 Coffee Diseases

There are two major diseases of concern in coffee namely coffee Berry disease (CBD) and leaf rust. It is important to control any of these diseases since they result is reduced quantity and quality of the coffee hence reduced income CBD can wipe out 90% of the crop if not controlled.

2.6.1 Coffee Beery Diseases (CBD)

i) The most severe of coffee diseases and especially more in higher altitudes.
ii) Predisposing factors are low temperature, high humidity and wet conditions.
iii) Symptoms –small sunken dark patches in expanding berries which subsequently may cover the whole berry. The infected berries may fall off or remain stuck on the tree with dark colour.
iv) Cause –fungus called colletotrichum kahawae. The fungus stays dormant on the maturing bark of the tree when conditions are unfavorable for its proliferation
v) Worst effect is seen in expanding crop but it also affects mature crop a condition called "brown blight". CBD may also affect flowers and leaves, although this is not common or significant.

2.6.2 Coffee Leaf Rust (CLR)

i) Infection increase with presence of water and high temperatures- "warm" rain humid
ii) Weather with temperatures>20.
iii) Affects the leaves which eventually fall off prematurely
iv) Leaves are the kitchen for the tree where food is made and without them the tree suffers from die-back which is worst when the tree is carrying crop
v) This consequently affects future yield significantly (Gettic, 2006)

2.7 Coffee Harvesting and Processing

Harvesting and processing of coffee are very crucial towards the final quality of the coffee, which determine the price paid. Good quality can be made with field while this can all be destroyed during processing. Engage a qualified factory manager and send him or her to refresher courses at coffee research foundation (CRF) regularly.

2.7.1 Harvesting

Pick when coffee is just ripe- red over the whole surface. Only pick the red and leave the green to ripen. All the materials being used e.g. bags, "ndoo" should be cleaned daily. The picker's hygiene is also important, keep the picked coffee in the bags under shade to avoid overheating. Picking intervals should be 10 to 14 days for best quality, pick in a regular sequence. Do not leave ripe berries unpicked as they will be overripe next picking.

2.7.2 Processing

a) A good machine operator should be knowledgeable on the working of the pulper machine and should know how to do the settings and adjustments.
b) Fermentation removes the sticky mucilage and is complete when the parchment feeds gritty and no longer slippery when rubbed between fingers. If fermentation I complete and cannot take the coffee to driers after final washing due to pressure of space or otherwise immediately soak in clean water.
c) Final washing grading- wash the coffee in the fermentation tanks, and then release to the grading channel. Push the parchment against the water stream and grade by density into parchment one, two, thirds and lights.
d) The stores should be thoroughly cleaned at the beginning of the season, ensuring all beans from previous crop have been removed and discarded. Do not store any chemical or fuels in a coffee store, coffee beans are likely to absorb such smell and this will affect quality negatively (Michael, 2007).

2.7.3 Drying

Sun –drying is the best; however, mechanical drying may be used during the peak picking season when there is too much congestion. The coffee should be dried to a moisture content of 10.5 to 11%. A moisture meter is useful to determine the moisture leaves Gettic, 2006). Storing wet parchment may cause determination through growth of moulds. Drying of bun is also crucial. Ensure proper ventilation

and turning without over heaping to avoid moulds growth. Store dry coffee on a wooden floor or place the bagged parchment on wooden battens raised 6" from the ground (Gettic, 2006).

2.8 Challenges of Smallholder Coffee Productivity, Quality and Profitability in Tanzania

(a) Low productivity is caused by:-

i. Low of industrial inputs such as inorganic fertilizers. Most farmers use below the recommend rates, the average was 150gms per tree in Mbinga and 50 grams per tree in Kilimanjaro. This is partly due to rapid increases in fertilizer prices rendering them unaffordable to farmers.
ii. Inefficient use of inputs when farm sizes are small.
iii. Unavailability of improved coffee varieties
iv. Pests and diseases
v. Insufficient supports such as extension services have been found to be one of the root causes of low productivity.
vi. Poor crop management practices (Chimilila, 2008).

(b) Low quality is caused by:-

i. Minipulperies ensure production of large volumes of consistently high quality coffee.
ii. Poor crop management and unavailability of modern processing facilities such as minipulperies

Quality and price will always be linked together –good quality, good price –poor quality, poor price. The buyers of coffee throughout the word are still looking for quality and are prepared to pay high price it, but it must be fully understood that whatever you may think of your quality it is the buyer who finally decides what the coffee is worth in value (Forder, 2006)

(c) Low profitability is caused by:-

i. Inefficient marketing systems that do not guarantee premiums on quality.

ii. Low or absence of value addition

Table 2.1: Factors causing low coffee productivity and quantity

Factor	Percentage of respondents
Low access to new varieties	61
Prevalence of pests and diseases	97
Chemical input in affordability	54
Low application of inorganic fertilizers	70
Low access to markets	64
Processing by hand pulper	95
Low access to credit	75
Inadequate extension	60

Source: Chimilila, 2008.

Coffee quality is paramount to enable farmers to receive higher price and gain market access. Through farmers acknowledge the importance of quality in practice they don't institute measure that ensure the processing of high quality coffee. Most of them (90%) perform backyard processing which does not guarantee production of consistently large volumes of high coffee to meet market demands. The challenge is to mobilize formers into groups or primary societies and assist them with modern processing facilities such as mini pulperies, and to institute policies including quality inspections to ensure that coffee buyers are consistently purchasing a high quality product. Otherwise smallholder coffee farmers will continue hearing about good coffee prices and not accessing them.

Water scarcity, as a result of climate change and global warming, is another challenge that has received little attention. Most research focuses on input fertilizers, pesticides and seed with little attention to water as an important input. There is thus a

need to address environmental conservation, water harvesting and conservation, efficient irrigation and water use, such as water recycling. In addition to supply side factors, it is address the demand for coffee. Domestic consumption of coffee is currently of 5%. Increasing domestic consumption would mitigate the effects of price shocks, add value to the product and increase farm incomes (Chimilla, 2008).

The principal problem in the sector is low income farmers are affected by law productivity (yielding of about 250kg to 300kg per hectare) poor quality and high average production costs. Low productivity is the result of ageing coffee trees (some are in excess of 50 years), high crop loses and production costs use to CBD and CLR, poor supply of inputs due to inadequate access to credit by smallholder farmers, and poor crop husbandry and extension service (Mushi, 2008)

2.9 Market

Marketing is changing to meet the changing word. Marketing remains the business activity that identifies on organization's customer needs and wants, determine which target markets it can serve best and designs appropriate products, services and programs to serve these markets. Thus, marketing calls upon everyone in the organization to think customers and to do all that they can to help create and deliver superior customer value and satisfaction. As Professor Stephen Burnelt say:"In a truly great marketing organization, you can't tell who's in the marketing department. Everyone in the organization has to make decisions based on the impact on the customer."

The production concept is a useful philosophy in two types of situation. The first occurs when the demand for a product exceeds the supply. Here management should look for ways to increase production. The second situation occurs when the product's cost is too high and improved productivity is needed to bring it down. Another important concept guiding sellers, the product concept, holds that customers will favor products that offer the most quality, performance and innovative features, and

that an organization should thus devote energy to making continuous product improvements. A product orientation leads to obsession with technology because managers believe that technical superiority is the key to business success.

The societal marketing concept holds that the organization should determine the needs, wants and interest of target markets. It should then deliver the desired satisfactions more effectively and efficiently than competitors in a way that maintains or improves the customer's and the society's well-being. The societal marketing concept questions, whether the pure marketing concept is adequate in an age of environmental problems, resources shortages, world-wide economic problems and neglected social services. It asks if the firm that senses, serves and satisfies individual wants is always doing what's best for consumers and society in long run. According to the societal marketing concept, the pure marketing concept overlooks possible conflicts between short-run consumer wants and long-run consumer welfare. A product is anything that can be offered to market to satisfy a need, want or demand. Product is also including services and other entities such as persons, places, organizations activities and ideas (Kotler, 1999)

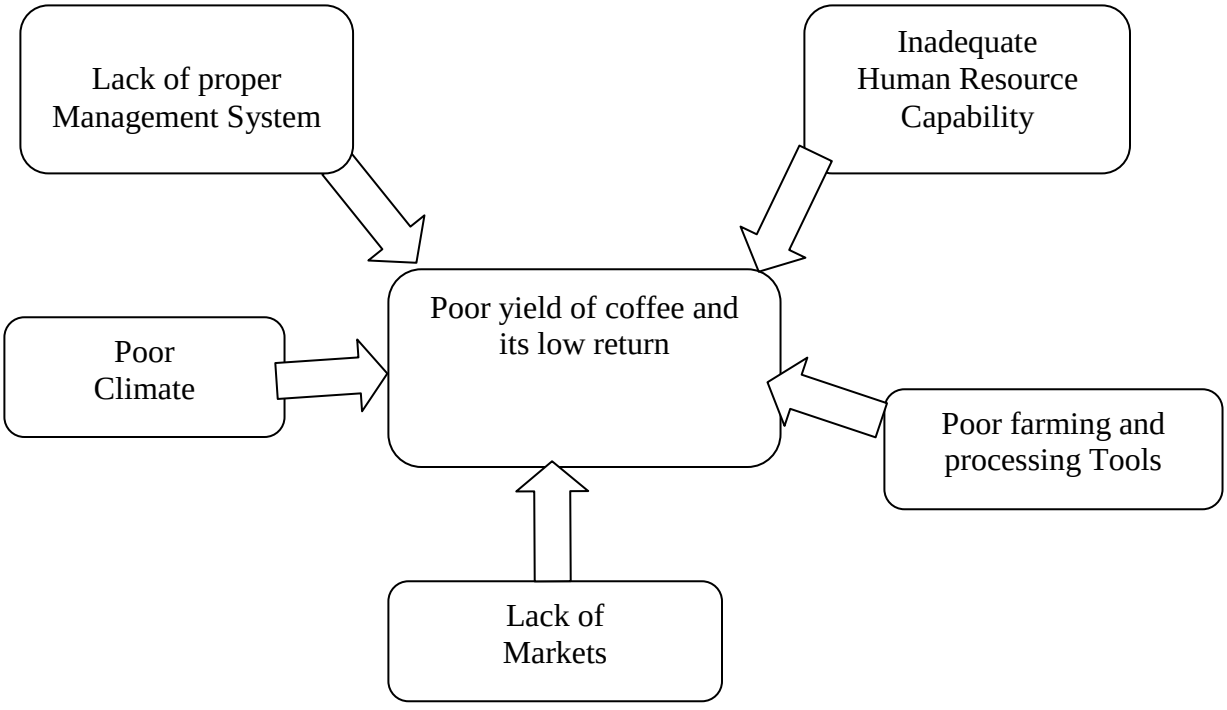
2.10 Recent Price Developments in the Coffee Market

The trends in the composite coffee price mask significant differences among the various coffee types. Reduced supplies of Arabicas from South and Central America, due to unfavorable climatic conditions, disease and structural constraints during the 2008/9, has increased the price differential when compared to Robustas. Whereas Robusta prices declined from their peak of US$105.28 per 60kg bag in 2008 to a low level of US$67.25 in March 2010 before recovering to the June 2010 price of almost US$77, Arabicas have trended upwards. In particular, the recurrence of the coffee berry borer in Colombia has driven the price differential between Robustas and Colombian Mild Arabicas from about US$43 to more than US$142 per 60kg bag (Mafusire, 2010).

2.11 Conceptual Framework

The study assumes that poor climate in the area contribute to poor yield. It is further assumed that poor Management system in managing coffee farm affects yield of coffee. Moreover, the study assumes that the personnel empowered to manage the farm do not have the necessary capability to manage it. Tools used in cultivating, harvesting, processing and storage of coffee are not in the required standards. Non availability of markets for coffee is further assumed to contribute in unprofitable coffee crop in the study area. It is also assumed that there are factors which contribute to poor yield of coffee and hence profit. These assumptions are summarized in Figure 1below.

Figure 2: Conceptual Framework



Source: Author's Own Construct, 2013

2.12 Summary

Both theoretical and empirical literature review showed the gap on coffee production in Ngorongoro farm at Karatu, but there is no research have been conducted to observe factors that contributing coffee poor yield production at the study area. The researcher has a chance to carry out the research for looking out the factors contributing low return of coffee in the farm.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the researcher has identified the tools or strategies to be used in executing the research work. All these tools aimed at gathering information in the whole concept of coffee growing in the chosen area of study. This chapter covers the following;-the area of study, research design, target population, sampling size and sampling procedures, methods used in data collection, data processing and data analysis. The chapter has concluded by sandwiching the information to be obtained and the practical application of the facts for the formulation of solutions to tackle low return in coffee production in the chosen study area.

3.2 Area of Study

The study was conducted in Karatu District which is located South of the Equator between 3°, 10'E, 4°, 00S and Longitude 34°, 47'E-35°, 56E. The estimated area of the district is 3300sq. km and is divided according to Land use as follows.

Arable land……..…102,573ha

Pasture land…….....155,808ha

Bushes & trees…….....61,218ha

Lake Eyasi……1,060ha

Un-Arable land…...9,341ha

Administratively Karatu is divided into: 4 Divisions, 13Wards, 45 Villages and 217 Sub- villages.

The total human population is 209,316 people whereby- 108,844 are (males) and 100,472 (females) and that 80% sustain life through agriculture and livestock keeping in over sixty one percent, (61.44%) of the population are farmers and (7.49%) are livestock keepers. The Agro Ecological Zones are shown below.

Table 3.1 The Agro-Ecological Zones

ZONE	AMOUNT OF RAINFALL	CROP GROWN	VILLAGES
Highland	600-800mm	Beans, and Chickpea Wheat, Barley, Coffee, Flowers, Artemisia, Maize,	Lositete, Upper Kitete, Rhotia, Kansay, Makhoromba, Oldeani, Mang'ola and Getamock.
Midland	400 500mm	Maize, Beans, Pigeon peas, Finger Millet, Sunflower and Cassava	Chemchem, Kilimamoja, Gyekrum, Gongali, Bashay, Endamararik, Endabash, Kambi Faru, Laja, Ngaibara.
Lowland	<300mm	Onions, Paddy, Maize, Sweet potatoes, and Vegetables and sorghum.	Matala, Dumbechand, Mang'ola Barazani and Endamaghan.

Source: Karatu District Authority (KDA), 2012

The Major economic activities were crop and livestock production.

The crops grown in the study area were cereal and cash crops. The main cereals crops grown included: Maize, beans and Paddy, however, farmers were mobilized to grow drought resistant cereal crops.

Cash crops which were grown in the area included: pigeon peas, coffee, wheat, Onions, barley, sunflower and finger millet. These were introduction of new crops like sunflower, Artemisia and lablab. The potential area for irrigation was 2,391ha. Lake Eyasi 2,195 ha, Endashangwet 98 ha and Chemchem 98ha.

In the mean time main livestock kept in the district were indigenous cattle, dairy cattle, goats, dairy goats; sheep, indigenous chicken, pigs, and donkeys 7.49% of the populations engage in lives stocks keeping only, the Barbaigs formed the pastoralist community.

Specifically, the study was conducted in Ngorongoro farm. This coffee farm was located in Karatu District in Arusha Region. The farm was owned and managed by the Catholic Organization called The Congregation of the Daughters of Mary.

Choosing this study area was based on the following:

i. Ngorongoro Farm is one of the reliable coffee growers in the area,
ii. The site is easily accessible by road
iii. Other communication medias(mobiles, telephones, internet) are available
iv. The researcher has a glance of knowledge on the study area

3.3 Research Design

The study applied a case study design (descriptive and diagnostic research studies). This type of research design was chosen because;

It would enable the researcher to study thoroughly the topic under the single Congregation of the Daughters of Mary – The Ngorongoro farm. It is less expensive compare to survey or experimental design. This type of research is flexible in data collection methods such as questionnaire, in depth interviews, discussion as well as documentary information.

The researcher physically visited the area, and stayed in the area within the whole period of conducting the research. For this particular study the approach was involved mixed quantitative and qualitative methods. Quantitative research is based on scientific methods and can provide proof-, while qualitative is based on social science methods and provides in– depth information on attitudes and beliefs.

It involved identifying the key stakeholders and developing the hypothesis in carrying out household research, gathering information from meeting with various groups of people involved in the whole process of coffee growing in the area.

Research design in case of descriptive and diagnostic research studies: Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or of a group; checking whether certain variables are associated-, whereas diagnostic research studies determine the frequency with which something occurs or its association with something else.

From the point of view of the research design, the descriptive as well as diagnostic studies share common requirements and as such we may group together these two types of research studies. In other words, techniques for collecting the information (i.e. observation, questionnaires, interviewing, discussion, examination of records, etc.), must be devised with their merits and limitations (Kathori, 2004)

3.4 Study Population

A population is a group of individuals, objects or items aiming for sampling so as to benchmark coffee yields and to see how they have adopted the improved practices of farming as advised by- TACRI.

Target population for sampling in this research was the Congregation of the Daughters of Mary at Ngorongoro Farm, rather than general pool of coffee growers. But since this farm is served by other people too, collection of information enriching the sample was basically covered the following:

i. The staff of Ngorongoro farm who included: (Top management, departments and workers).
ii. Local community(village leaders and other members)
iii. Extension officers
iv. TACRI officials

The population of the study was indicated in Table 3.2: below.

Table 3.2: Study Population

S/N	Staff categories	Total number
1	Top Management	2
2	Production, Processing and storage Departments	22
3	Marketing Department	6
4	Account Department	4
5	Staff In charges / supervisors	12
6	Local laborers	25
7	Extension officers	4
8	Local Community leaders	10
9	Government representatives (TACRI)	2
	Total	**87**

Source: Administration office, 2011

3.5 Sample Size

A sample size is a small group of people or elements selected from the total population to represent the whole population. So, in this study the purposive sampling was used. The sample size was contain 49 participants from different departments serving the farm, These include; 26 among the staffs from Ngorogoro farm (The Daughters of Mary), 2 Agricultural officials from Karatu District, 19 local community members (leaders and laborers) and 2 TACRI representatives. These were regarded as appropriate groups who could provide the required information for the study as shown in the Table 3.3.

Table 3.3: Sample Size

S/N	Categories	Number	Sample	%
1	Top Management	2	2	100
2	Production, Processing and storage Departments	22	11	50
3	Marketing Department	6	3	50
4	Account Department	4	2	50
5	Staff In charges / supervisors	12	8	67
6	Local laborers	25	15	60
7	Extension officers	4	2	50
8	Local Community leaders	10	4	40
9	Government representatives (TACRI)	2	2	100
	Total	**87**	**49**	

Source: Field study, 2012/2013

3.6 Sampling Procedures

Sampling is the procedure a researcher uses to gather people, places or things to study. It is a process of selecting a number of individual or object from a population such that the selected group contains element representative of the characteristics found in the entire group (Orodho and Kombo, 2002).

The researcher visited the area of study and talked to the Top management or In charge of the farm and explained the aim of making research in this area. The problem under investigation is factors contributing to low coffee production in this farm. Moreover the researcher has asked the Top Management to assist her in gathering various samples of the staff on the set date. When the process accomplished the researcher meet them for Interview, Questionnaires and Focus Group Discussion.

The respondents were taken from the following samples:

Production, processing and storage departments 11 representative, Marketing 3, Accounts 2 and staff in charge/ supervisors 8: these were regarded as appropriate staff groups who could provide the answers for the study, including wages/ daily paid 15 of these were working in high seasons only. The representative of local community was being meeting through Top Management of the farm as they well known in that area; therefore 4 samples were taken from the village leaders. Finally the researcher wrote letters to the Extension and TACRI officers requesting them to assist in answering the questionnaires in Appendix 1 which was attached.

The main aim of this procedure was to pick up respondents who had meet the purpose of study basing on their expertise or experience about the problem under investigation. Consideration was also based on age, sex, marital status, education level and the like. The representatives on these depended on the sample size as explained earlier in Table 3.3

3.7 Data Collection

The term "Data collection" refers to gathering specific information aiming at proving some facts. In data collection the researcher must have a clear understanding of what he/she hopes to obtain. Data collection helps to clarify the fact (Kothari, 2004). In this study, the type of data was Primary and Secondary data. Then, the research instruments which were used included: Questionnaires, in depth interviews, Focus group discussion, Observations and review of related farm documents.

3.7.1 Primary Data

In collecting primary data; the study was used questionnaires, in depth interviews, focus group discussions and observation.

3.7.1.1 Questionnaires

Questionnaire was the main method employed to collect information from the respondents both open and closed ended questions were used. However, the questions were answered in written or oral form basing on respondent willingness. The way which was used to administer the questionnaire was by handling questionnaires to the respondents and collecting them later or questioning them as the researcher was there at the site. The questions were being designed to use simple language, be precise and basic. The questionnaires used are attached in this research project report (see Appendix 1).

3.7.1.2 In- depth Interview

Personal interview method was used to ask general questions in face to face contact between the researcher and the interviewee. The study aimed at interviewing ten (10) people among the employees of the farm and 10 people from the local communities. The interview questions were prepared according to the task undertaken by the researcher. The knowledge obtained here was covering their interest to the sector and develop an incentive story which showed their influence in this farming practice. The interview guide used is attached (see Appendix 2).

3.7.1.3 Focus Group Discussions (FGDs)

This method was used to gather sample size through a brief discussion on factors contributing to unprofitable yield of coffee production. This was an open sharing of ideas whereby the researcher asked interviewee to contribute ideas for or against different questions. The study comprised four (4) groups which contained males and females workers from staffs and local community members. The researcher assumed that female and male workers may- had different perception regarding factors contributing to poor coffee yield. Two people were selected from each department; one group had six participants a male and another female of the same staff; FGDs from local community also containing six members; each group of male and female

was selected through local leaders. The Focus Group Discussion guideline is attached (see Appendix 3).

3.7.1.4 Observation

Under the observation method the information is sought by way of investigator's own direct observation without asking from the respondent. This is also termed studying by looking intensively. The Researcher has kept in mind things like:

What should be observed?

How the observation should be recorded?

The Researcher did observation in three critical areas of coffee production.

i. Production (planting, weeding, pruning and picking)
ii. Processing
iii. Storage ,transport and marketing

3.7.2 Secondary Data

In collecting data, the study used documentary sources such as annual financial report, edited reports, strategic and development plan report. The study also reviewed other related documents or reports and utilized effectively in order to get the acquired information under the study. The analysis of coffee marketing/auction data was conducted to examine the quality and quantity of coffee supplied. The researcher- reviewed the existing documents in order to examine the profit and loss of the business for the period of 5 years (2006-2011).

3.8 Data Processing and Analysis

The collected data were processed, edited and summarized descriptively. Presentation of data was by tables, percentages, pie-charts and bar-charts.

CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The first part of the chapter provides background characteristic of respondents in terms of their age, sex, marital status and level of their education. The second section discusses factors contributing to unprofitable yield of coffee in Daughters of Mary Ngorongoro farm in Karatu District. The section further discusses availability of management system and human resources capability of the personnel in the farm including tools used. The chapter also provides the climate of the area where the coffee crops are produced. The last part of the chapter explains the market of coffee in Tanzania Coffee Board auction for five years.

4.2 Background Characteristic of Respondents

4.2.1 Age

The age of respondents was asked in order to establish whether it influences the yield of the farm based on their years of experience, maturity and capability of working power. The studies found from their responses to the question on age that majority (81.6%) were in age group; 25-39 years as shown in Table 4.2.1-This is an active age group in production with enough experience.

Table 4. 1 Age and Sex of Respondents

Responses	Frequency	Percentage (%)
Age		
15-19	0	0
20-24	6	12.2
25-29	14	28.6
30-34	16	32.6
35-39	10	20.4
40 and above	3	6.1
Total	**49**	**100.0**
Sex		
Male	21	42.8
Female	28	57.1
Total	**49**	**100.0**

Source: Study Findings, 2013

4.2.2 Sex

The study also wanted to know the sex that was dominant in the farm in term of employed individuals. It was found that females outnumbered their male counterparts because (57.1%) were female employees. This is because their daily earning depended on farm yield. The usage of their income also differed thus woman were the main caretakers of the family. Table 4.1 illustrates this information.

4.2.3 Marital Status

The study was further interested in knowing the marital status of workers in the farm to examine whether, the marital status had influence on the extent of responsibility and commitment at work place could affect the yield of coffee production. The responses to this question, the majority; (65.7%) were married as shown in Table 4.2. Since majority of the respondents were married it was expected that they are more

settled compared to those who were not married. They were also more committed to work because their families depended on what they got from the farm.

Table 4.2 Marital Status

Responses	Frequency	Percentage
Single	17	34.3
Married	32	65.7
Total	**49**	**100.0**

Source: Study Findings, 2013

4.2.4 Level of Education

Level of education was another important issue in area of production. In order to establish whether the yield of the farm could be affected according to personnel's qualifications; the study asked respondents concerning their level of education. It was found that the majority of workers (79.6%) had primary education as shown in Table 4.3. The mobility of workers with primary education is generally low compared to those who are well educated. It was thus assumed that there are commitment to work would be higher compared to those who moved to other places when the income from the farm was lower. However, low education had also a negative impact in the sense that they lacked creativity which was commonly associated with the level of education. Educated personnel could apply new technology in the area of production.

Table 4.3 Level of Education

Responses	Frequency	Percentage (%)
Primary	39	79.6
Secondary	6	12.2
College/University	4	8.2
Total	**49**	**100.0**

Source: Study Findings, 2013

4.3 Existence of Management System

The study wanted to establish whether employees were aware concerning the existence of management system in the farm. This question was found to be relevant since it could show how the workers perceived the way the farm was managed. From their response to this question, the majority; (71%) of them indicated that there was no effective management system as shown in Table 4.4.

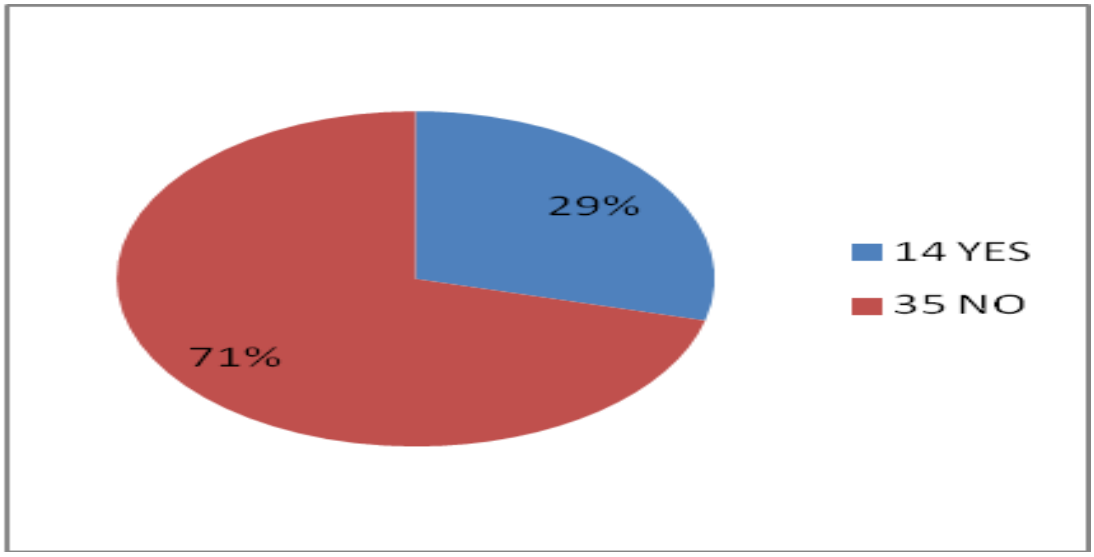
Table 4.4 Existence of Management System

Responses	Frequency	Percentage
Yes	14	29
No	35	71
Total	**49**	**100**

Source: Study Findings, 2013

Those who mentioned that there was a system were only (29%). The same responses are further shown using a pie chart as indicated in Figure 3.

Figure 3: Presentation of Management System.



Source: Study Findings, 2013

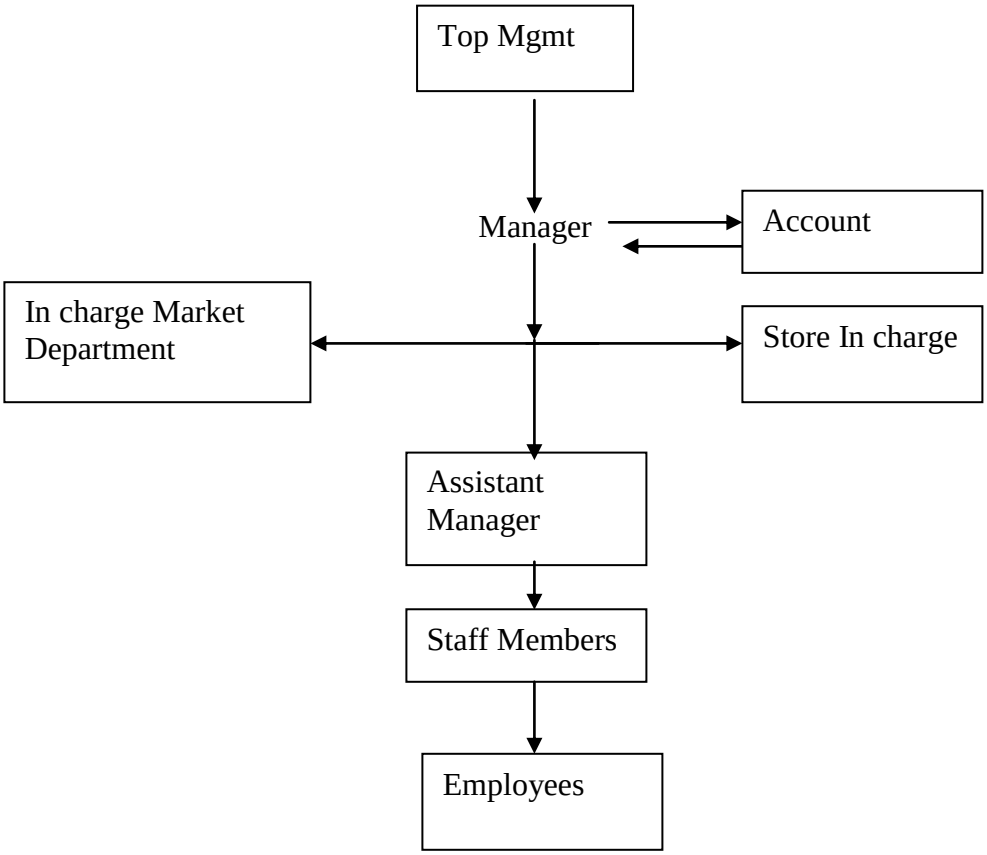
During in-depth interview the respondents to indicate that there was no effective management system cited some examples.

They mentioned that," There were cases where a manager would issue an order to the employee to perform a certain task in a stipulated time frame. The concerned employee would do it to the best of his or her ability according to how he/ she were instructed by the manager. Later the same person while checking how the job was done may end up criticizing the job done; sometimes the order was done by other staff without manager concern. This situation indicates that there was no effective communication between the manager and other staffs in the management."

Mutual communication was very important tool to have good end result and to avoid loses or waste of time and money. Management team functions included establishing clear standards to determine whether or not an organization was progressing towards its objectives. The objectives could be achieved only if there were mutual communication between management and employees.

The study further observed that at the top management of the farm there is Mother General of the congregation of Daughters of Mary Tabora. For day to day activities the farm was under manager or In Charge of the farm who was been selected by the top management. The responsibility of the manager and other staff members are indicated in Figure 4.

Figure 4: Management Team Jobs Description



Source: Study Findings, 2013

The main activities of manager should be planning, organizing and controlling the coffee production in the case study area. Good result of implementation of planning depends on whether subordinates or employees have clear understanding of what to do through mutually communication. The study revealed that the current management and employees have no smooth relationship. The management team seems to have hard time with employees because of weak communication between them in performing the organization goals.

Strategies remain useless "academic exercises" unless they are effectively implemented. This requires proper communication of plans, strategies and policies to various functional/divisional units, enlisting the support of people involved in the process; proper guidance and support of top management; an appropriate structure and climate suitable to carry out the assigned tasks; a view to maximize return and established of appropriate achieved, effectively and efficiently. Strategy activities that are necessary to put the strategy in motion, institute strategies controls that monitor progress and ultimately, achieve organizational goals.

4.5 The Human Resources Capability

4.5.1 The Farm Manager

The study found that, the farm manager though has same capabilities to manage the farm she was overburden by the task. She had to make sure that, the project did not get lost in the shuffle of organizational activities. She specified what was to be done when it was to be completed and how much of the resources were required. In turn the functional In- Charge leaders decided who in their sections would perform the task and how it would be done. The relationship between the farm manager and functional head was quite ambiguous because of flow of communication between manager and employees /workers. The manager of the farm was performing the responsibility of the farm by experience, as she was an accountant by profession. Decisions to sacrifice time for cost, cost for quality and quantity or time, were common in most farms and the farm manager had to make the work without panicking. From responses, the majority; (65%) indicated that the Farm Manager worked through experience without proper qualification; whoever, this impaired the whole process of production towards productivity.

4.5.2 Factory Personnel

In this part though Focus Groups Discussion the study revealed that, the factory Supervisor had an important responsibility in order to maintain the quality of the

coffee production. The factory was the only main place to process good coffee product in final quality maintained. Harvesting and processing of coffee were very crucial towards final quality product of coffee, which in turn determine its price. Good quality could be made in the field while this could be destroyed during processing. To maintain quality in the factory qualified factory personnel's were needed. Quality control begins in the field –red ripe berries just ready for harvesting. After picking ripe berries from the tree, the foreign matter must be removed such as leaves, and selecting the best cherry – fully red and Un-diseases as grade I. The overripe, diseased and green were dried as buni.

Processing includes pulping, fermentation, final washing and Grading. Process was very important to maintain quality of coffee in the factory. Knowledgeable personnel and good operator of pulpier machines could only manage this process effectively. The pulpier machine discs had to be properly set to the size of the cherry to avoid nipping of beans. The cherry feed rate should be controlled to avoid over feed and the water flow rate as well. The coffee had to be protected from sun and rain during fermentation. Factory hygiene was very important to maintain good quality. Immediately wash the pulpier machine after pulping to make sure that, no beans were left out from previous day coffee anywhere on the processing lines as they could lead to formation of stinkers. The operator of the machine had to make sure that no leakage of oils, fuels etc. from any machines to the coffee during processing coffee. After 12 hours of fermentation the coffee had to be washed with clean water to release the grades. The clean coffee had to be dried to a moisture content of 10.5% to 11% A moisture meter is useful to determine the moisture level.

The In- Charge of the factory was required to understand that after harvesting and processing coffee the factory needed maintenance for next season of the year. Service of pulping machinery was done when the crop was over- re spray and cut discs, recondition the ploughs, change knives etc as may be necessary, repairing the

drying tables and fermentation tanks. From the research findings it was revealed that the factory supervisor was an employee who ran and controlled all these activities of processing coffee and factory maintenance. But, the activities were done through long experience without any current short courses of coffee processing. The operator of the machine has some knowledge of controlling machine.

4.5.2 Personnel Capacity Building

The farm had few permanent employees of different department and many of them were working under long experience activities. Some people felt lost without a permanent identification. Workers had no guarantee of their security because they were set as temporary laborers. They feared that completion of one production season of a year would mean the end of their job. This can encourage production slowdowns. The temporary workers could even shift from one farm to another to avoid dangers of laid offs.

From the study findings it was found that, The Daughters of Mary Ngorongoro farm management had no clear plan of training staff members and also employees. The farm production of coffee was done through experience of employees within the same farm. In the period of past three years; only one person / employee had a short seminar about diseases of coffee and coffee processing. Many staff members were working through experience to run different activities in the farm as indicated in Table 4.5 capacity distribution of personnel.

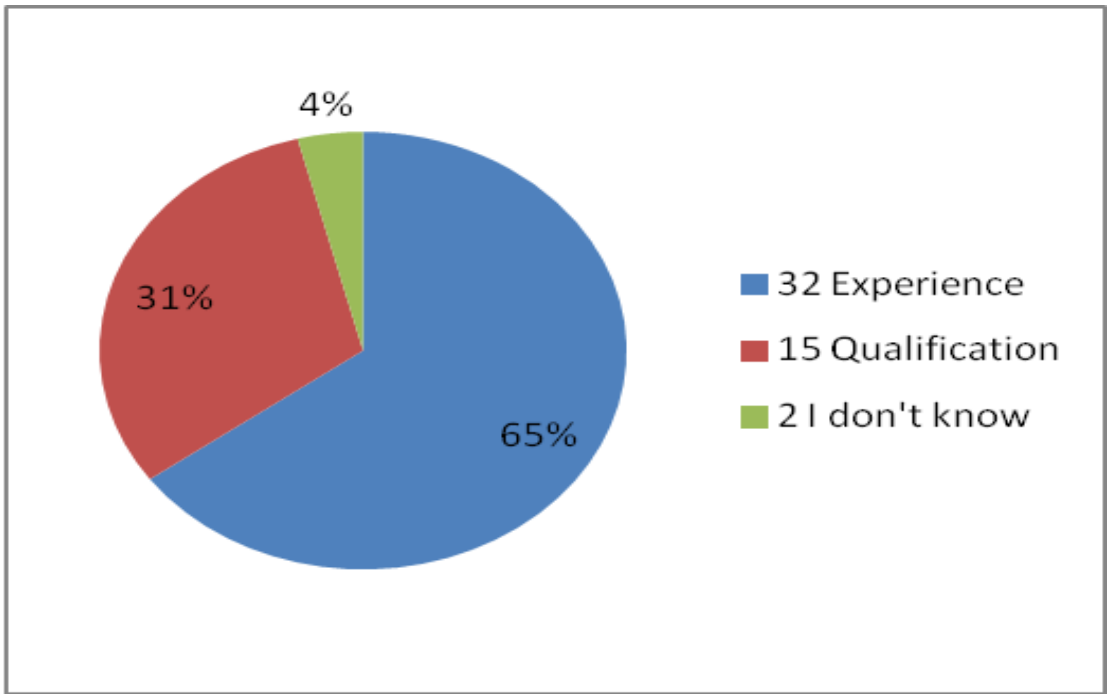
Table 4.5 Personnel Capacity Distribution

Responses	**Frequency**	**Percentage (%)**
Experience	32	65
Qualification	15	31
I don't know	2	4
Total	**49**	**100**

Source: Study Findings, 2013

In their responses, the majority; (65%) were working under experience than qualifications, as shown in figure 5.

Figure 5: Personnel Capacity Distributions



Source: Study Findings, 2013

4.6 Methods and Equipment Used

From the research finding though questionnaires and observation, it was found that there were poor farming tools such as; hand hoes, hand sprayers, and many activities were done by manpower. Processing machines were manual operating and old technology. Since there were no trained personnel even to use modern tools could be a problem. The Extension officer has following comments concerning good farming methods and modern equipments.

a) **Nursery tools**: Watering gun, Garden fork, Polyether sheet, Shade net and Pots.

b) **Boom sprayer**: This is method used to spray coffee using tractor, which has advantages and disadvantages.

The advantages include:

i. Easy operation in case of time
ii. Efficiency in case of pressure
iii. Large coverage area

Disadvantages:

i. Costly in terms of service maintenance
ii. Require fuels
iii. Require trained personnel

c) Hand sprayer: This method is used to spray coffee using manpower

Advantages:

i. Affordable for small scale farm
ii. Can be used where there are obstacles and slop areas
iii. Does not need trained personnel

Disadvantages

i. Cover small area
ii. It is not efficient in time management
iii. Low efficiency in case of pressure

Through questions responses from respondents; the study found that, the farming methods used were old technology and also farming tools used were not standard as indicated in Table 6.

Table 4. 6 Tools Used

Responses	Frequency	**Percentage (%)**
Boom sprayer	13	26.5
Hand sprayer	36	73.4
Total	**49**	**100**

Source: Study Findings, 2013

4.7 Climate of the Area

Arabica coffee thrives from the humid tropics to temperate climates from 5°N lat. to 34°S lat. where temperatures average 11-26.5°C, and from sea level to 2,500 m altitude. Rainfall needs to be regular, abundant, and well-distributed; from 800-2,500 mm. Ideal conditions at the equator are 1500-1800 mm. A short, relatively dry season may facilitate flowering and/or pollination. Karatu District soils are deep red to brown-red lateritic loams or clay loams of volcanic origin of high to medium fertility with soil pH 5.3-6.6 which is good for coffee production.

The climate varies across the district. The district had bimodal rains, Short rains were between Octobers- December in the highlands and long rains (Masika) was between March- June. Average Rainfall Pattern for the Past 7 years 2007-2013

Jan 2007-Dec 2007---1218mm

Jan 2008-Dec 2008---983mm

Jan 2009-Dec 2009---744mm

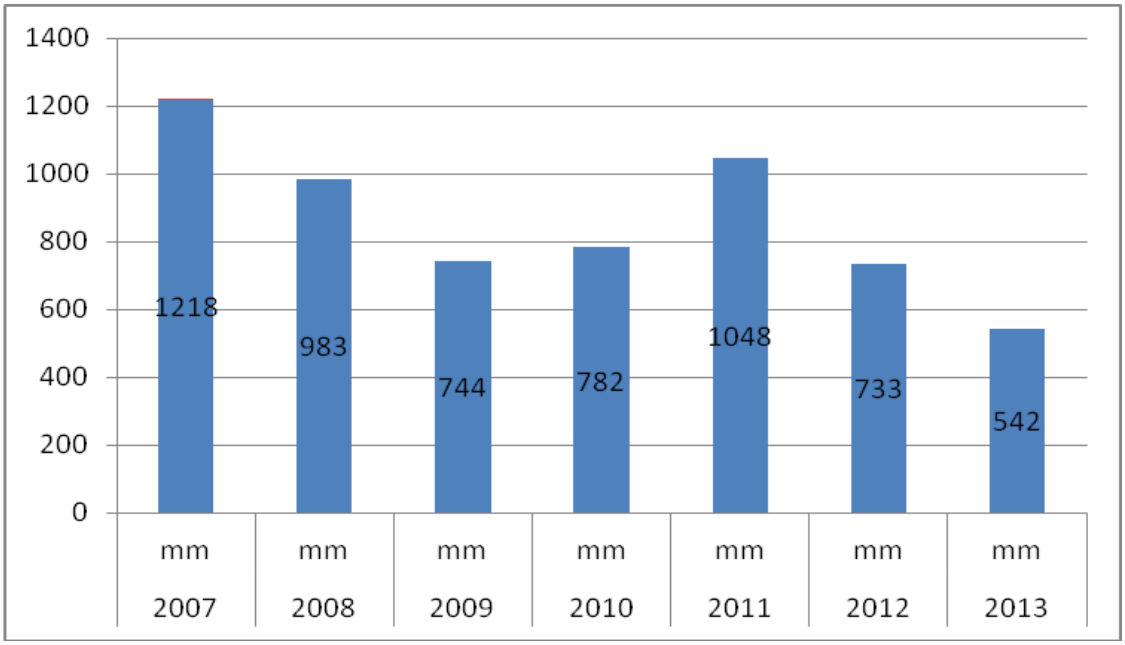
Jan 2010-Dec 2010---782mm

Jan 2011- Dec 2011---1048mm

Jan 2012-Dec 2012---733mm

Jan 2013- April 12/04/2013---542mm

Figure 6: Average of Rainfall Pattern from 2007 to April, 2013



Source: Karatu District Agriculture office, 2013

The study found that the rainfall average was not sufficient throughout the year because of global warming as indicated in Figure 6. Ngorongoro farm had water resource within the area of coffee production and which flowed throughout the year. It was possible to use irrigation method in coffee production.

4.8 Market of Coffee

Tanzania Coffee Board reported that the Global market of coffee was available around the world. The prices of coffee in the market depended on the quality of the coffee product. Tanzania Coffee Board (T.C.B) was a board responsible to sell all coffee produced in Tanzania in the Auction market of coffee, with their head quarter at Moshi town in Kilimanjaro Region. The following were research findings from Tanzania Coffee Board report about market of coffee from 2008-2011. The trends in the composite coffee price mark significant differences among the various coffee types. The coffee production reduced of Arabica from South and Central America,

due to unfavorable climate condition, diseases and structural constraints during the 2008/2009, has increased the price differential when compared to Robust. In addition to the price differentials between the various types of coffee, the New York market gain consistently offered high prices compare to the market in German and France. For instance; in June 2010 the New York market offered US $229.06 per 60kg bag for Colombian Mild's Arabica compared to US $ 220.075 on the German market. On other hand, Robusta fetched US $ 82. 51 on New York market as compared to US $75- 78on French market. For the given situation, coffees producers would be affected differently depending on the types of coffee they produce and market destination of their product. For more illustration refer Appendices 4 the reports of Ngorongoro farm accounts from Tanzania coffee board (T.C.B) in the Global market (auction) from seasons 2007/2008 to2011/2012 year. The actual price for coffee of 60kgs sold in the auction market according to grades (quality) as took place at Moshi Head quarter in different years were indicated in Table 4.7.

Table 4.7: Price of Coffee in the Market from 2007 to2011years

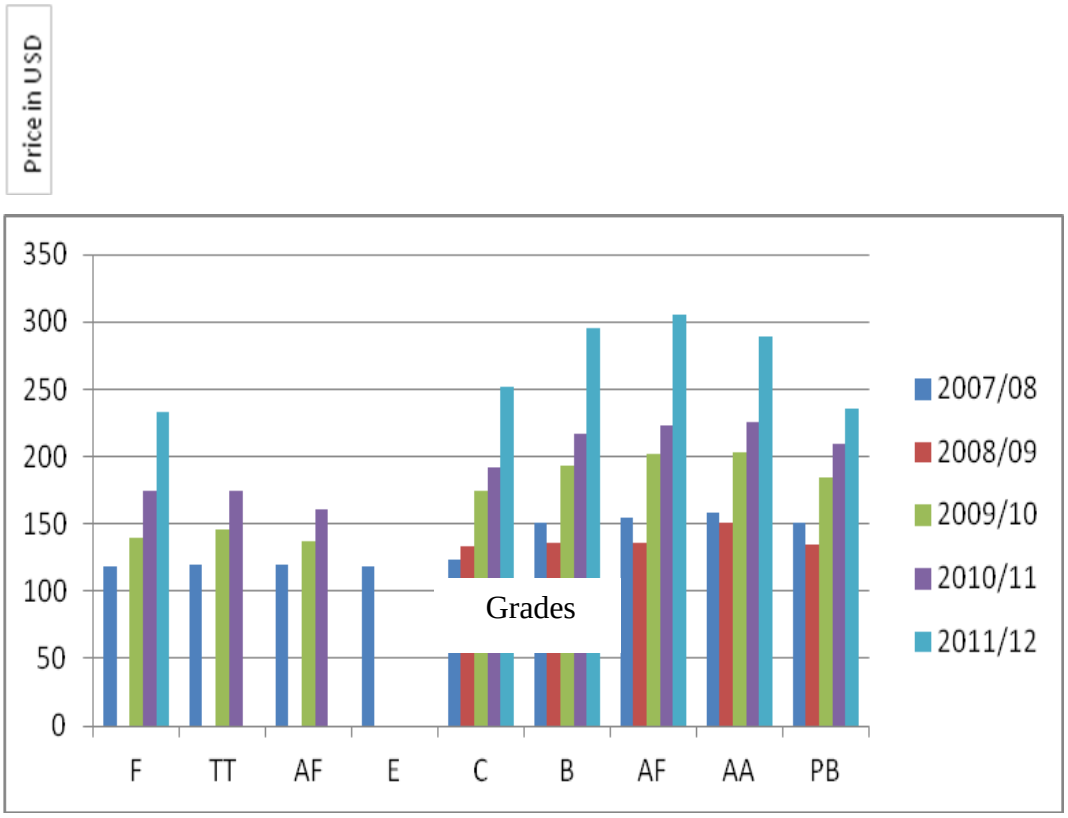
The Prices of coffee in USD for the bag of 60kgs each from 2007 to 2011					
Grade	2007/08	2008/09	2009/10	2010/11	2011/12
F	118.0	0	140.0	175.0	233.0
TT	119.6	0	146.0	175.0	0
AF	119.4	0	137.0	161.0	0
E	119.0	0	0	0	0
C	124.0	133.0	174.0	192.0	252.0
B	151.0	136.0	193.0	217.0	295.0
AF	155.0	136.0	202.0	223.0	305.0
AA	158.8	151.0	203.0	225.0	289.0
PB	150.8	135.0	185.0	210.0	235.0

Source: Tanzania Coffee Board, 2013

The market price increased from one year to another according to grades and quality. Table4.8 presents the price as indicated in Tanzania Coffee Board. High grades started from A, AA, B, PB, C, AF, TT, and F the high grade and good quality got high price as presented in Figure 7.

Market of coffee in the world was increasing from year 2007/2008, but only year in the 2008/2009 price decreased more than previous year in Tanzania coffee market; because of high production in the World such as Brazil the first producer of coffee.

Figure 7: Yearly Prices of Coffee according to Grades



Source: Tanzania Coffee Board, 2013

Quality Analysis report of coffee product from TCB indicated that the quality of coffee supplied from Ngorongoro farm says its average or medium but quantity was sub- standard. Form Tanzania Coffee Board report the market of coffee was available around the world depending on quality of coffee.

Quality and quantity production of coffee in the Daughters of Ngorongoro farm were indicated in the following Table 4.8 presents quantities in kg from 2007/2008 to 2011/2012 and percentage of total quantity. While the same data were presented in Figure7: indicating the quantities produced in different years according to grades or quality of the same year.

Table 4.8: Quality, Quantity in (kg) and % Total from 2007 to 2011

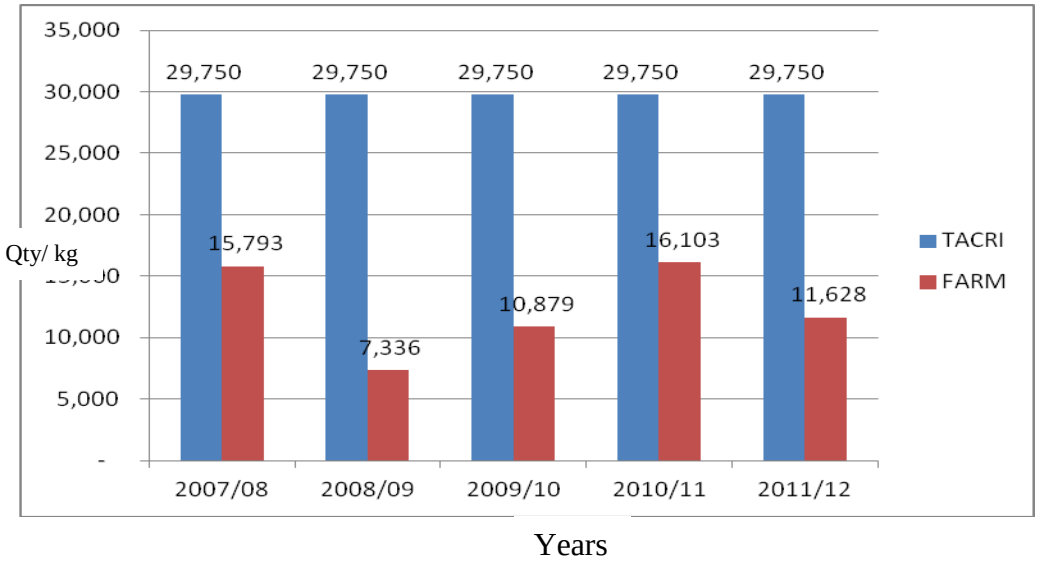
	2007/08		**2008/09**		**2009/10**		**2010/11**		**2011/12**	
Grade	**Qty (kg)**	**%**	**Qty (kg)**	**%**	**Qty (kg)**	**%**	**Qty (kg)**	**%**	**Qty (kg)**	**%**
F	400	2.53	11	0.15	431	3.96	887	5.51	25	2.40
TT	384	2.43	-	-	586	5.38	736	4.57	-	-
AF	263	1.60	-	-	171	1.57	211	1.31	-	-
E	102	0.65	-	-	-	-	12	0.07	12	0.07
C	149	0.94	185	3.24	409	3.73	766	4.75	-	-
B	2,293	14.51	2,219	27.92	3,861	35.46	6,595	40.90	2,393	15.00
A	3,929	24.86	2,258	28.40	2,839	26.18	3,927	24.37	7,315	63.00
AA	7,520	47.59	2,063	26.03	2,068	19.70	2,301	14.28	1,183	4.98
PB	753	4.77	600	7.28	514	4.02	668	4.15	695	2.93
TOTAL	**15,793**		**7,336**		**10,879**		**16,103**		**11,623**	

Source: Tanzania Coffee Board, 2013

The total sum of coffee production for five years from 2007/2008 to 2011/2012 was equal to 61,739kg. On average per year it was 61,739kg/5yrs =12,348kg/yr; while this amount of coffee it was produced in area of seventy hectares (70) of the whole farm. Therefore production per hectare per year was 12,348kg/70ha=176.4kg/ha.

The estimated production from TACRI per hectare ranged from 425kg/ha to 665kg/ha within Tanzania capacity production. From research findings the farm reflected very low productivity of 176.4kg/ha per year, compare to at least 425kg/ha per year from TACRI. The farm of seventy hectares (70ha) could almost produce 29,750kgs per year at low production level. The quantity comparisons between TACRI and Farm production are indicated in Figure 8.

Figure 8: Quantity Comparisons between TACRI and FARM



Source: Study Findings, 2013

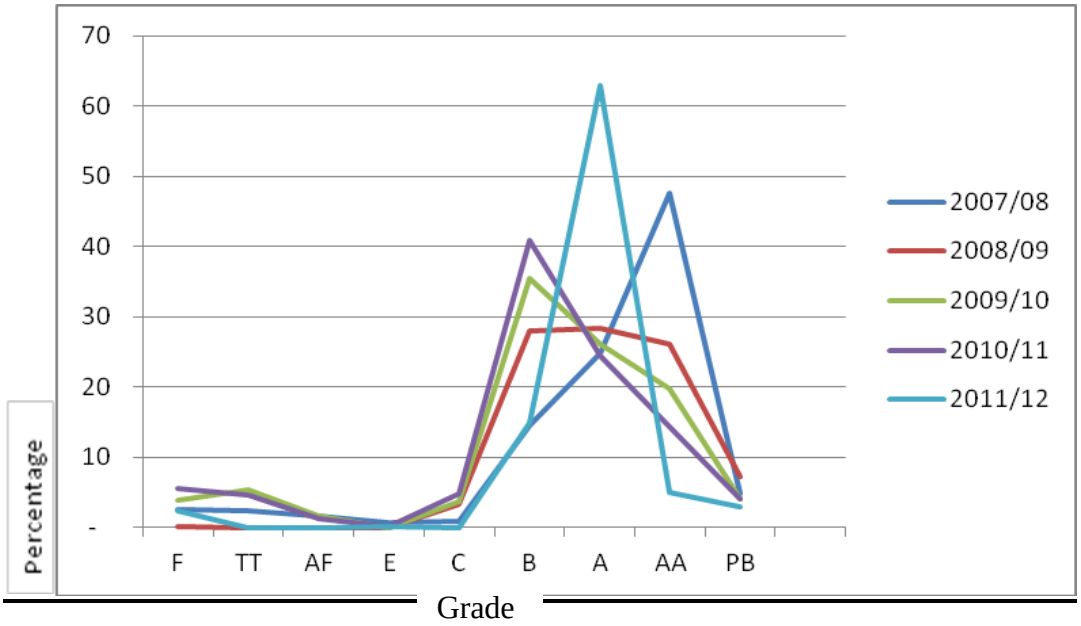
The income comparison between TACRI and Farm, the data relecting low income of the farm compare to low standard production of coffee from TACRI.The mean income is USD 98,486.80$ and 41320.33$ per year which had almost 57,166.47$ different income per year.Main problem faced was low income which was caused by high cost of production in Ngorongoro farm as main activities were done manually insteand of using morden technology. Low quantity of production of coffee led the farm to run at losses in daily production activity as indicated in Table 4.9.

Table 4.9: Profitability comparison between TACRI and FARM

Summary prices,quantity,P/Q from 2007 to 2011															
Grade	**2007/08**			**2008/09**			**2009/10**			**2010/11**			**2011/12**		
	P(60kgs)	**Qty**	**Qty/p**	**P(60 kgs)**	**Qty**	**Qty/p**	**P(60 kgs)**	**Qty**	**Qty/p**	**P(60 kgs)**	**Qty**	**Qty/p**	**P(60 kgs)**	**Qty**	**Qty/p**
F	118	400	786.67	0	11	-	140	431	1,005.67	175	887	2,587.08	233	25	97.08
TT	119.6	384	765.44	0	-	-	146	586	1,425.93	175	736	2,146.67	0	-	-
AF	119.4	263	523.37	0	-	-	137	171	390.45	161	211	566.18	0	-	-
E	119	102	202.30	0	-	-	0	-	-	0	12	-	0	12	-
C	124	149	307.93	133	185	410	174	409	1,186.10	192	766	2,451.20	252	-	-
B	151	2,293	5,770.72	136	2,219	5,030	193	3,861	12,419.55	217	6,595	23,851.92	295	2,393	11,765.58
A	155	3,929	10,149.92	136	2,258	5,118	202	2,839	9,557.97	223	3,927	14,595.35	305	7,315	37,184.58
AA	158.8	7,520	19,902.93	151	2,063	5,192	203	2,068	6,996.73	225	2,301	8,628.75	289	1,183	5,698.12
PB	150.8	753	1,892.54	135	600	1,350	185	514	1,584.83	210	668	2,338.00	235	695	2,722.08
	Total USD		40,301.82			17,100			34,567.23			57,165.15			57,467.45

	2007/08	**2008/09**	**2009/10**	**2010/11**	**2011/12**	**Mean**
TACRI	75,918.39	69,346.37	94,528.45	105,611.57	147,029.29	98,486.80
FARM	40,301.82	17,100.00	34,567.23	57,165.15	57,467.45	41,320.33
P/L	(35,616.57)	(52,246.37)	(59,961.22)	(48,446.42)	(89,561.84)	(57166.47)

Figure 9: Percentage of Production according to Grades yearly



Source: Study Findings, 2013

Quality of coffee was maintain from the farm to processing stage. From Figure 9 the percentage of quality production ranged from 30% to 62% at least it indicated high quality product grades from A,AA,B and PB, low quality start from C- F.High quality fetched high price and visa versa. When the quantity produced increased it could also increase the quatity, through knoledgeable personnels and new technology.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The study concludes that management system is not effective. A manager who is answerable to the top management is also responsible for all financial matters of the same farm. The workers are of the opinion that everything is being managed as a single person. This situation demoralizes them in terms of work done and effective communication between management and employees. It further concludes that a good number of personnel do not have sufficient capabilities in different departments because of lack of training strategy. Many employees are working under long experience without update training. The workers are not enjoying activities carried out because of low production which lead them to gain low income at the end of the day. The use of hand machine and insufficient tools in processing coffee production is another factor contributing to unprofitable yield from the farm. It also concludes that climate of the area can sometime contribute in lowering the yield; but this situation can be overcome by using irrigation method. The market of coffee is available around the world; but it depends on quality of the product, good quality get high price and poor quality fetch low price. While following Recommendation and advice given here, the Farm of the Daughters of Mary will be at a good position of high production volume hence high profit.

5.2 Recommendations

Based on the findings of the study, the following recommendations are made:

(i) Availability of Management System

Management system is not effective in managing day to day activities. Managers must have a deep understanding and appreciation of the environment in which they

and their organizations function. To illustrate the importance of environment to a farm manager, consider the analogy of swimmer crossing a wide stream. The swimmer must assess the current, obstacles and distance before setting out. If these elements are not properly understood, the swimmer might end up too far upstream or downstream. The farm manger is like a swimmer and the environment is like the stream. Just as the swimmer needs to understand the water, the farm manager must understand the basic ingredients of its environment to reach its goals.

There are two types of environment; these are Internal and External Environmental. Internal Environment consists of conditions and forces within an organization that affect its management that includes the organization's mission, owner and employees. The external environment consists of those factors that affect a farm from outside its organizational boundaries. In actual practice, since both external and internal forces inter act and impact organizational farm survival and growth, the manager can do well to examine both set of factors at the same time. Essentially, the farm has to deal with economic, social, political, technological, regulatory, market and supplier related effects which offer opportunities and pose threats at regular intervals. In order to earn reasonable profit from the farm, it is very important to have well qualified farm manager, which can produce high quality coffee and maintain effective management system.

(ii) The importance of personnel

A farm's real assets are its human resources, consisting of Top Management, Manager, Supervisors and Employees. The manager with vision, drive and enthusiasm always help the farm steer out of troubles and stay ahead of production. The board's vision, commitment, knowledge and experience all help in taking the farm to high productivity and profitability. It is important sometimes for the Management team to find out the reasons of why there strategic plan never got implementation on time?

Manager before sitting down with his/her teams must make sure that she has taken care of these potential traps:

1. **Lack of ownership**: The most common reason a plain fail is lack of ownership. If people do not have a stake and responsibility in the plan it will be a business as usual for all but a frustrated few.

2. **Lack of communication**: The plain does not get communicated to employees and they do not understand how they contribute.

A farm's employees are also a key element of its internal environment. When the manager and employees embrace the same values and have the same goals everyone wins. When they work at cross purposes, however or when conflict and hostility pervade the farm, everybody loses. The flow and type of information communicated will play significant role in how successful leaders will be in implementing their ideas throughout the farm. If the workers are not kept informed, they will make up their own massages and stories in an attempt to fill in the blanks. This can cause the rumor mill to become the main source of information, causing leaders to lose control over the facts. Once leaders lose control over what messages are being communicated, this will have a negative impact on their ability to execute their strategies. Leaders must align their own talents and skills with those of their executive and management teams for the implementation process to be an efficient as possible. When directly communicating to individual departments, leaders must personalize their massages so that everyone involved understands how strategies relate to them and what role they play in accomplishing the desired results. The first step is to establish a message that will not only communicate what the strategy is meant to accomplish, but will get others to come together in support of the changes that will be taking place. It is imperative to visualize the final goal.

(iii) Empowering Personnel

The Daughters of Mary have to aim at getting profit of their coffee by training their personnel with different levels of education. Workers in different sectors of production among the Daughters of Mary should always be trained and because the productive group in the society are the youths. The Daughters of Mary should make better use of this group and encourage them of their involvement in coffee career. This is done by getting frequent training to the workers of every section in the production process. The Farm should work closely with TACRI and other bodies so as to reduce complexity and to access easily new knowledge of coffee production.

(iv)Technological Environment

Technological factors represent major opportunities and threat that must be taken into account while formulating strategies. Technological breakthrough can dramatically influence the coffee productions, suppliers, customers and marketing practices. Technological change, thus can create or even decimate existing of coffee crops to another crops such as beans or wheat, since it shifts demand of the people. Coffee is significant source of export earnings to many countries including Tanzania. The Farm should make use of the extension officers frequently to check the progress of coffee production and let them advice there if need be. The use of appropriate and authentic inputs such as; fertilizers, fungicides and insecticides. Better understanding and application of sufficient and modern tools of agriculture. The uses of modern and updated farm equipments like hand machines pulpier to be replaced by modern machines. They need to develop Proper practices of harvesting, drying, cleaning and storage. By this the Daughters of Mary Farm will see they are improving production volumes from 176.4 kg of clean beans per hectare to 425 kg per hectare.

(v) Climate

Climate has sometimes been a problem towards productivity and profitability of Coffee around Karatu area. The Daughters of Mary should try the best to assess the

impact of climate change in the area and adapt the possible measures or changes to the existing agricultural practices including irrigation and planting of more trees for shading.

(vi) Market of Coffee

Coffee producing countries in Africa, especially those producing Arabicas, stand to earn export revenue windfalls as a result of the recent increase in the commodity's price on the International market. However, physical limitations in some coffee growing countries in Africa constrain their ability to broaden their mix among the various varieties, given the apparent price differentials, as a way of maximizing revenues (Mafure, 2010).

The buyers of coffee throughout the word are still looking for quality and are prepared to pay high price for it. The Manager must always get proper market information on time and increase communication of this information to all the workers in the farm, so that each one may play his/her part to improve production. This is important because what their produce is what their get in terms of income. The farm should try the best to reduce transaction costs thus higher income. It good advice sometimes for farm management to discuss with Government coffee bodies about regulation of taxation, customs and land ownership procedures so as to encourage the Daughters of Mary to invest more on coffee farming. This is very important because as the trend goes it can discourage production of coffee and make other farmers including the Daughters of Mary to change production from coffee to other crops because most of their profit is going to taxation, customs and licenses. The Daughters of Mary should sometimes find other markets of coffee abroad. The farm can make market available by Preparing and selling consumer readymade products such as roast beans, roast coffee and instant coffee. This is to domestic, regional and international markets.

Finally, to the prospective researchers, this study was conducted at the Daughters of Mary,Ngorongoro farm in Karatu District and due to the limited scope to the study; it is not easy to explore everything related to coffee production. This therefore, calls for a need to conduct another related study in the field of coffee production, in order to boost the quantity and quality of coffee that can compete in the international market.

5.3 Area for Further Study

This study concentrated on assessing factor contributing to poor yield of coffee. It may be interesting for other researchers to investigate influence of market on production of coffee in Tanzania

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APPENDICES

Appendix 1: Questionnaires

(a) Questionnaire for the Management

Dear respondents,

I am carrying out a research study on factors contributing to unprofitable yield of coffee in Daughters of Mary Ngorogoro farm. It is in partial fulfillment for the award of the Master degree in Accounting and Finance at Mzumbe University. I am requesting for your participation towards the success of this study, please respond to the following questions carefully and answer them, giving your comments where necessary. Be assured that all information and comments you provide in response to any question will be used for academic purposes only and with confidentiality. I look forward to receive your cooperation. Thank you for your time and responses.

1. Personal information of the informant (please tick)

a) Age:20-24 ☐ 25-29 ☐ 30-34 ☐ 35-39 ☐ 40-44 ☐

45and above ☐

b) Sex: Male ( ) Female ( )

c) Marital status: Single ( ) Married( )

d) Education level: Primary ☐ Secondary ☐ College/university ☐

2. For how long have you worked in this farm?

1 year ☐ 2-4 years ☐ 5-9 years ☐ 10 years and above ☐

3. Have you undergone any training of coffee farming? YES ☐ No ☐

4. How many workers/laborers' are there during picking of coffee from the farm?

……

……

5. How do you allocate activities in different staffs in this farm?

……

……

6. Are employees working in this farm trained to do all the activities assigned to them?

Yes ( ) No ( )

7. Was that training effective in working place? Yes ( ) No ( )

8. How many hours do you use daily in working place?

(a) Less than eight hours

(b) Eight hours

(c) More than eight hours

9. What types of machines are used for coffee processing in the factory?

……

10. Is there any problem in coffee cultivation in this farm, especially last year? Yes () No ( ) If yes please mention some

……

……

11. It the climate favorable for coffee production in this area? Yes ( ) No ( )

12. Are the farm input received on time Yes ( ) No ( )

13. Is the coffee market reliable?

(b) **Questionnaires for the Extension Officers**

Dear respondents,

I am carrying out a research study on assessment of factor that causing unprofitability production of coffee in Daughters of Mary Ngorongoro farm. It is a partial fulfillment for the award of the Master degree in Accounting and Finance at Mzumbe University. I am requesting for your participation towards the success of this research, please respond the following questions carefully and answer them, giving your comments where necessary. Be assured that all information and comments you provide in response to any question will be used for academic purposes only and with confidentiality. I look forward to receive your cooperation. Thank you for your time and responses

1. What do you think are the factors contributing poor production of coffee in this farm?

   ……

   ……

2. What do think could be the cause(s) of poor quality quantity of coffee production in this area?

   ……

   ……

3. In your opinion, what could be done to improve the quality and quantity of the coffee in this area?

   ……

   ……

4. How do you see the quality of coffee production at Ngorogoro farm? (Tick where applicable)
   i. Very high
   ii. High

iii. Average

iv. Low

v. Very low

5. What types of coffee diseases are common in this area?

……

6. Is the market of coffee reliable?

……

……

7. How regularly do your provide advice to the management concern this farm?

……

……

(c) Questionnaires for the head of Departments and other staffs

1. Are the farm input received on time? Yes ( ) No( )
2. What type of machine is used in coffee procession?

   New modern

   Old modern
3. Are there qualified personnel to operate processing machine in the factory? Yes ( ) No ( )
4. How long have you been working in this department?

   One Year

   More than one

   If the answer is more than one what is your experience?

5. Is the Management system in place for managing the farm? Yes ( ) No ( )

6. Are there sufficient employees working in factory during the processing of coffee?

……

…….

7. Are the employees trained to conduct the activities assigned to them?

……

……

8. How was the production of coffee last year 2011/2012

Low ( )

Average ( )

High ( )

Very High ( )

9. Is all coffee that is produced sold in the market? Yes ( ) No ( )

10. Does it fetch sufficient money to run the activities in this farm?

……

……

11. It the climate favorable for coffee production in this area?

……

What types of diseases are common in this area?

……

What method(s) are used in protecting coffee from different diseases?

……

How many times coffee trees are pruned in the year?

(a) Once per year

(b) Twice per year

(c) More than twice per year

Appendix 2: Interview Guides

1. What factors are contributing to unprofitable yield of coffee production in this farm?

2. Does the farm have sufficient employees in different departments?

3. Are the employees trained to conduct the activities assigned to them?

4. How reliable is the market for coffee?

5. Is the climate around favorable for coffee production?

6. Is the Management system in place for managing the farm?

Appendix 3:Focus Group Discussion Guide

1. What factors are contributing to poor yield of coffee production in this area?

2. How does the existence of this farm help workers and the surrounding community?

3. Are the extension officers helpful in increasing coffee production?

4. Is the climate around favorable for coffee production?

5. Does the management system in place for managing the farm?

6. It the market of coffee reliable?

Appendix 4: Accounts of Ngorongoro Farm from year 2007/2008 to 2012/2013

Auction sale No.TBC-M-19 on 24/01/2008

Grade	Kg	T.CB Kg sample	Sold Kg	Price @Kg 60($)	Total US Dollar
F	400	9	391	118.00	922.76
TT	384	9	375	119.60	897.00
AF	263	9	254	119.40	606.55
E	102	9	93	119.00	221.34
C	149	9	140	124.00	347.20
B	2293	9	2,284	151.00	6,897.68
A	3929	9	3920	155.00	12,214.72
AA	7520	9	7511	158,80	23,854.94
PB	753	9	744	150,80	2,243.90
Total	15,793	81	15,712		48,206.09
			Less Research(0.75%)		361.55
			Total payment		**47,844.55**

Auction sale no.TCB-M-19 on 24/01/2008

Grade	Kg	TCB sample Kg	Sold Kg	Price @Kg 60($)	**Total US Dollar**
C	185	9	176	113.00	397.76
B	2219	9	2210	136.00	6.011.20
A	2258	9	2249	136.00	6,117.28
AA	2063	9	2,054	151.00	6,203.08
PB	600	9	591	135.00	1,595.70
UG	911	9	902	94.80	1,710.19
Totals	8,236	54	8,182		22,035.21
				Less (0.75%)	165.26

Grade	kg	TCB sample Kg	Sold kg	Price @ 60kg ($)	Total US Dollar
F	431	9	422	140.00	1,181.60
TT	586	9	577	146.00	1,684.84
AF	171	9	162	137.00	443.88
C	409	9	400	174.00	1,392.00
B	3861	9	3,852	193.00	14,868.72
A	2839	9	2830	202.00	11,433.20
AA	2068	9	2059	203.00	8,359.54
PB	514	9	505	185.00	1,868.50
Total	10,887		10,807		41,232.04

Auction sale No.TCB-M-10on07/10/2010

Grade	Kg	TCB sample kg	Sold kg	Price @60kg ($)	Total US Dollar
F	888	8	879	1,75.00	3.076.50
TT	736	8	728	175.00	2.548.00
AF	211	8	203	161.00	658.66
C	766	8	758	192.00	2,910.72
B	6,595	8	6,587	217.00	28,587.58
A	3,927	8	3,919	223.00	17,478.78
AA	2,3011	8	2293	225.00	10,318.50
PB	668	8	660	210.00	2,772.00
Total	16,091	64	16,027		68,345.70

Less Research access at 0.7%

512.59

Total payment US Dollar

67,833.11

Auction sale No. TCB-M-10 on 07/10/2011

Grade	kg	TCB sample kg	Sold kg	Price @60kg ($)	Total US Dollar
F	588	9	579	233.00	2,698.14
C	760	9	751	252.00	3,785.04
AB	4655	9	4646	295.00	27,411.40
AA	1905	9	1,896	305.00	11,565.60
PB	552	9	543	289.00	3,138.54
UG	544	9	535	235.00	2,514.50
Total	9013		8,950		51,113.22

Less Research access at 0.7%

383.35

Net proceed for payment US Dollar

5,111.22

Source: Tanzania Coffee Board, 2013