ST.MARY'S UNIVERSITY
INSTITUTE OF AGRICULTURE AND DEVELOPMENT STUDIES

FINANCIAL PERFORMANCE OF CUT FLOWER FARMS IN ETHIOPIA: A CASE OF INVESTMENTS PARTIALLY FUNDED BY DEVELOPMENT BANK OF ETHIOPIA

By

YILMA ABEBE

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A Thesis Submitted to the Institute of Agriculture and Development Studies of St. Mary's University in Partial Fulfillment of the Requirements for the Degree of Masters of Science in Agricultural Economics

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APPROVED BY BOARD OF EXAMINERS

As member of Board of Examiners of the MSC Thesis open defense, we certify that we have read and evaluated the Thesis prepared by Yilma Abebe, we recommended that the Thesis be accepted since it fulfills the Thesis requirements for the Degree of Master of Science in Agricultural Economics.

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Internal Examiner	**Date and Signature**

Declaration

I declare that this MSc. thesis is my original work, has never been presented for a degree in this or any other university and that all sources of materials used for the thesis have been duly acknowledged.

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Date of Submission: 28 December 2015

ENDORSEMENT

This thesis has been submitted to the Institute of Agriculture and Development Studies of St. Mary's University for examination with my approval as a university advisor.

_____ _____

Advisor's Name Date and Signature

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ACCRONYMS

ATTRA	Appropriate Technology Transfer for Rural Areas
EIA	Ethiopian Investment Agency
EDRI	Ethiopian Development Research Institute
USITC	United States International Trade Commission
EHPEA	Ethiopian Horticultural Producers and Exporters Association
EHDA	Ethiopian Horticultural Development Agency
MOT	Ministry of Trade
CSF	Critical Success Factors
MDGs	Millennium Development Goals
PASDEP	Plan for Accelerated and Sustained Development to End Poverty

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ABSTRACT

Cut flower farms are non-traditional commercial agriculture forms recently introduced in Ethiopia contributing significantly to the foreign earning of the country. The research used Development Bank of Ethiopia funded projects as a case to evaluate their financial performance. Data's collected using both primary and secondary sources with respect of 40 flower farms which are functional from the introduction of the current credit policy in 2009 to the end of 2014. Both descriptive as well as econometric analysis used to evaluate the relation and impact of independent variables over the dependent variables. With respect of the Econometric analysis the dependent variable used to measure the farms financial performance is earning per hectare and the independent variables included are General Manager, Farm Manager, Geographical Location, and Flower Variety, Planting Media, and Export Market outlet. The finding of the study showed that Farm Manager, Flower Variety, Planting Media and Export Market positively affect the financial performance with significant impact on the dependent variable while General Manager and Geographical Location don't have significant impact on the financial performance. Based on these findings; having experienced Technical Manager, exporting through auction and direct market channel to Europe, using hydroponic media, planting premium varieties results in better financial performance.

Keywords: Cut flower farms, Performance, Multiple Linear Regression

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CHAPTER ONE
INTRODUCTION

1.1 Background

Cut flowers are parts of plants, characteristically including the blooms or "inflorescences" and some attached plant materials, but not including roots and soil (USITC, 2003). Fresh cut flowers are used for decorative purposes such as vase arrangements and bouquets at formal events; designs for weddings and funerals; gifts on occasions such as Mother's Day, Valentine's Day, in times of illness, and at holidays such as Christmas and Easter; corsages and boutonnieres; and informal displays to beautify homes and public places.

Technologies such as artificial soil mixes, individual plug propagation (made possible by the introduction of plastics), and mechanization in the greenhouse still used today in the cut flower industry were developed in the 1950s and 1960s. More recently, the industry has incorporated advances such as the use of sophisticated computers for lighting and heating, better control of diseases, hydroponic (soilless) production, improved transportation, and biotechnology (USITC, 2003). Although growing cut flower is no more difficult than growing vegetables it demands different skill (Mosse and Sontheimer, 1996). With careful attention to detail and good marketing strategy sustainable cut flower production can be extremely rewarding.

In Ethiopia cut flower production program was started in 1980/ 81 cropping season in collaboration with GTZ by importing planting materials from Canary Island and Holland (EIA, 2008). Production operation for commercial purpose was commenced in 1981/82 cropping season for the first time in Zeway state farm. The state owned Horticultural Development Corporation was the first enterprise to enter into the venture by introducing about twenty species. The common varieties put under production were static, Delphinium, Euphorbia, Ammi, Carthamus, Dill and Allium. Roses have recently been introduced in the country with better and effective production and marketing opportunities. During the period there were only two (Horticultural Development Enterprise and Upper Awash Agro- industry Enterprise) state-owned enterprises operating in the floriculture industry (EIA, 2008).

Until 2000/ 2001 the participation of the private sector in the production and export of cut flower was negligible (EIA, 2008). After the entrance of private operators, the suitability of the country for different varieties of cut flowers compounded with suitable government incentive resulted in fast growing production of cut flower from 1.7 million stems (2001/2002) with a value of USD 305,000.00 to 2.26 billion stems (2011/12) with a value of USD 212,560,000.00 (EHDA/ EHPEA, 2014). The Ethiopian flower industry represents an extraordinarily fast and successful diversification into a non-traditional export product. The floriculture industry began to emerge in the late 1990s and in less than a decade, and despite its late entry into the flower export industry, Ethiopia became the 5th largest non-EU exporter to the EU cut-flower market and the 2nd largest (after Kenya) flower exporter from Africa (Gebreeyesus and Lizuka, 2010). The productivity of cut flowers ranges from variety to variety as well as from one region to another region depending on several factors including the altitude and climate factors of the area. The length of the stem for roses (which can be planted from low land to high land) ranges from the shortest to the longest with the production per hectare decreases as the stem length increases which also follows the trends of the altitude change. Roses are the dominant products that are exported by the Ethiopian farms. The productivity of roses vary across different agro-ecological condition and estimated to be 22 Stems/KG around Holeta, Sululta, DebreBrhan, 24 Stems/ KG in Sebeta, Wolliso, Wolkitie, and Bahirdar, 32 Stems/Kg in Debrezeit, and 40 Stems/ Kg in Ziway, Koka, Awash, and Hawassa (EHDA, 2012).

The cut flower industry in Ethiopia was one of the least developed sectors and its contribution to the country's export earning had been almost insignificant until 2001 (EIA, 2008). The situation is, however, changed in recent years and the contribution of the sector as to the country's export earning showed remarkable growth. To maximize the benefit from the sector the Government of Ethiopia has identified the sector as a priority area and is providing extensive support for investment. In light of this, the Development Bank of Ethiopia has also placed the sub-sector as a priority commodity and extended loan for over 50 flower growing enterprises during the last 10 years.

According to the Ethiopian Horticulture Producers/ Exporters Association (EHPEA, 2007), investors are attracted by an improved investment code which includes exemption from corporate income tax for five year, duty-free import of machinery, and easy access to bank loans

and land. In addition to the above incentives, the favorable agro-ecological condition of the country, the availability of cheap and easily trainable labor, the geographical proximity of the country to the EU and Middle East markets encouraged many foreign and domestic investors to choose Ethiopia as their destination. As a result substantial numbers of investors have started investing in the country.

Different institutions that support the growing demand of investors in the Ethiopian floriculture industry were established including an association by members [Ethiopian Horticultural Producers and Exporters Association in 2002], a separate agency by the government of Ethiopia to support the industry [Ethiopian Horticultural Development Agency] in 2008 structured under the Ministry of Trade and Industry and currently it is accountable to the Ministry of Agriculture and the Ethiopian Investment Authority that facilitates that facilitates investment in different sectors of the economy classified the sector as a priority area of investment which gives special privilege to investors engaged in the sub sector.

Starting and running a successful business can be rewarding and challenging. Success requires focus, discipline and perseverance. However, success will not come over night - it requires a long-term focus and that you remain consistent in challenging environments. There are different views about what makes a successful business (Nestle and Cadburys, 2012). Typically success should be judged by the ability to meet objectives. Using this definition, success criteria would include high levels of sales, high levels of profits, high levels of consumer satisfaction, the production of high quality products, strong reputation, and sustained growth. The success of a business is frequently judged by its ability to achieve sustainable growth. This includes economic, social, and environmental factors (Ibid). Success for these companies involves keeping their main stakeholder happy by earning high profits and earnings per share for shareholders, good employment prospects for employees, fair trade with suppliers, and wider community involvement.

There are a number of factors that lead to success of a business. These includes factors related to personal and entrepreneurial qualities of the business owners and senior management staff, clear objectives, efficient and effective business planning, proper location and plant layout, availability

of business support services, availability of market, and conducive government policies (Makerere University, 2010).

The cut flower farms business development stage divided in to four levels i.e. from primary level which is importing skill as well as every material need; to self sufficiency level in supplying the needs of the sector including institutional set up and manufacturing materials required by the business. Accordingly newcomers in the horticultural industry have their strengths, mainly in the first and second levels (Gabre-Madhin and De Vette, 2004). Therefore, Ethiopia can't directly be compared with countries which already achieved the highest level by looking only to the total production i.e. with countries around level four providing for every need of the sector locally including manufacturing the green house and green house materials, cut flower varieties, modern research facilities, introduction of new technology and other demands of the product. Even if the production level seems comparative to those who achieve higher level (level three and level four) due to relatively high investment flow and government provision of vast area of land within short period the country didn't get a chance to properly fulfill basic supporting institution and infrastructure of the industry which can be achieved through time.

1.2 Statement of the Problem

The floriculture sector is currently the fourth ranked export commodity next to coffee, oilseeds and chat and accounts up to 10% of total export earning of the country (MOT, 2012). Even if the sector enjoys this successful story in general, a number of farms failed to show successful performance in recent years that calls for identification of the factors that maintain positive trend (Sorsa, 2011).

The Development Bank of Ethiopia, which is the leading financial source for cut flower farms, strives to strengthen the sector by providing long-term investment loan. However, performance of cut flower projects financed by the Bank declined for various reasons as the studies and reports prepared internally showed including the transfer of considerable number of projects to project rehabilitation unit (sick project category handling unit) of the Bank (Sorsa, 2011).

A research conducted on the sub-sector to identify the underlying causes of business failure in floriculture investment in Ethiopia indicated that a total of 30 projects were on rehabilitation process, out of which includes 11 projects funded by Development Bank of Ethiopia (Sorsa, 2011). The researcher (Sorsa) conducted the study developing hypotheses that the failure is related to shortage of capital, lack of government incentive, and management related factors.

One of the major gaps of the study conducted by Sorsa (Ibid) was he dealt mainly with the underlying failure factors by considering those sick investment projects and did not consider those projects which were successfully operating at the time of the research. In addition, his analysis was mainly based on the measurement general business failure indicators which include management, shortage of capital, and incentives from government in general and did not collect data on the specific nature of cut flower business. Important variables related to the specific nature of cut flower business such as availability of new varieties, type of flower, farm labor, land utilization, destination market, type of planting materials used, and district dummy that determines average productivity, use of hydroponic media, sector specific technical skills etc were missed in his study.

Therefore, this particular study is meant to fill this research gap including more business specific variables that determine the performance of the cut flower farms and by drawing studying both sick and successful farms more objectively. In addition, dealing the problem according to the level of development of the sector shall give an opportunity to promote the sector to the next levels based on the available opportunity of the sector. The research also deals with relatively homogeneous population in terms of availability of finance which gives a chance to deal with relatively controlled variable to deal with other factors with freedom. The farms used to analyze the performance of cut flower farms is relatively higher than the population used by the previous research (which was seven). This study shall deal with analysis of the financial performance of the cut flower projects partially financed by the Development Bank of Ethiopia to identify critical factors which determine success in the business considering factors which might seriously polarize different projects as compared with those factors which are almost common to every project included in the industry. It is assumed that some of the factors are interrelated and considering each factor is not necessary.

1.3 Objective of the study

1.3.1. General Objective

The research was conducted to identify the factors that influence the level of financial performance of cut flower farms in Ethiopia by taking Development Bank of Ethiopia funded projects as a case subjects.

1.3.2. Specific Objectives

The specific objectives of the study are:

1. To identify important factors which affect financial performance of flower farms
2. To determine the relative importance of factors affecting financial performance of flower farms in Ethiopia.
3. To recommend the likely policy implication based on the findings of the study.

1.4 Research Hypotheses

Table 1.1 Variables and Hypothesis

Variables	Hypotheses	Description and Measurement
Managerial Skill	Over all business management skill is expected to contribute positively to the performance of cut flower farms	It is denoted by qualification of the General Manager. It is measured by a ratio scale by years of experience in managing business
Technical Skill	Qualified technical manager is expected to contribute positively to the performance of cut flower farms	It is denoted by qualification of the Technical Manager; It is a ratio measure represented by years of experience in relevant business
District Category	Location expected to influence to the performance of cut flower farms	Major distribution of cut flower farms is around Holeta/ Sebeta, Bishoftu, and Zeway/ Koka. It is a nominal data represented by 1, 2, 3, & 4 including others not in this category
Flower Variety	Those farms planting old varieties are expected to show poor performance	Cut flower varieties represented by the use of old, mixed and new varieties; It is an ordinal variable represented by 1, 2,and 3
Export Market	Those cut flower farms which use more than one export market outlet are expected to have better chance of success	The market for cut flower export is direct sale to Europe, auction market, direct sale to middle east, and mixture of the two; it is a nominal data measured as 1, 2, 3, and 4
Planting Media	The use of Hydroponic media (Soilless) expected to contribute positively to the performance of cut flower farms	The planting medias are hydroponics and soil, it is a dummy variable measured as 0 and 1
Perceived Government Policy support	Government strong policy support is expected to contribute positively to cut flower farms	Government policy support includes establishment of supporting institution, and arranging relevant laws; the data qualitatively measured by ordinal measure using 1-5 scale;
Perceived Business Support	Strong business support contributes positively to the performance of cut flower farm	Business support includes business information, transport, communication, water, power, etc., the data qualitatively measured by ordinal measure using 1-5 scale;
Technical Advice by Funding Bank	Provision of strong technical advice by the funding Bank expected to influence positively the performance of cut flower farms	Technical advice includes the advice during appraisal and giving feedback based on follow up of performance the data qualitatively measured by ordinal measure using 1-5 scale;

1.5 Significance of the Study

Cut flower production is a nontraditional export sector recently introduced to Ethiopia for its contribution to the economy in the foreign exchange earnings. The sector ranks fourth as opposed to its short history in export and earning foreign currency. The competitiveness of the sector not limited to the local performance it is also visible in the international market with Ethiopia ranked fifth among the exporting countries in the world and next only to Kenya in African continent.

The performance of the cut flower being this it is not without problem to retain its position and to continue growing with similar pace. Cut flower farms are not at similar performance level and some of the farms failed to perform as per the expectation and becomes non-performing and others generate low income which affects the sustainability of the operation.

Therefore, this study has significance in helping the investors to concentrate on strategic success factors and invest their finance and time according to their specific gap, to new entrants to the sub-sector to learn from the practice and develop plan which mitigate the current weakness and establish successful venture. It helps the Bank also to develop a program which can address the problem of its customers selectively according to their specific demand. It also serves the policy makers to have additional information on the critical success factors and develop proper policy to expand the success level. Last but not least it serves as additional pertinent information for further research work in the area.

1.6 Scope and Limitations of the Study

The study concentrates on analysis of performance of cut flower farms with respect to major success factors. The study mainly focuses on projects financed by Development Bank of Ethiopia. The time period for information included in the study ranges from 2009 (the approval of the current credit policy of Development Bank of Ethiopia) to 2014. Out of the total projects financed by Development Bank of Ethiopia 40 of the projects are included in the research due to

the accessibility of their information, the farms presence still in business during the study, and on operation during the mentioned period.

In addition to the variables shown in the hypothesis other variables such as Farm Labor, Administrative Employees, Years of Business experience, Total land, Effective land, Flower Type, Market destination, Citizenship of owners, Loan amount assumed to be related with the performance of flower farms tested only individually on their relation with earning and their correlation without going to detail analysis due to time and resource limitation but included to as an indicative information for further future research works.

Due to the nature of the research data which mainly deals with the financial matter for analysis to evaluate success the quality of data might be challenged. Various offices with relevant data might be too bureaucratic to supply with required information and the data obtained might be insufficient to reach to satisfactory conclusion. .

1.7 Organization of the Paper

The paper is organized into five chapters. The first chapter starts with general information followed by statement of the problem and continued with the research hypothesis, objective of the study, the scope and limitation of the study, significance of the study. The second chapter is looking into some previously conducted related researches and literatures on the subject. The third chapter deals with the research methodology. The fourth Chapter deals with result and discussion and the final or fifth chapter includes Conclusion and Recommendation part.

CHAPTER TWO
LITERATURE REVIEW

2.1 Concepts Definition

Performance indicators are a sustainability indicator which shows persistence of project benefits over time. We can use direct measures which correspond precisely to results at any performance level like qualities of goods delivered or counts of clients served or direct measure of output. When it is not possible, less precise or difficult to use direct measures we may opt for indirect measures which are both qualitative and quantitative. It includes focused group interview with structured question and the like. The general principle for selecting indicators include meaning fullness and relevance, reliable system for collecting the requisite data, and the institutional capacity to use the measurement efficiently (Fernando, 2011).

Performance indicators are measures of project impacts, outcomes, outputs, and inputs that are monitored during project implementation to assess progress towards project objectives. They also used later to evaluate project success. Indicators organize information in a way a project impacts, outcomes and inputs and helps to identify problems along the way that can impede the achievement of project objectives (Mosse and Sontheimer, 1996). The financial measures commonly cited as a financial drivers for value creation includes sales, costs, and investments. Non financial measures include measures such as product quality, work place safety, customer loyalty, employee satisfaction, and customer's willingness to promote the product (Michael, 2012).

There is a classification of success in business which explains success in seven major factors with a detail sub classification for the personal and entrepreneurial qualities of the business owners and senior management staff i.e. one of the factors. The rest of the factors included to indicate the successes of a business are Clear objectives, Efficient and effective business planning, Proper location and plant layout, Availability of business support services, Availability of market, and Conducive government policies (Makerere University, 2010)

In terms of performance it can be evaluated based on number of stems/ worker, higher sales/ worker, value added/ worker, or gross profit/ worker can be used. The value added can be calculated by deducting material cost from sales where as gross profit can be calculated by deducting labor cost from the value added cost. For a cut flower farm we can show the calculation as follows:

$$\text{Value Added} = \text{Sales Revenue} - \text{Plant Material} - \text{Chemical and Fertilizer} - \text{Electricity} - \text{Royalty} - \text{Repair and Maintenance}$$

$$\text{Gross Profit} = \text{Value Added} - \text{Technical Advice} - \text{Marketing} - \text{labor}$$

In this case the dependent variable Y_i is the unit price, the number of stems per worker per year, or the gross profit per worker per year (Mano and Suzuki, 2013).

A good cut flower identified by having long vase life, good color and color retention, long harvesting time, low cost of production time, production of a large number of stems, good stem length (according to the variety), and flower presentation on the stem. In addition if it grows on the chosen region for production and its susceptibility to disease or insect damage should also taken into consideration (Greer, 2000).

Many concepts and technologies still used today in the cut flower industry were developed in the 1950s and 1960s, such as artificial soil mixes, individual plug propagation (made possible by the introduction of plastics), and mechanization in the greenhouse. More recently, the industry has incorporated advances such as the use of sophisticated computers for lighting and heating, better control of diseases, hydroponic (soilless) production, improved transportation, and biotechnology. Advances in molecular biology help cut flower growers understand how plant genes and chemical pathways in plants determine quality characteristics. Breeders can patent this knowledge and recoup research and development costs (USITS, 2003).

The Hydroponics (Soil less) technology is related with the media used to grow the cut flower instead of planting directly in the soil. It helps in effective use of water in that plants only use what they need. The waste nutrient mix can be collected, treated for pathogens and reused in the system. This creates saving in the nutrients applied to the crop and the water used by the system (Shannon, 2009).

2.2 Overview

The present-day flower industry is dynamic and highly international. Until the 1960s, however, demand for cut flowers from consumers around the world was predominantly met by local production (Hortiwise, 2012). In Europe, production was initially concentrated in the Netherlands. Expedited movements within the EU paved the way for producing cut flowers in Southern Europe for the Northern European markets. The energy crisis in 1973 put producers in the Netherlands and northern Europe under further competitive pressure because of the increase in cost for operating temperature-controlled greenhouses during the winter. Competition intensified when Israel began selling cut flowers at the Dutch flower auctions. Although further from the market, Israel could produce cut flowers throughout the year in open fields or plastic tunnels. African producers, especially from Kenya, began to enter the European market in the 1990s (Ibid).

In recent decades, the global demand for cut flowers has grown considerably. This growth in market demands and its diversification value has attracted increasing numbers of developing countries to the global fresh flower trade. These reasons seem to make Ethiopia come in to the picture of this business. Though floriculture development in Ethiopia blooming in recent years, it started for commercial purpose in 1980/81 which is now twenty six years ago. The first fresh cut flowers production was commenced in 1981 /82. The Derge regime had established Horticulture development corporations where government was responsible both for regulation and production even for marketing of horticultural products including flowers (EIA, 2008).

Ethiopia started to enter cut flower export market in the mid 1990s at the time when the EU market was much more demand driven. In less than a decade, the country became the fifth largest non-EU flower exporter to the EU market and second largest exporter from Africa surpassing all early exporter countries except Kenya (Gebreeyesus and Sonbe, 2011).

In 2001 it contributed $ 4.7 million to the country's foreign currency earnings. But it was not as such significant enough to say it was important sector to develop the country's economy. In five years the total export earnings increased at least five times that figure (EIA, 2008).

Because of the Government of Ethiopia gave more attention for favorable investment condition and a more enabling atmosphere for private sector development the floriculture sector started to grow at fastest rate in the last few years. As a result export earnings from cut flower sector jumped from USD 150 Thousand in 2001/ 02 to USD 212.56 Million in 2011/12 (Shaefer and Abebe, 2015).

2.3 Theoretical Literature

2.3.1 Major Performance Indicators and Business Success Factors

There are major tools for enterprise evaluation during measurement of performance like Return on Investment (ROI) which deals with the relation between operating income and average assets. The components can further be described by Margin sub- component which can be obtained by dividing Operating income over sales and the turn over component can be found by dividing sales over average assets which can simply be expressed by operating income divide by average assets (Larry and Christopher, 2010).

In determining what information to report on key performances it is important to know the overriding tenets of business review. A business review should be balanced and comprehensive analysis, be a fair review of the business, and provide information to the extent necessary for an understanding of the performance, development, or position of a business. The choice of key performance indicators in the context of chosen strategies and objectives provide sufficient detail on measurement methods to allow readers to make comparisons to other companies' choices where they want to (Price Water House Coopers, 2007).

When luck plays a part in determining the consequences of your action you don't want to study success to identify good strategy but rather study strategy to see whether it constantly led to success (Michael, 2012). The strategy theory asserts that success should be judged by the ability to meet objectives. Using this definition, success criteria would include: high levels of sales, high levels of profits, high levels of consumer satisfaction, the production of high quality products, strong reputation, and sustained growth. This theory explains success of a business is frequently judged by its ability to achieve sustainable growth. Running sustainable business equated with achieving success in each of three elements of a Triple Bottom Line i.e. economic success, social

Success, and Environmental success. Success for these companies involves keeping their main stakeholder groupings happy e.g. by private high profits and earnings per share for shareholders, good employment prospects for employees, fair trade with suppliers, and wider community involvement (Nestle and Cadburys, 2012).

A high return expectation is behavior of farmer-owned business organizations need to retain earnings to build reserves or pay down debt. Attitudes toward investment often appeared to be based more on emotion than on a project-specific feasibility analysis. Investment decisions must be made on sound business principles, not emotions.

Investors often have multiple objectives or motivations. In addition to personal economic benefits from increased commodity prices or investment returns, many investors are motivated by a desire to promote local economic development or by pride of ownership. When the desire to locate a business in a specific community supersedes sound business decisions, the likelihood of success can be seriously compromised (Agricultural Marketing Resource Center, 2014).

Financial structure and performance review showed that the necessity of sufficiently capitalizing the business would seem to be obvious. Once the firm begins to show a profit, it is important to retain a sufficient portion of the earnings to build the business' reserves to enable it to survive future challenges. Lender issues are another point to be considered in financial structure and performance. The financial partner (lender) must be sufficiently invested in the business to have an incentive to stay the course over the long term. Organizational structure may have an impact on some lenders' decisions to finance farm business.

Launching a multi-million dollar commodity processing business is challenging enough on its own. Trying to penetrate multiple markets is even more difficult. The strategic plan must provide for significant and appropriate investment in sales and marketing. The use of proven technology is also critical to a new enterprise. A new enterprise should use the best available technology but also stick to proven technologies. Organizational issues should also be considered in strategic planning and implementation. Early in the process, founding members should seek professional expertise. While retaining professional services can be costly for a start-up with little or no working capital, the importance of professional council cannot be over-emphasized. State and

local economic development programs may be a good place to find access to, or funding for, professional services (Agricultural Marketing Resource Center, 2014).

Competent professional management is essential to a business venture's success. The right CEO and management team can mean the difference between success and failure. Management needs to be involved very early in the business project. The CEO was then able to lead the equity drive and provide input on plant design and oversee construction. It is also particularly helpful when the CEO had been involved in similar start-up operations. The promoter should make an appropriate investment in time, money and networking to find, recruit and hire an industry-savvy CEO. The CEO is responsible for building the management team. Industry knowledge is an essential element of management and operation. The entire management team needs to develop and maintain market and industry savvy and awareness. Market and industry awareness is often a prime selection criterion for key positions. It is the management team's responsibility to be aware of industry standards and recommend investments and upgrades over time to ensure that the venture remains competitive. The new organization should plan and prepare for significant investments in employee training. This is particularly relevant if the facility is located in a rural area where manufacturing and processing industries are rare. New employees will likely need substantial training in areas such as safety, sanitation and quality control.

Local infrastructure and support is one of the competitive edges for the business to successfully dispose its operation. Role of public support can be critical during the initial phases of business development. While state and local assistance is an important part of the capitalization process, it was always much less than the funds contributed by investors. While state and local support is part of the capitalization process, investor support was the key to project success. Site selection is an important part of local infrastructure and support. Although state and local support is a small portion of overall capitalization, competition among communities offering location incentive packages should be encouraged. Some communities may be willing to make substantial infrastructure investments that could be significant to the success of the venture. However, when considering state and local support for sitting decisions, it is important that the potential economic development benefits do not cloud the decision-making process of sitting a new venture. Site selection needs to be viewed from a "business success" perspective. Selecting the proper site for business success can pay long-term benefits. So, first and foremost, the potential

site must make sense from a business perspective. Site selection must be based on sound business judgment. Once a location has been selected, on-going communications with project supporters and state and local oversight agencies is important. Regular communication can help to avoid unforeseen issues that may delay or slow construction. It may also help facilitate permitting and other procedural considerations.

2.3.2 Major Floriculture Performance Indicators and Business Success Factors

Operating profit which is earning before interest and tax can be used as measure of dependent variable. This is because it is important for survival and also assures the ability of the firm to extract sufficient value in order to more than offset the costs of production, marketing, and post harvest operation. Profitability address the issue of how efficient the farm is utilizing its human, financial, and other resources, to develop innovation projects and satisfy market demand in a sustainable way. However, using profitability as a measure is challenging specially in poor countries due to availability and reliability of data. Accordingly, using multiple measures can be an alternative so that the different indicators could be compared and thereby give an indication of their reliability. The first set of indicators of profitability can be the Likert scale. While the Likert scale gives an indirect measure of profitability, it has the advantage of being less susceptible to respondent bias or misreporting. Thus, asking managers to indicate their level of satisfactions with profits associated with the activities and operations in general using a Likert type scale anchored from 1-5. This can provide an important supplement to the quantitative measures of profitability or available performance estimate and it was correlating with the estimates from the financial models to test whether those estimates had any validity (Esemu, 2012).

The performance of cut flower farms also related with industrial cluster or farms co-located by a larger number of farms in the smallest administration unit tend to export 50 percent more high-value varieties of Roses and that productivity and profitability of agglomerated farms nearly double and triple of their dispersed competitors. Agglomerated farms tend to frequently share technological knowledge and market information both relatively specific to each verity of roses (Mano and Suziki, 2013).

The Floriculture sub-sector which is part of an agricultural sector shares most of the behavior of agriculture with respect of business requirement. Factors contributing to normal running of a floriculture business might require ideal agro-climatic condition which is related with Ethiopian condition considering a possibility of all year round production, reasonable infrastructure, a hard working and highly educated (easily trained work force) work force, massive investment with emphasis on varieties and adding value, good and informed marketing by the growers, availability of easily accessible cargo air freight service, government support and minimal intervention (Mitambo, 2008).

Successfully growing cut flower farm require good physical condition (high light intensity; abundant water, clean soil (or use of hydroponics) , good climate), appropriate seeds & planting materials, capital for investment & working capital, productive & skilled labor, expertise in growing techniques, good management & organizations, pesticides & other chemicals, energy & heating, infrastructure and quality consciousness all along the production & post harvest, adequate logistic structure for exporting, adequate supply chain infrastructure, knowledge of destination market, knowledge of strength & weakness compared with competitors, knowledge infrastructure, meeting international standards and meeting quality standards (Wijnands, 2005) .

The study made on Ugandan floriculture industry divides the development stage of Ugandan Floriculture industry in to three. Stage 1 is Start-up and struggle period the main constraints were essentially inappropriate rose varieties grown, inexperienced incompetent foreign consultants, lack of experience in horticulture, inappropriate organization structure, too high investments, resulting in high capital cost, inappropriate access to the market, outflow of cash to other activities. Stage 2 is Commercialization period a key factor in improving the logistics was the establishment of Fresh Handling. This was facilitated by the cooperation between producers and access to the market has improved and Stage 3 is upgrading products and production technology. Examples of upgrading are growing in hydroponics, improving irrigation and fertilization systems, building steel greenhouses and more transparent plastics, improving infrastructure on the farm and growing other varieties (intermediate roses) at higher altitudes. This will lead to a more professional sector with a wider assortment of produce (Gabre-Medhin and De Vette, 2004).

The floriculture industry is a complex clustered network. On aggregate, there are four driving forces, namely the society (social developments, consumer trends and market developments), the businessmen (horticultural business skills and entrepreneurial risk-taking), the government (regulatory framework and policy environment), and the horticultural sector itself (competition, cooperation and critical mass). The CSFs (Critical success factors) and the cluster network are the bricks of the horticultural sector. There are four different levels of CSF and cluster network related to the state of the horticultural industry. Newcomers in the horticultural industry have their strengths, mainly in the first and second levels of CSFs. In mature industries (such as the Netherlands and Israel), cluster networks of the third and fourth levels are also developed (Gabre-Medhin and De Vette, 2004).

The first level of CSF is a minimum set, mainly based on basic production factors. If this minimum set is not met in a satisfactory fashion, horticulture does not make sense. These CSFs (level 1) are land and climate (disposal, costs, fertility, soil diseases, and suitable climate conditions), labor (availability of laborers, quality/ experience, costs), local infrastructure (roads, electricity, telephone, and internet), agricultural input supply (availability, costs, supply time), water (availability, quality, quantity), access to the market (physical access, supply time, tariffs, non-tariff barriers, continuity of supply), loans and credits (availability, conditions, interest rates).

The second level of CSF is an additional set, mainly in the field of services to better benefit the first level CSF. This additional set is responsible for the potential comparative strengths. These CSFs (level 2) are producers association (to have a strong lobby and interest representative), skilled management (to increase quality and performance), cargo handling facilities (to close the cold chain and increase quality), promotion organization (to increase the exposure of the industry), horticultural education (to increase the theoretical knowledge level), research and training (to increase the practical knowledge level), extension service (to disseminate the knowledge).

The third and fourth levels of CSF and cluster network are more related to the companies and organizations that are specializing in the horticultural sector and forming the actual cluster network. This third and fourth level gives an indication of the potential spin-off when a horticultural sector is successfully developed. It is both in productions of materials and

equipment, as well as in the services to the horticultural industry which includes propagators of seeds and plant material, soil and water testing facilities, production of artificial growing medium, production industry of packing material, horticultural consultancy services, horticultural bookkeeping and accountancy services, certification industry for horticultural protocols, breeding and selection companies, producers of greenhouse constructions, producers of greenhouse equipment (irrigation, heating, screening, computers, etc), producers of greenhouse covering material (plastics, glass, fibers), producers of fertilizers and chemicals, companies specialized in transport of horticultural crops, and producers of biological crop protection means.

The classification clearly indicates that except for the production of packing material and propagation of seed planting material Ethiopia belongs to the first levels of production and its actors can be evaluated as to their successful achievement with respect of the first two levels.

2.4 Empirical Literature

2.4.1 World Cut-flower Industry

Nowadays, the international trade is largely organized along regional lines: African and European countries are the principal suppliers to the main European markets; the North-American cut flower market is mainly supplied by Colombia and Ecuador; and Japan and Hong Kong source primarily from Asia-Pacific countries ((Hortiwise, 2012).

The European and North American markets are characterized by the largest intra-continental trade, as much flower production takes place here as well. An important share of the total floricultural trade in Europe and the US is not home-grown, but originates from other continents. Latin America, Africa, Asia and Europe are the main exporters to both continents. Consumption per capita has been rising due to rising income levels and demographic and cultural developments (ibid).

In terms of total area of production, Asia and the Pacific cover nearly 60 percent of the total world area. The key markets for flower are Western Europe, North America and Japan. The EU is the world's leading importer of flowers. The other largest importers are Germany, the USA,

the UK, France, The Netherlands and Switzerland accounting for nearly 80 percent of global imports. The Netherlands is the world's largest producer of cut flowers and foliage valued at USD 3.6 billion, followed by Germany and Italy. In addition, The Netherlands plays a major role in setting the global standard for daily prices through its computerized clock auction system and acts as the logistical distribution center for Europe. South American countries Colombia and Ecuador as well as Israel, are the major producers of carnations and roses. An increasing investment has also been witnessed in Kenya and other African countries (Gudeta, 2012).

2.4.2 Ethiopian Floriculture Industry

The Government of Ethiopia gave more attention for favorable investment condition and a more enabling atmosphere for private sector development the floriculture sector started to grow at fastest rate in the last few years. With full Government support the sector grows rapidly. As a result export earnings from cut flower sector jumped from USD 150 Thousand in 2001/ 02 to USD 212.56 Million in 2011/12. The land holding in similar manner expands from 40 hectares in 2000 to 1440 hectares in 2011/12. In 2008 an agency (EHDA) established to give industry specific support which started under MOT in 2003. The Government also deployed the Development Bank of Ethiopia as a prime lender in the sector to cover the gap in financial need of the new investment as well as expansion demand of cut flower farms. The development banks are tried and tested means of financing projects in strategic sectors, as well as provide technical support for investors with limited management capacity (Shaefer and Abebe, 2015)

The main actor in the development of the sector is the Government. Government's allocation of a substantial amount of finance for investors who would like to engage in the sector and special loans are provided through the Development Bank of Ethiopia. We can highlight the government contribution as depicted in the appendix part. These government support initiatives attract more and more foreign and local investors to the country to participate in the floriculture development.

Government of Ethiopia formulated a comprehensive development strategy for the period 2005/06 – 2009/10 called 'Plan for Accelerated and Sustained Development to End Poverty' (PASDEP) to attain the Millennium Development Goals (MDGs) by 2015. Under this PASDEP it set program target an intensification of the recently initiated flower production in areas with

altitude between 1,600 – 2,600 meters above sea-level. Accordingly out of the total of 2,031 ha of land leased to investors, the land covered by greenhouses is expected to reach 1,600 ha; an additional 400 ha of land will be put under green house shelter. The area under flower production (roses, cuttings, summer flowers) would thus increase from 519 ha in 2005/06 to 2,000 ha in 2009/10. In terms of employment generation the policy objectives is to increase the number of employees from 21,000 in 2005 (64.4% female workers) to a total of 70,000 in 2009/10 (Ethiopian Horticultural Strategy, 2007).

These high level support not only attract more and more investors and it helps Ethiopia has better comparative advantage as compared to other production countries in the region together with near to ideal agro climatic condition , proximity to EU market and relatively cheap labor. Hence the sector is growing dramatically, in 2006 Ethiopia was the second largest exporter of large roses to the Dutch auctions (after Kenya) and the third largest supplier for small roses (after Kenya and Uganda) (Ethiopian Horticultural Strategy, 2007).

The recently initiated flower production areas are mainly around Addis Ababa, Upper Awash valley and Lake Ziway. Addis Ababa, the capital, with its altitude elevated about 2000 meters is the most suitable place for the production of high quality roses. Besides its suitable weather, all the infrastructures like roads, power, telecommunication and water have been availed for the investors in floriculture sector. Most of foreign and domestic investors on flower production have started their production on this area. It is also practically witnessed that Ethiopian highlands provide “Near Ideal” growing condition for roses. In the Upper Awash Valley with an altitude spanning from the range of 1200 to 1400 meters and the farms are located along the length of the River Awash with in 149 – 220 km away from the capital. Lake Ziway which is located in the southern region of the country (165 km from Addis Ababa) the farms situated between Lake Ziway and the main highway with altitude ranges between 1600–1700 m above sea level.

Among the resources which make Ethiopia favorable for floriculture development is water and irrigable land resources which the country has and the flower needs in abundant. Ethiopia has 122 billion cubic meter surface water, 2.6 billion cubic meter ground water, 12 river basins, 18 natural lakes including the rift valley lakes and a potential of 3.7 million hectares irrigable land

(http://www.ethiopiaemb.org.cn/investpolicy.Htm). Most of the Floriculture farms are largely confined around the vicinity of Addis Ababa.

EHPEA developed a Code of Conduct for the Ethiopian export horticulture with support from the Dutch partnership program. Having a certified code of conduct is often seen as a way to lower transaction costs and improve market access and customer loyalty. Exporting countries with no code of conduct have a rather low level of export growth. A Code of Conduct for the export horticultural sector is very important to secure market access for the sector in general. The certification for quality standards such as MPS will be beneficial, particularly at the individual company level. It contributes to the improved reputation of the suppliers and as such lead to greater customer loyalty (EHPEA, 2007).

2.5 Conceptual Framework

The research deals with performance of cut flower farms to identify the gaps based on the previous studies and literature reviewed relevant to the sector. Accordingly contributing variables, expected magnitude of contribution, the dependent variable, the research output, and direction of the relation identified. Here is the detail presentation of the framework used to deal with the research:-

Identified Major Variables

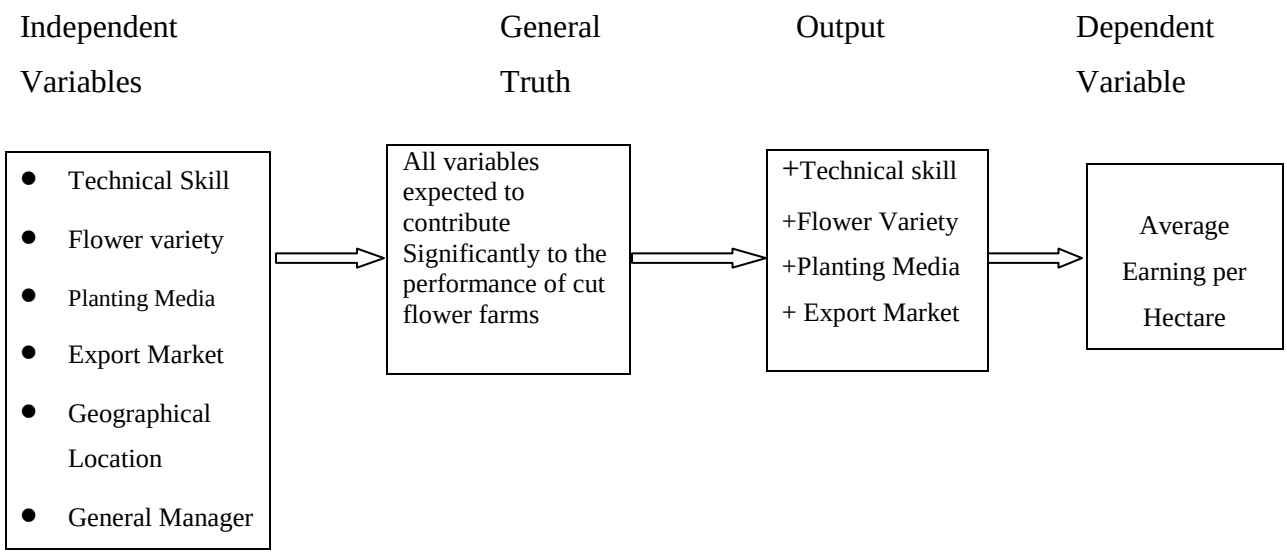
Dependent Variable	• Average Earning Per Hectare
Explanatory Variables	• General Manager Business Experience • Technical Manager Relevant Experience • Type of Flower Variety • Export Market Outlet • Planting Media • Geographical Location

- Generally the literature reviewed and experience showed that the explanatory variables included in this research have significant contribution to the performance of flower farm or the change in the dependent variable. This means the explanatory variables considered assumed to have positive implication by the researcher on cut flower farms performance similar to the previous scholars.

Research Output

- The resultant output shows four of the variables namely Technical Manger relevant experience, Flower Variety, Planting Media, and Export Market outlet contributes positively to the performance of cut flower farms which is aligned with the general truth and the same as the conclusion of previous scholars research output. However, the General Manger experience and Geographical Location contribution magnitude is insignificant.

Diagram: Summary of Conceptual Framework



CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

The research design is the conceptual structure within which research is conducted. It constitutes the blue print for the collection, measurement and analysis of data (Kothari, 2004). Accordingly to address the research question of the study a casual research design was adopted. Descriptive research design is also used to explain qualitative variables that are important in explaining the performance of cut flower farms funded by the Development Bank of Ethiopia. In addition, case study is a detailed exploration of a specific case which could be a community, organization, or a person (ibid). Hence, this thesis mainly adopted a case study approach to explore floriculture industry in general and cut flower farms in particular. Statistical model also used to analyze the relation in a more systematic way.

This research followed a mixed research in which both quantitative and qualitative approaches are adopted.

3.2 Sample size and Sampling Techniques

The floriculture projects funded by Development Bank of Ethiopia are the study populations which are included in this research study with the time period starting from June 30, 2009 the implementation of the current credit policy to evaluate the performance during the period. The functional projects during the period according to the record found from Development Bank of Ethiopia are 40 cut flower farms. The farms included for this study composed of those transferred to new owner with similar commodity or for different commodity (like vegetable production), under rehabilitation to enhance their capacity, and those which function according to plan with optimum support by the bank or by their own effort.

The research was conducted on population distributed across three different agro ecological zones namely Holeta/ Sebeta, Zeway/ Koka, and Bishoftu area situated in a cluster and others which are distributed in different regions not yet developed a cluster. Second, point considered

is variation between those projects already settled their credit during the last five years (these are decided based on secondary data about their performance) and the rest of the population.

3.3 Data Source and Data Collection Method

In this study both primary and secondary data were collected. The major types of variables collected from secondary and primary sources are discussed in sections below.

3.3.1. Secondary Data

The secondary data's collected from stake holders which include the Development Bank of Ethiopia Ethiopian Horticultural Development Agency, Ethiopian Horticultural Producers Enterprises Association, Ministry of Trade, Ethiopian Chamber of Commerce and National Bank of Ethiopia and from the cut flower farms by including in the questionnaire.

As discussed in the literature review using profitability as a measure is challenging specially in poor countries due to availability and reliability of data (Esemu, 2012). It was challenging to use gross profit as a measure of dependent variable since the cost of production couldn't be accurately collected from the farms due to the mentioned gap. Considering all farms at the same level with similar yardstick gives relatively reliable result. The income generation of the farm shows the ability to produce, and supply flowers to the market with the cost side related to efficiency of the farm to control its efficiency which is not directly related with the income generation capacity, which according to the literature mentioned in terms of number of stems/ worker, higher sales/ worker, value added/worker etc (Mano and Suzuki, 2013). So, as an alternative performance evaluated based on the total revenue earned taking an average revenue per hectare of five years from 2009, which is the starting time for implementation of the current credit policy of DBE, to 2014 to come up with the average earning per hectare for each farm.

The data collected in electronic copies for information which are stored in specialized data base programs or when the volume requires doing so. In other organizations hardcopies collected when the numbers of pages are limited and printed copies of the organizations reports received to substantiate the information collected through discussion with the assigned officer. At some

organizations due to their limited information on the sub-sector only discussion on general points made to get additional insight and to understand the reason behind the limitation considering the relevance of the organization mission relation with the sub-sector.

3.3.2. Primary Data

Semi-structured questionnaire was used to collect information on government policy support, institutional support, the funding bank technical support, and opinion on the level of satisfaction of their performance. The method of administering the questionnaire includes both face to face administration of the survey questionnaire as well as self administered questionnaire based on the setting, through proxies at the lending departments and the association (EHPEA).

3.4 Methods of Data Analysis

The data's collected for the study were analyzed using both Descriptive and Econometric analysis methods using software called SPSS version 20.0. The researcher used both Descriptive and Econometric analysis methods to analyze data collected from primary and secondary sources.

3.4.1. Descriptive Analysis

The descriptive statistics like the means, percentages/ proportion, frequency distribution of the variables, and correlation statistics used to analyze relation to calculate frequency and to compare variance and average results with respect of the dependent variable and against each other. In addition, the T-Test and ANOVA statistics were employed to compare groups with respect to explanatory variables.

The mean distribution of qualitative responses captured by five likert scale close ended questionnaire. The distribution was tested using descriptive statistics specifically frequency of occurrence calculated using statistical tool. In addition, responses given to the open ended questions summarized and related with the close ended questions.

Analyzing other variables (Loan Amount, Land Size, Labor Size, Flower Type, Years in cut flower business) individually by relating them with the dependent variable using ANOVA and Correlation according to the number of factors included in the testing. In addition, Correlation

matrix prepared for other factors by including two variables namely average earning and market destination.

3.4.2. Econometric Analysis

3.4.2.1. Model Specification and Tests

The financial performance of cut flower farms is either positive or negative can be measured by the earning obtained after various production and marketing related operations proceeded by the cut flower farms. The earning side represented by single variable income obtained from operation those who contribute for the increment in income varies from single factor to a number of variables. Describing and evaluating the relationship between a given variable (often called dependent or explained variable) and one or more other variables (often called explanatory or independent variables) done by regression analysis (Maddala, 1988). Regression analysis is concerned with the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables, with a view to estimating and/ or predicting the mean or average value of the former in terms of known or fixed values in the latter (Gujarati, 2004). We will denote the explained variables by y and the explanatory variables by $x_1, x_2 \ldots x_k$ (Maddala, 1988).

The regression model analyzes the effect of policies involve changing individual x's, forecast value of y for a given set of x's, and examine whether any of the x's have a significant effect on y (Maddala, 1988). This research also involves one explained variable, earning, and other variables (Management, Geographical location, Flower Variety, Export Market, Planting Media) which directly affect similarly change in income justifies the use of regression model without going further into comparing alternative models.

The simple regression model shows the relation between one explanatory and one explained variable. In this study the variables contributing to the performance are more than on hence the multiple regression model for this research can be presented as:

$$Yi = b0 + bixi + vi$$

Where Y_i represent the dependent variable which is earning per hectare while b_0 represents the constant the x_i represents the independent variables included for testing the performance level of the cut flower farm. The detail presentation of the model can be as follows by including the detail variables

$$Y = b0 + TecMx1 + Varx2 + PltgMx3 + ExptMx4 + ei$$

The above regression model is assumed to clarify the factors that explain difference in the performance of the successful and unsuccessful flower farms. In addition, the researcher complemented the statistical results by descriptive analysis of other relevant information collected from stake holders.

The first step in the data analysis was testing the quantitative determinant factors (General Manager, Technical Manager, Export Market, Variety, Planting Media, and District Dummy) hypothesized against the dependent variable individually for their significance when all other variables are constant. After testing their individual significance multiple linear regression test done to analyze their contribution on the variation of the dependent variable in the overall model.

The researcher supplemented the statistical results that obtained through the statistical model by descriptive analysis of other relevant information's collected from stake holders.

3.4.2.2. Variable Definitions and Hypothesis

Dependent Variable

Average earning per Hectare: It is a continuous variable measured by foreign currency (USD) obtained from the sale of cut flower produced from a hectare of land. For the purpose of this study five years income obtained from operation in foreign currency (UDS) divided by the number of years and average land size during the specified period to arrive at the average earning per hectare of land. The use of earning per hectare as a measure of performance also supported by previous studies explained as the dependent variable Y_i is the unit price, the number of stems per worker per year, or the gross profit per worker per year (Mano and Suzuki, 2013). The financial measures commonly cited as a financial drivers for value creation includes sales, costs, and investments (Michael, 2012).

Independent Variables

General Manager Experience: The General Manager overall experience in running business it is a continuous variable measured by number of years in running a business. It is denoted by qualification of the General Manager. It is measured by a ratio scale by years of experience in managing business. Competent professional management is essential to a business venture's success. The right CEO and management team can mean the difference between success and failure (Agricultural Marketing Resource Center, 2014). Therefore, it is hypothesized that overall business management skill is expected to contribute positively to the performance of cut flower farms

Technical Manger Experience: The Technical supervisor relevant years of experience in running cut flower farm it is a continuous variable measured by number of years in relevant farm management business. Industry knowledge is an essential element of management and operation (Agricultural Marketing Resource Center, 2014). Successful growing of cut flower requires productive and skilled labor, expertise in growing technique, good management and organization (Wijnands, 2005). During starts up and struggling period, one of the major constraint is lack of experience in horticulture in case of floriculture industry (Gebre-Medhin et al, 2004). Therefore it is hypothesized that qualified technical manager is expected to contribute positively to the performance cut flower farms.

Geographical location: Cluster farms categorized according their geographical distribution including others which are found in dispersed manner it is a categorical variable denoted by nominal representation of numbers. Major distribution of cut flower farms is around Holeta/ Sebeta, Bishoftu, and Zeway/ Koka. It is a nominal data represented by 1, 2, 3, & 4 including others which are distributed in different corner of the country with no concentrated cluster. The performance of cut flower farms also related with industrial cluster or farms co-located by a larger number of farms in a smallest administration unit which shares similar Geographical location (Mano, 2013). Factors contributing to normal running of a floriculture business might require ideal agro-climatic condition (Mitambo, 2008). Therefore it is hypothesized that geographic location expected to influence to the performance of cut flower farms

Flower Variety: Represents the varieties based on the age of introduction to the market. The breeders introduce premium varieties according to the test of buyers. Cut flower varieties represented by the use of old, mixed and new varieties; It is an ordinal variable represented by 1, 2,and 3. Differentiation in the flower industry is mainly achieved through changing the flower varieties. In order to meet the rapidly changing consumer demand, flower farms in developing countries need to have access to these new varieties (Gebreeyesus et al, 2011). Planting the right variety is a decisive factor for the success of farms and, breeders are the key actors in the chain (Tiruwha, 2010). Inappropriate choice of rose varieties was one of the main constraints of the flower sector (Gebre-Medhin et al, 2004). Therefore it is hypothesized that farms planting old varieties are expected to show poor performance

Planting Media: A planting media can be either soil or soilless media which usually called hydroponic media. Farms either uses locally prepared or imported media for planting flowers which restrict direct contact with soil. The planting medias are hydroponics and soil, it is a dummy variable measured as 0 and 1. The Hydroponics (Soil less) technology is related with the media used to grow the cut flower instead of planting directly in the soil. It helps in effective use of water in that plants only use what they need. The waste nutrient mix can be collected, treated for pathogens and reused in the system. This creates saving in the nutrients applied to the crop and the water used by the system (Shannon, 2009). Successfully growing cut flower farm require clean soil (or use of hydroponics) (Wijnands, 2005). Upgrading products and production technology examples includes growing in hydroponics (Gabre-Medhin and De Vette, 2004). The use of hydroponics technology in combination with other flower growing techniques is generally associated to improvement in productivity (Esemu, 2012). Therefore, it is hypothesized that the use of Hydroponic media (Soilless) expected to contribute positively to the performance of cut flower farms

Export market: Export market represents mode of sale of cut flowers to the international buyers. The export market mode includes Auction and Direct Sale to the buyers. The direct sale option varies according to destination i.e. Middle East and Europe. The variables represented by discrete numbers including mixed type of export market out let. The market for cut flower export is direct sale to Europe, auction market, direct sale to Middle East, and mixture of the two; it is a nominal data measured as 1, 2, 3, and 4. . The farms mainly engaged in direct sales to EU market

are more likely vertically integrated, have large farm size, and have better human and logistic capacities. Most of the companies in direct sales have mother companies with better capabilities (Gebreeyesus et al, 2011). The auction market is characterized by loose, market-based trading relationships, which are less strictly coordinated and less buyer-driven. In contrast, in the direct sales market, buyers tightly coordinate the value chain (Riisgaard, 2009). Inappropriate knowledge of market contributes to the failure of the flower sector (Gebre-Medhin et al, 2004). Therefore it is hypothesized that those cut flower farms which use more than one export market outlet are expected to have better chance of success.

Table 3.1 Summary of variables used in Regression Model

Variable	Type and Definition	Measurement
Dependent		
Average Earning/ Hectare	Continuous, Earning from sale	In USD
Independent		
Managerial Skill	Continuous, Overall Business Management Experience	In Years
Technical Skill	Continuous, Relevant Farm Management Experience	In Years
District Category	Nominal, cluster of farms around grouped Geographical Location	Holeta/ Sebeta=1, Bishoftu=2, and Zeway/ Koka=3, and Others= 4
Flower Variety	Ordinal, Use of old, new, or mixed varieties	Old 1, Mixed 2, and New 3
Export Market	Nominal, export market type	Direct sale to Europe=1, Auction market=2, Direct sale to Middle east=3, and Mixed=4
Planting Media	Dummy, Use of planting media	Hydroponic=1, and Soil=2

Source: Own Definition, 2015

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Descriptive Analysis

4.1.1 Managerial & Technical Skill

Qualified Technical skill is expected to contribute positively to cut flower farms performance. It is denoted by qualification of the Technical Manager; it is a ratio measure represented by years of experience accordingly the analysis made on the relation between the relevant years of experience of the technical supervisor and the five years average earning per hectare of farms shows the following:

Table 4.1 Correlations of Average Earning with General Manager and Technical Supervisor Skill

Description		Average earning per hectare five years	General Manager years of experience in business	Technical Manager relevant years of experience in flower business
Average earning per hectare five years	Pearson Correlation	1	.311*	.682**
	Sig. (2-tailed)		.051	.000
	N	40	40	40
General Manager years of experience in business	Pearson Correlation		1	.479**
	Sig. (2-tailed)			.002
	N		40	40
Technical Manager relevant years of experience in flower business	Pearson Correlation	.	*	1
	Sig. (2-tailed)	.		
	N			40

**and* this shows Correlation is significant at $p<0.01$ and $p<0.1$ level respectively

Source: Own computation from survey data, 2015

The correlations made to relate the General Manager years of Experience in business activities and the technical supervisor experience in relevant business shows that the Technical Manager relevant experience positively correlated with successful performance of the flower farm business the correlation is strong and significant at 0.01 level of significance. However, the General Manager overall business experience relation to the successful performance of the flower farm is significant at 0.1 level and the relation is week according to the correlation test made to evaluate their relation with the average earning per hectare.

The analysis result of correlation of technical manager relevant experience with the average earning per hectare showed the presence of significance relationship between them. Likewise, the regression function estimated to identify the determinants of performance of cut flower farms indicated that the experience of technical manager having significant contribution to the model. Successful growing of cut flower requires productive and skilled labor, expertise in growing technique, good management and organization (Wijnands, 2005). Industry knowledge is an essential element of management operation. Market and industry awareness is often a prime selection criterion for key positions. It is essential to be aware of industry standards and recommend investments and upgrade over time to ensure that the venture remains competitive (Agricultural Market Resource Center, 2014). During starts up and struggling period, one of the major constraint is lack of experience in horticulture in case of floriculture industry (Gebre-Medhin et al, 2004). Therefore, the findings of this study are consistent with similar studies made with respect of the importance of the relevant experience of the technical manager in successfully running cut flower farms.

4.1.2 Geographical Location

The location of cut flower farms was expected to bring variability in the performance of the farms. The major distribution of cut flower farms funded by Development Bank of Ethiopia is around Holeta, Sebeta Deberezeit, and Zeway. In addition, there are farms not many in number outside these areas. To manage the cases in terms of wide clusters which have similar features, the locations were divided in four clusters such as Holeta/ Sebeta, Zeway/ Koka, Bishoftu and Others. The ANOVA analysis conducted using the clusters and the five year average earning is presented below:

Table 4.2 Variation between districts in terms of average income

Five year average earning per hectare				ANOVA		
	N	Mean	Std. Deviation	df	F	Sig.
Holeta/Sebeta	22	90779.529	49475.9126	3	4.591*	0.008
Zeway/Koka	2	186455.670	106527.9135	36		
Bishoftu	8	128685.980	47006.7699	39		
Other	8	162300.800	67895.4412			
Total	40	117448.880	62586.2642			

* The mean difference is significant at p<0.01 level

Source: Own computation from survey data, 2015

Analysis of variance made among districts in terms of mean average income per hectare calculated for five years shows there is variation in income among different geographical location was significant at $p<0.01$. The comparison of the average income shows that projects not in the clusters on the average earned USD 71,521.27 more than Holeta/ Sebeta Cluster and its variation is significant. The projects included in others situated around Sululta, Bahirdar, Sendafa, Arsi, Welkitie and Awash. The least performing among the clusters is Holeta/ Sebeta and the best performing cluster is Zeway/ Koka with an average earning USD 95,676.14 more than the Holeta/ Sebeta cluster. The Bishoftu cluster on the average earns USD 37,906.45 more than the Holeta/ Sebeta cluster.

Geographical location was the other variable that was hypothesized to have contribution to the performance of cut flower farms. The result of the analysis of variance to see the presence of variability in annual average earning per hectare among the different districts showed that there are significant differences in the farms that are located in the different locations.

4.1.3 Comparison of Average Earning Based on Flower Variety

The flower varieties planted by farms varies according to their age of introduction to the market. Those farms that planted old verities are expected to have lower earnings. The data collected on utilization of flower varieties showed that 18 farms used old varieties and the rest 22 farms use newly introduced varieties. The following table shows the group statistics between the farms that planted recently introduced varieties and those that planted old varieties.

Table 4.3 Average income variation between old and new varieties (t -test)

Flower varieties		N	Mean earnings (USD)	Std. Deviation	T	df	Sig. (2-tailed)
Average earning per hectare five years	Old	18	62371.742	26252.4193	-8.4*	38	0.000
	New	22	162511.993	44598.9882			

* The mean difference is significant at $p< 0.01$ level

Source: Own computation from survey data, 2015

The result shows that the average income calculated for the new and old varieties were USD 16,252 and USD 62,372 per annum respectively. Those farms that planted new varieties earn more income per hectare. The variation is found to be statistically significant.

Table 4.4 Average income variation between old and new varieties within districts (t -test)

Geographical Location	Variety	N	Mean earnings per hectare (five years average)	Std. Dev.	t	Sig. (2-tailed)
Holeta /Sebeta	Old	15	65454.4	26858.4	-5.3*	0.000
	New	7	145047.7	42953.9		
Bishoftu	Old	2	58221.885	771.7293	-5.97*	.001
	New	6	152174.012	21101.4509		
Other	Old	1	24431.990		-3.5**	.013
	New	7	181996.344	41923.1966		

* and ** show that the difference in mean earnings per hectare is significant at $p< 0.01$ and $p<0.05$ level respectively

Source: Own computation from survey data, 2015

Note: Zeway/Koka excluded from the test since both farms at the cluster used recently introduced varieties.

Deepening further, analysis was made if the use of old and new varieties among the different location brings difference in performance of the farms. The result consistently showed that the use of recently introduced varieties yielded better outcome in all the geographical locations compared to planting old varieties (see Table 4.4)

The analysis showed that the age of flower varieties since its introduction has significant contribution to the average earning of the flower farm. Differentiation in the flower industry is mainly achieved through changing the flower varieties. In order to meet the rapidly changing consumer demand, flower farms in developing countries need to have access to these new varieties (Gebreeyesus et al, 2011). Planting the right variety is a decisive factor for the success of farms and, breeders are the key actors in the chain (Tiruwha, 2010). Inappropriate choice of rose varieties was one of the main constraints of the flower sector (Gebre-Medhin et al, 2004). To secure new varieties growers, have to respect the property rights and pay royalties or license fees to international breeders (Wijnands, 2005). The result is consistent with the studies made with respect of the importance of securing newly introduced varieties for successful performance of cut flower farms.

4.1.4 Variability of Cut Flower Performance Based on Export Market

The Ethiopian flower farms in general and those that are funded by the Development Bank of Ethiopia mainly use the international/ the export market since its inception. The common market outlets are auction market, direct sale to Europe and Middle East, and the use of a combination of these two in a bid to expand their market share. Table 4.5 shows comparison of average income per hectare among different market out lets:

Table 4.5 Average income variation between alternative markets

Average earning per hectare five years				ANOVA		
	N	Mean	Std. Deviation	Df	F	Sig.
DirectM	7	47165.35	25096.52	3	29.47*	0.000
Mixed	11	72807.87	23916.33	36		
Auction	17	151701.49	32193.41	39		
DirectE	5	197597.18	67304.74			
Total	40	117448.89	62586.30			

* The mean difference is significant at p< 0.01 level.

Source: Own computation from survey data, 2015

The mean difference calculated for different market outlets used by the farms showed that there is variation among the groups. Those who send their product to Middle East market on direct sale basis are relatively earned less average income per hectare compared to the other three groups. Direct Sale to Europe (USD 197,597.18) and Auction (USD 151701.49) bring more average income per hectare while mixed market (USD 72,807.87) outlet brings relatively better offer than direct sales to Middle East which is the least among the four groups. The result shows that those who send to European market through direct sale, and auction constitutes more than 50 percent of the farms included in the study.

The variable that captures the contribution of alternative export market to the average earning per hectare was significant. Using alternative marketing channels have significant contribution to the average earning of the farms. Successfully entering into the global market dominated by buyers

requires having high capabilities at the supply base to ensure consistent, diversified and quality products that comply with regulatory requirements. The farms mainly engaged in direct sales to EU market are more likely vertically integrated, have large farm size, and have better human and logistic capacities. Most of the companies in direct sales have mother companies with better capabilities (Gebreeyesus et al, 2011). On the other hand, the auction market is characterized by loose, market-based trading relationships, which are less strictly coordinated and less buyer-driven. In contrast, in the direct sales market, buyers tightly coordinate the value chain (Riisgaard, 2009).

Inappropriate knowledge of market contributes to the failure of the flower sector (Gebre-Medhin et al, 2004). The supermarkets formulate standards governing horticultural trade institutionalized by EU like EU GAP, Global GAP, MPS raising domestic capacity at all level required to respond this challenge (Gebreeyesus et al, 2011). Both suppliers and buyers enjoy considerable benefits from this system. Buyers benefit from a wide range of supply at an assured quality level which also lowers the transaction costs, while suppliers benefit from a transparent pricing system of the auctions (Tiruwha, 2010). The auction system is a vehicle for premium prices not for channeling poor quality. Not meeting the basic quality standards of the buyers (i.e. supermarkets) leads to exclusion. As most developing countries have no home market for cut flowers, the growers produce for the European, Japanese and/or USA markets. The growers have to meet the industry's standards in these countries. So if a grower do not meet them fully, it can be relevant to support the needed capabilities. But even then it will be necessary to analyze the market prospects and to organize the supply chain (Wijnands 2005). The result from this study is thus consistent with the studies made with respect of the importance of using proper export channels.

4.1.5 Comparison of Performance of Farms Using Different Planting Media

The farms planted flowers either using an artificial media or planted directly on the soil without using any form of media. The use of Hydroponic media is expected to generate high income to cut flower farms compared to planting directly on the soil. To analyze the effect of using planting media the two groups are compared with respect of average income per hectare. Table 4.6 shows the group statistics among the two groups.

Table 4.6 Average income variation between planting medias (t –test)

Planting media used in the production of cut flower		N	Mean income (USD)	Std. Deviation	t	df	Sig. (2-tailed)
Average earning per hectare five years	Soil	30	96571.042	50246.8893	-4.5*	38	0.000
	Hydroponic	10	180082.396	55015.8907			

* The mean difference is significant at p<0.01 level

Source: Own computation from survey data, 2015

The comparison of average income per hectare between the two group shows that using hydroponic media generate higher average income per hectare with the mean value of USD 180,082 per annum. The statistical test made on the significance of the variation observed between the two groups showed that the mean variation is significant at p<0.01 level of significance.

The analysis made to capture the impact of using hydroponic media was significant. The result showed that planting media has significant contribution to the average earning of cut flower farms. The use of hydroponic is a production technology which was achieved in stage 3 of the Ugandan flower sector (Gebre-Medhin et al, 2004). The technology helps to use water effectively in that plants only use what they need. The waste nutrient mix can be collected, treated for pathogens and reused in the system. This creates saving the nutrients applied to the crop and the water used in the system (Shannon, 2009). The use of hydroponics technology in combination with other flower growing techniques is generally associated to improvement in productivity and hence enabled the flower exporters to improve their operating profit margins. Empirical result also showed that flower exporters were in most cases able to improve their overall profitability (Esemu, 2012). The result from this study is thus consistent with the studies made with respect of the importance of using hydroponic media for successful performance of flower farms.

4.1.6 Farms Owners/ Representatives Opinion on Performance

In addition to the quantitative data collected from different sources, the opinion of the farms was collected through close ended and open ended questions. The survey was made to capture the opinion of the farms about the government and the funding bank in relation to institutional support at policy level, business support services, and technical support for the successful implementation/ operation of the project. The result is summarized in Table 4.7.

Table 4.7 Opinion survey on institutional support

Opinion items and their rating		Frequency	Percent	Valid Percent	Cumulative Percent
Government policy support for cut flower sub sector	I Strongly Disagree	1	2.5	3.4	3.4
	I Disagree	1	2.5	3.4	6.9
	I am not sure	**9**	22.5	31.0	37.9
	I agree	**12**	30.0	41.4	79.3
	I Strongly Agree	**6**	15.0	20.7	100.0
	Total	29	72.5	100.0	
Business support services in terms of infrastructure etc	I Strongly Disagree	1	2.5	3.4	3.4
	I Disagree	1	2.5	3.4	6.9
	I am not sure	6	15.0	20.7	27.6
	I agree	**18**	45.0	62.1	89.7
	I Strongly Agree	**3**	7.5	10.3	100.0
	Total	29	72.5	100.0	
Technical advice by the funding Bank	I Strongly Disagree	**5**	12.5	17.2	17.2
	I am not sure	3	7.5	10.3	27.6
	I agree	9	22.5	31.0	58.6
	I Strongly Agree	**12**	30.0	41.4	100.0
	Total	29	72.5	100.0	

Source: Own survey, 2015

The result shows that different trend for the three institutions on some responses which might need attention according to the response. In case of the government policy support the concentration next to those who give their agreement on the availability of support at moderate level (12) lies at those who are not sure (9) about the support which might indicate lack of awareness on the support provided or the impact might not be visible for the users. The moderate (12 for government policy support and 18 for business support) and strong agreement (6 for government policy support and 3 for business support) on the support and the disagreement (2

for government policy support and 2 for business support) part for both Government and Business support services follows similar trend with the disagreement part represented by small number of respondents. However, in case of the funding bank both strong agreement (12) part relatively represented by the biggest number and the strong disagreement part also got a visible number of responses (5) as compared with the other two institutions which shows the funding bank support or lack of support got relatively more attention by the respondent considering also it has got the least response of not sure (3) opinion on its service.

Institutional support by the government is crucial for the successful operation of the flower farms. Government's role particularly in terms of coordinating air transport between the exporters and the public owned carrier, Ethiopian Airlines is vital for their success in addition to the provision of land and long-term credit. The Ethiopian government, with the support of donors, has also been involved in human resource development activities by offering degree programs and practical training in horticulture, quality control and certification services (Gebreeyesus et al, 2011). The private sector received incentives for investing in horticulture and floriculture, and the incentives were easy to obtain (Sergeant, 2004). While the government has been very supportive of the sector as a whole, regulation remained slow, inconsistent and unpredictable. Problems typically identified by the private sector can take long-time to solve. Resolving issues appears to involve gaining the attention of proactive and high-level officials. But a regulatory system is neither effective nor sustainable. Business regulation is of unpredictable nature in Ethiopia. Regulatory changes are often enacted with little or no prior consultation on the practicality of the new rules (Shaefer et al, 2015). This also is consistent with the result of the share of neutral (not sure) respondents' number (9 out of 29) which shows visible result due to the mentioned facts on the service. Since the cut flower industry was new to the country and had intricate production and marketing systems, local knowledge required for proper feasibility evaluation of investments in the industry was practically non-existent. The bank simply lacked the capacity to correctly appraise business plans, and in particular was not able to accurately assess the veracity or accuracy of claims made by loan seekers about project costs (including, but not limited to, greenhouses, external staff, chemical inputs, and fertilizers) **(**Shaefer et al, 2015). This result is also consistent with the relatively visible (5 out of 29) number of strong disagreement response on the service of the funding Bank.

In addition to the response obtained for close ended questionnaires the farms also provided with open ended questions which gives a chance to capture additional information. With respect the EHPEA not all farms are members but those who are members discussed that the association is a bridging contact for export market which provides information on different market destination. The association organizes events, trainings, and exposure visits to promote the flower farm business. It also facilitates cooperation between members and Federal and Regional governments on important issues like land, incentives etc. The association also deals with the funding institutions and business support service providers on behalf of its members. Responding to mounting pressure for standard compliance, the association initiated a collaborative project with the government and donors to develop a code of conduct in line with internationally recognized standards such as Global GAP (Global Good Agricultural Practice) and MPS (Milieu Programma Sierteelt). With respect of the government the opinion posed by the respondents indicates the government is serving as source of information through EHDA, it acts as a bridge among different stake holders, provide support in strengthening institutional capacity, arrange experience sharing forums with local and foreign investors, gives various incentives (low lease rate, profit tax holiday, low interest pricing for loan, duty free import of fixed investment, retention account of foreign currency), and follow up developments. But some respondents also give opinion on the inefficiency of the support and the extended time taken to resolve challenges.

The specific problems addressed by respondents about the market includes price inconsistency and difficult to forecast the outcome due to the change in economic and other relevant situations at destination markets. The war in Middle East contributes to the decline in market demand for those who prefer this market out let which has relatively easy standard for entrance. The major consumer market for flower European auction market has stringent standards for quality which is a challenge for Ethiopian farmers which has less experience in the sector. It is also difficult and costly to comply with requirements and payment of royalty to use newly introduced premium varieties which has forced the flower farms to search for alternative market. Since most of the exporters depend on European market Euro versus Dollar exchange rate fluctuation affects their return.

The major challenges and comments reported by respondents of the questionnaire covers wide subject. The challenges reported related with factors of production, market, and related support

services. There are farms unable to operate in stable situation by accessing required funds from financial institutions due to the problem in transfer of title deed takes very long time during ownership transfer from rental to lease or when the site is incorporated to the nearby town. Some farms established on sites secured on short term contractual basis from local farmers which were a challenge to access credit for long term need. The building of roads and rail way station by the government at the project site and termination of operation for extended time without getting alternative land or compensation decision was a challenge for some farms which took long time to resolve and involvement of so many stake holders to settle amicably. In pot plants or cuttings case fluctuation of climate in the destination market was a problem to harmonize their production time. Some farms reported shift to other horticultural products due to the royalty and other requirements to stay at the flower market. Shortage of working capital also reported as impeding factor for smooth operation of some flower farms. The cost of transportation, logistics and customs clearance is a challenge for most of the farms. Natural hazard specially wind accident which frequently damage green house plastic sheets, shortage of chemical and fertilizer, labor supply, frequent power interruption, telephone and internet connection problem reported by the farms as a point which challenges them to operate smoothly.

4.1.7 The Contribution of Other Related Factors

The researcher during the data collection came across other factors which also contributes to the performance of cut flower production and checked each factors for their correlation as well as their contribution to the performance of cut flower production to expand the extent of coverage of contributing variables in terms of factors of production without going to detail literature review and analysis. Accordingly the following analysis made on each category:

Table 4.8 Average income variation based on number of farm laborers

Average earning per hectare five years				ANOVA		
Farm labor	N	Mean	Std. Deviation	df	F	Sig.
<= 150	12	59587.12	26420.64	3	14.93*	0.000
151 – 250	10	131177.24	42776.21	36		
251 – 500	11	118435.07	53660.14	39		
Above 500	7	195478.81	50219.21			
Total	40	117448.88	62586.26			

*The mean difference is significant at p<0.01 level

Source: Own manipulation from survey data, 2015

The above table shows there is positive relation between available farm laborers and average income per hectare. The statistical test made on the significance of the variation observed among the four groups' shows that the mean variation is significant at p<0.01 level of significance.

Table 4.9 Average income variation based on of flower type

Flower type	N	Mean	Std. Deviation	ANOVA	
				F	Sig.
Rose	34	104510.7	53739.4	9.89	0.000
Summer Flower	3	140335.8	15374.3		
Cutting	3	241194.5	43523.2		
Total	40	117448.9	62586.3		

*The mean difference is significant at p<0.01 level

Source: Own manipulation from survey data, 2015

The analysis made on flower type shows that except six farms the rest plant roses and the analysis of variance indicates the average income earned from Cuttings is better than roses and the result found to be significant at p<0.01 level.

Table 4.10 Correlations between Loan Amount (Capital) and Average Earning

		Average earning per hectare five years	Loan amount per effective hectare of land
Average earning per hectare five years	Pearson Correlation	-0.06	-.061
	Sig. (2-tailed)	0.71	.710
	N	40	40
Loan amount per effective hectare of land	Pearson Correlation	1	1
	Sig. (2-tailed)		
	N	40	40

Source: Own manipulation from survey data, 2015

The statistical test made to check the correlation between average earning and amount of capital invested on the farm denoted by amount of loan disbursed by the bank shows no significant relation.

Table 4.11 Correlations between Years in business and Average Earning

Correlations			
		Average earning per hectare five years	No of years the farm exports its produce to the market
Average earning per hectare five years	Pearson Correlation	1	0.18
	Sig. (2-tailed)		0.26
	N	40	40
No of years the farm exports its produce to the market	Pearson Correlation		1
	Sig. (2-tailed)		
	N		40

Source: Own manipulation from survey data, 2015

The statistical test made to check the correlation between average earning and number of years the farm exports its produce to the market shows no significant relation.

Table 4.12 Utilization of land in relation to geographical location

Geographical Location of the project or district dummy	Unutilized land				Total land secured by the flower farms		
	Mean	N	Std. Deviation	Sum	Mean	Std. Deviation	Sum
Holeta/Sebeta	12.8014	22	6.59789	281.63	23.878	13.6342	525.3
Zeway/Koka	35.3000	2	40.58793	70.60	60.500	61.5183	121.0
Bishoftu	24.9188	8	12.89274	199.35	33.863	17.9837	270.9
Other	33.5500	8	14.59980	268.40	44.713	16.1689	357.7
Total	20.4995	40	14.74381	819.98	31.873	20.3671	1274.9

Source: Own manipulation from survey data, 2015

The table shows only 36% of the land allotted for the farms effectively used for flower production which shows costs (lease payment) for unutilized land incurred without any value addition.

Table 4.13 Correlation matrix for other performance indicative variables

		Average earning per hectare five years	Amount of Loan provided by the funding bank	Flower type planted by the flower farms	Market destination of flower farms	Total land secured by the flower farms	Effective land utilized for planting	No of years the farm exports its produce	Farm laborers employed in the flower farm	Administrative and other non-farm employees
Average earning per hectare five years	Pearson Correlation	1	.247	**.576*****	**.779*****	**.561*****	**.426*****	.184	**.597*****	.381**
	Sig. (2-tailed)		.124	.000	.000	.000	.006	.257	.000	.015
Amount of Loan provided by the funding bank	Pearson Correlation		1	.196	.077	**.599*****	**.436****	-.170	**.524*****	**.638*****
	Sig. (2-tailed)			.226	.637	.000	.005	.294	.001	.000
Flower type planted by the flower farms	Pearson Correlation			1	.323*	**.515*****	.219	.260	**.619*****	.292
	Sig. (2-tailed)				.042	.001	.174	.105	.000	.068
Market destination of flower farms	Pearson Correlation				1	.203	.190	.042	.329*	.235
	Sig. (2-tailed)					.209	.241	.797	.038	.144
Total land secured by the flower farms	Pearson Correlation					1	**.713*****	.075	**.764****	**.448****
	Sig. (2-tailed)						.000	.644	.000	.004
Effective land utilized for planting	Pearson Correlation						1	.106	**.648*****	.268
	Sig. (2-tailed)							.515	.000	.095
No of years the farm exports its produce to the market	Pearson Correlation							1	.170	.006
	Sig. (2-tailed)								.295	.973
Farm laborers employed in the flower farm	Pearson Correlation								1	**.594*****
	Sig. (2-tailed)									.000
Administrative and other non-farm employees	Pearson Correlation									1
	Sig. (2-tailed)									

***Significant at p<0.01; and **Significant at p<0.05

Source: Own computation from survey data, 2015

The above correlation matrix prepared to analyze the relation of other flower farm related variables with the dependent variable as well as with each other. Variables included in the correlation matrix are Amount of Loan (Capital), Flower type, Market destination, Total land secured, Effective land utilized, Experience in the business, Farm laborers employed and Administrative employees.

The variables which have significant relation with the dependent variable i.e. average incomes are Flower type, Market destination, Total land secured, Effective land utilized, and Farm laborers employed. The other factor which has a relation with more than one variable is amount of loan provide by the funding bank and related with the land and labor variables (Total land, Effective land, Farm labor and administrative employees). Similarly the total land secured related with effective land and labor (administrative and farm labor), while effective land related with farm labor and farm labor with administrative employees.

The relation in the above mentioned independent variables to the average income found to be significant at $p<0.01$ and $p<0.05$ level and it varies from 0.426 in case of effective land which is moderate versus average income to 0.779 which shows strong correlation. The relation magnitude shows that flower type (0.576), total land (0.561), farm laborers (0.597) have moderate relation with average income per hectare. Administrative and other employees (0.381) have weak relation with the average income per hectare while market destinations of flower farms (0.779) have strong relation with the average income per hectare. The independent variables also have relation with each other which ranges from moderate to strong.

4.2 Econometric Analysis

The performance of flower farms is estimated using the Ordinary Least Square (OLS) estimation procedure of multiple regression function by including six independent variables that are hypothesized to determine average earning per hectare. The performance of the model is generally good in which the independent variable explained 76% of the variation in average earning per hectare of flower farms. Jointly, all the variables explained the variability in average earning per hectare of the farms and this was significant at $p<0.01$ (F value=21.7). In addition a test for autocorrelation was carried out using Variance Inflation Factor (VIF) and there was no problem of autocorrelation (Table 4.14).

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This means that researchers assume that errors are spread out consistently between the variables (Keith, 2006). This is evident when the variance around the regression line is the same for all values of the predictor variable. The

linearity and homoscedasticity assumptions can best be tested with scatter plots using standardized residuals by standardized predicted.

If the scatter plot shows some sort of curve / systematic pattern/, then the assumption of linearity is broken. And also regarding homoscedasticity, the data is expected to have randomly scattered around zero (the horizontal line) providing even distribution (Osborne & Waters, 2002). Or even distribution below and above the Fit Line at Total, which all data of residuals lies in between -2.5 and 2.5.

As it can be seen in the scatter plot (**Appendix A**) it has no pattern equally distributed around horizontal line zero, so the data fit with the assumption of linearity and homoscedasticity.

It can also be seen that residuals are normally distributed and errors are not serially correlated. Therefore, the model can be taken as a healthy determinant which shows reliable impact of the explanatory variables over dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.893[a]	.798	.761	30602.5713	.798	21.687	6	33	.000

a. Predictors: (Constant), Geographical Location of the project or district dummy, General Manager years of experience in business, Planting media used in the production of cut flower, Flower varieties age from introduction, Technical Manager relevant years of experience in flower business, Export market outlet used by farms

The results of the regression analysis presented in Table 4.14 shows that four variables are statistically significant in terms of determining the performance of flower farms. More specifically, years of experience of technical manager, planting media, export market outlet and flower variety significantly affected the performance of flower farms. On the other hand, district dummy and the overall business experience of the General Manager turned out as insignificant in determining the performance of the farms.

Table 4.14 Results of Multiple Linear Regression Model

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-40667.52	18862.30		-2.16	0.038		
General Manager's years of experience in business	-603.11	910.51	-.061	-.66	0.512	.719	1.39
Technical Manager's years of experience in flower business	2943.77	1559.91	.220	1.89	0.068*	.450	2.22
Type of flower variety	18766.51	9037.53	.302	2.08	0.046**	.290	3.45
Export market outlet	24745.92	9954.97	.369	2.49	0.018**	.278	3.60
Planting media	26288.87	13570.08	.184	1.94	0.061*	.678	1.47
Geographical Location	1238.71	4663.44	.025	.266	0.792	.696	1.44

* Significant at p<0.1 level; ** Significant at p<0.05 level

Source: Own computation from survey data, 2015

The magnitude of the coefficients showed the effect of independent variables over the dependent variable average income per hectare. Accordingly, the technical manager experience contributes to increment of average income per hectare by USD 2,943.77. The flower variety change from old to recent varieties contributes to the increment of average income per hectare of USD 18,766.51. The export market out let indicates that use of better market out let contributes to the average income per hectare USD 24,745.92. The regression result also showed that use of planting media contributes to the average income amount of USD 26,288.87.

Even if the individual descriptive test showed significant result the regression function showed that the contribution of the General Manager's business experience to firms' annual average earning per hectare as insignificant. This may be due to the fact that the owners are usually the General Managers of the farm but without having meaningful management qualification, experience and skill about the inputs, and the production process of cut flower. This is also supported by Sorsa (2011).

The regression function also showed that district dummy to have insignificant contribution to the performance of the farms. This might be due to the international competitors for those districts with similar varieties for instance large flowered roses cannot compete with Dutch flower growers (Wijnands, 2005) which might influence the price of the product as compared with the intermediate and small size varieties.

In the research hypothesis there were other three determinant factors (variables) namely Government policy support, business support service, and technical advice by funding Bank included as an independent variables to test their impact on the performance through multiple regression analysis. However, out of the 40 (forty) farms selected for survey only 29 (twenty nine) of them responded the questionnaire which makes the difficult to include the result and carry on the regression since the test considers only those farms with all the nine variables which affects the result. So, the three variables tested in a descriptive way by considering the frequency of response to evaluate the opinion of farm owners.

The other related variables which were included as an important factors and the data's are collected checked to test their significance by including in the multiple regression model but the test showed that their inclusion as an independent variables affects the result of regression and impacts the significant variables. Therefore, the variables are excluded from multiple regression analysis and the test limited to t-test and ANOVA to check their relation with the dependent variable. Also correlation matrix prepared to check their level of correlation with each other and the independent variable.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Among six explanatory variables, which were hypothesized to impact performance of cut flower farms, four variables namely experience of technical manager, export market, variety and planting material used to have significant impact on the average earning of the farms while the remaining two were found to have insignificant impact.

Technical manager experience is one of the factor which shows positive and significant influence on cut flower performance. The sector being a nontraditional agricultural business the technical skill required to run successful farms limited. So, having skilled technical supervisor secures the performance of the cut flower farm to be better than other farms with less skilled technical manger.

The model result also shows that export market outlet is another important factor indicating the performance of cut flower farms. This may be due to the fact that those with direct export market to Europe have already established market with the mother company which has already a good reputation in the market and better knowledge of the market. Also those who use the auction market outlet already fulfill the market requirement which is stringent and impact the farms positively to improve its operation to be competitive in the auction market which can be taken as backward linkage.

The financial performance of cut flower farms also affected by the use of artificial media to plant flowers instead of planting directly to the soil which doesn't require using any media. This is due to the fact that the media retains both water and fertilizer in an efficient manner which reduces cost of input. The efficiency in controlling pests and disease due to its contact with limited surface which is the planting media should also be considered both in terms of using less pesticides and easily controlling the disease agents. In addition, the distribution of the required input to individual flowers in a balanced and sufficient amount secures the proper growth of the flower which impacts the overall production performance of the farm.

The use of recently introduced or premium varieties also found to be one of the variables which significantly contribute to the successful marketing performance of cut flower farms. This is due to the changing test of the consumers with the introduction of new and more attractive varieties. The use of recent varieties indirectly indicates the market outlet since the markets with premium price have requirement for settling royalty payment and those who use other market to avoid the requirement might be dealing in less paying markets which affects their performance and growth as a successful cut flower farm.

The opinion of the respondents showed that there is lack of clarity in the government support as well as business support services which might be the result of inconsistency and lack of communication among stakeholders. The opinion with respect of the lending bank also showed visible disagreement on the availability of useful technical support. Both situations might affect the cut flower performance negatively.

5.2 Recommendations

The cut flower production, which is relatively a recent addition to the major foreign exchange earning sectors, requires special attention for continuity of the success story and its growth to the sustainable level. Based on the results found, the owners of cut flower farms, the government, the lending bank, and other stakeholders should give attention to important variables which have significant impact on the performance of cut flower farms.

The government through the relevant agency (EHDA) responsible for the support of cut flower farms in cooperation with the horticulture association should take inventories of the current technical capabilities (gaps) of the cut flower farms and design tailored managerial skill in cut flower farm business management, and proceed with continuous evaluation of available technical capability and training of technical personnel's based on the gaps observed in technical skills.

To ensure the success in the business market out let is as important as the production step. Therefore, it is recommended that market diversification to the destinations which offer attractive price can only be achieved through the supportive mechanism of the government which can be achieved by using available networks like the embassies at the destination markets, through establishing active information hub at the agency and the union which specifically deals

with the market situation. Considering the importance of the sector as a major foreign exchange source studies should be conducted on the possible market outlet and facilitating each cut flower farm demand until the sector achieve sustainable state and services adopted to the Ethiopian situation.

In addition, selection and use of new varieties suitable to the district is an essential condition to assure the supply of premium cut flower to the market. Based on the result of the study it is recommended that proper orientation on the essential requirements like royalty payment instead of diverting to other destination to avoid payments should be a short term approach. However, in the long run implementing the code of practice which ensures both the success of the farm as well as its sustainability since it is also a mandatory requirement to enter in to the premium market destinations.

Moreover, to make the country's cut flower farm production competitive the support institution should agitate farms for implementation of upgraded technologies like hydroponic media. This shall serve for improved nutrient utilization and reduction of costs associated with wastage of resources. The use of hydroponic media also has benefit in relation to environmental protection since it protects the soil from direct contact with chemicals and fertilizers.

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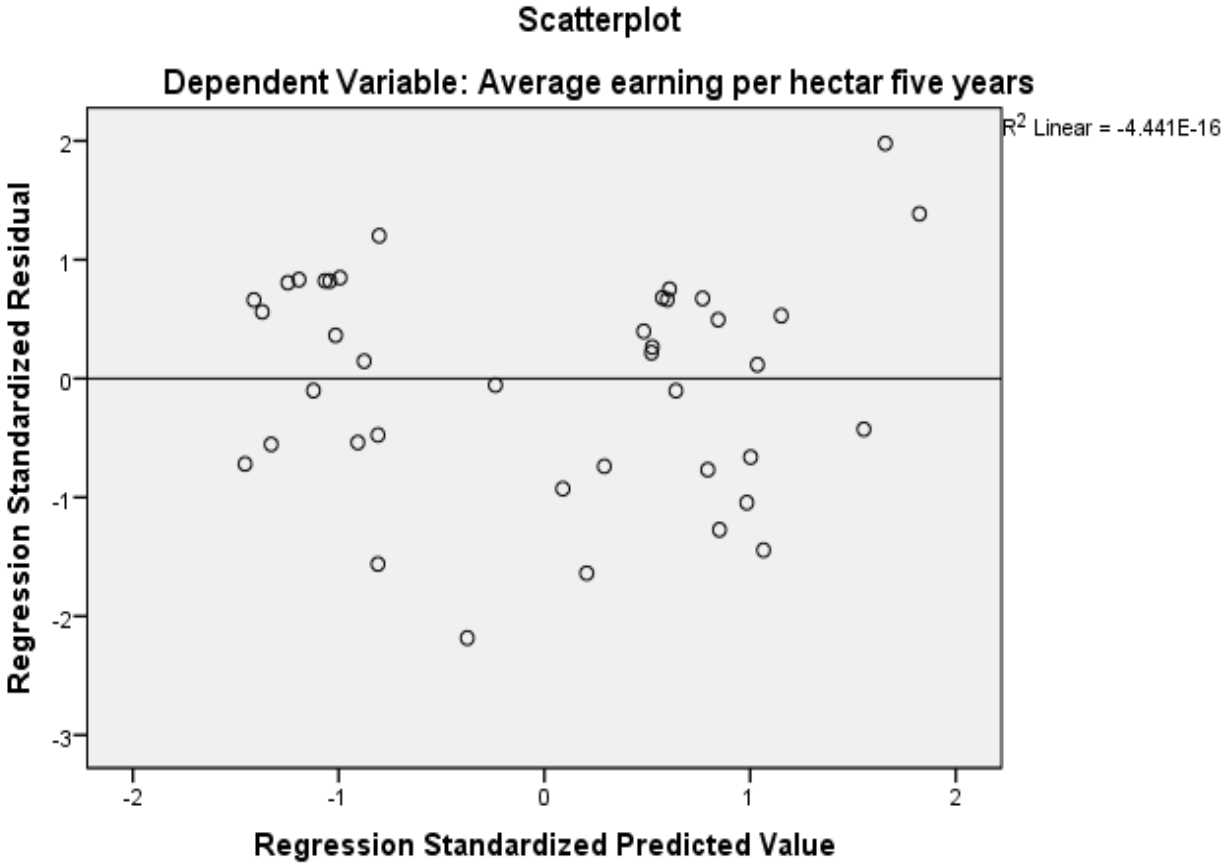
APPENDICES

Appendix A: Model fitness test for linearity



Source: Own computation from survey data, 2015

Appendix B: Details of Quantitative information of Farms included in the Research Study

Farm Code	District	Variety	Export market	Planting media	Owner	Loan Amount	Flower Type	Destination	Total land	Used land	Year Establish	Year in export	Farm Labor	Other Staff
F-01	Holeta/ Sebeta	Old	DirectM	Soil	Foreign	16285740	Rose	Middle East	20	7	2007	6	120	24
F-02	Holeta/ Sebeta	Old	DirectM	Soil	Foreign	13130577	Rose	Middle East	22	12	2005	10	200	26
F-03	Bishoftu	New	DirectE	Soil	Foreign	10698006	Summer Flower	Europe	31	5	2004	11	300	87
F-04	Other	New	Auction	Soil	Ethiopian	10666078	Rose	Europe	30	15	2006	10	172	26
F-05	Bishoftu	New	Auction	Hydroponic	Ethiopian	17258815	Rose	Europe	12	3.6	2006	9	180	40
F-06	Other	New	DirectE	Hydroponic	Foreign	66768204	Cutting	Europe	42	12	2006	8	792	39
F-07	Holeta/ Sebeta	Old	DirectM	Soil	Ethiopian	17700875	Rose	Middle East	35.4	10.8	2004	10	400	47
F-08	Holeta/ Sebeta	New	Auction	Soil	Ethiopian	41567876	Rose	Europe	30	18.8	2005	10	550	30
F-09	Holeta/ Sebeta	New	Auction	Hydroponic	Ethiopian	32770136	Rose	Europe	22	17.6	2005	10	400	40
F-10	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	24560162	Rose	Mixed (Europe + Other)	22	11	2006	10	200	50
F-11	Other	New	Auction	Soil	Foreign	27831012	Summer Flower	Europe	40	10	2005	10	403	29
F-12	Holeta/ Sebeta	New	Mixed	Soil	Joint Venture	21630181	Rose	Mixed (Europe + Other)	20.2	9.8	2004	11	150	180
F-13	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	12754863	Rose	Mixed (Europe + Other)	20.8	5.6	2005	10	140	15
F-14	Bishoftu	Old	Mixed	Soil	Foreign	15768390	Rose	Mixed (Europe + Other)	22	3.8	2009	5	115	18
F-15	Holeta/ Sebeta	Old	DirectM	Soil	Ethiopian	16321585	Rose	Mixed (Europe + Other)	18.5	6.2	2006	9	130	12
F-16	Bishoftu	New	Auction	Soil	Ethiopian	17258843	Rose	Europe	25	8.2	2007	8	300	15
F-17	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	12094793	Rose	Mixed (Europe + Other)	35.7	6	2005	10	121	18
F-18	Other	New	Auction	Hydroponic	Foreign	17560000	Rose	Europe	32	2.2	2003	9	180	20

Farm Code	District	Variety	Export market	Planting media	Owner	Loan Amount	Flower Type	Destination	Total land	Used land	Year Establish	Year in export	Farm Labor	Other Staff
F-19	Holeta/ Sebeta	New	Auction	Soil	Ethiopian	12018697	Rose	Europe	10	5.1	2006	9	140	17
F-20	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	14136570	Rose	Mixed (Europe + Other)	20	5.2	2005	9	270	17
F-21	Bishoftu	New	Auction	Hydroponic	Foreign	31377419	Rose	Europe	60	12	2004	11	400	29
F-22	Holeta/ Sebeta	Old	Mixed	Soil	Joint Venture	18377182	Rose	Mixed (Europe + Other)	17	5	2006	9	120	7
F-23	Holeta/ Sebeta	New	Auction	Soil	Foreign	21340762	Rose	Europe	78	60	2007	8	860	16
F-24	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	11520390	Rose	Mixed (Europe + Other)	28	3.4	2005	10	156	23
F-25	Other	New	DirectE	Hydroponic	Foreign	4839402	Cutting	Europe	70	16.5	2004	11	600	60
F-26	Holeta/ Sebeta	New	Auction	Hydroponic	Ethiopian	31491046	Rose	Europe	20	15	2005	10	308	82
F-27	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	16150000	Rose	Mixed (Europe + Other)	22	7	2007	7	127	32
F-28	Bishoftu	New	DirectE	Soil	Joint Venture	21478556	Summer Flower	Europe	20	4	2004	11	239	35
F-29	Bishoftu	New	Auction	Soil	Ethiopian	14291525	Rose	Europe	42.3	5	2005	9	180	24
F-30	Zeway/ Koka	New	DirectE	Hydroponic	Foreign	124998546	Cutting	Europe	104	40	2002	12	2250	219
F-31	Holeta/ Sebeta	Old	DirectM	Soil	Joint Venture	18177501	Rose	Middle East	17	4.7	2006	9	120	24
F-32	Holeta/ Sebeta	Mixed	Auction	Hydroponic	Foreign	26293215	Rose	Europe	20	14	2004	11	400	50
F-33	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	5270000	Rose	Mixed (Europe + Other)	13.1	3.5	2004	11	140	68
F-34	Other	Old	DirectM	Soil	Ethiopian	32921022	Rose	Middle East	40	3	2005	10	452	27
F-35	Holeta/ Sebeta	Old	Mixed	Soil	Foreign	22363500	Rose	Mixed (Europe + Other)	19.5	11.8	2005	10	280	30
F-36	Other	New	Auction	Soil	Ethiopian	177651343	Rose	Europe	70	15	2008	4	600	225
F-37	Other	New	Auction	Soil	Ethiopian	95800649	Rose	Europe	33.7	15.6	2006	9	760	160

Farm Code	District	Variety	Export market	Planting media	Owner	Loan Amount	Flower Type	Destination	Total land	Used land	Year Establish	Year in export	Farm Labor	Other Staff
F-38	Bishoftu	Old	DirectM	Soil	Foreign	145317003	Rose	Middle East	58.6	30	2004	11	105	15
F-39	Holeta/ Sebeta	New	Auction	Hydroponic	Foreign	17988873	Rose	Europe	14	4.2	2006	9	200	30
F-40	Zeway/ Koka	New	Auction	Soil	Ethiopian	15088837	Rose	Europe	17	10.4	2006	9	210	30

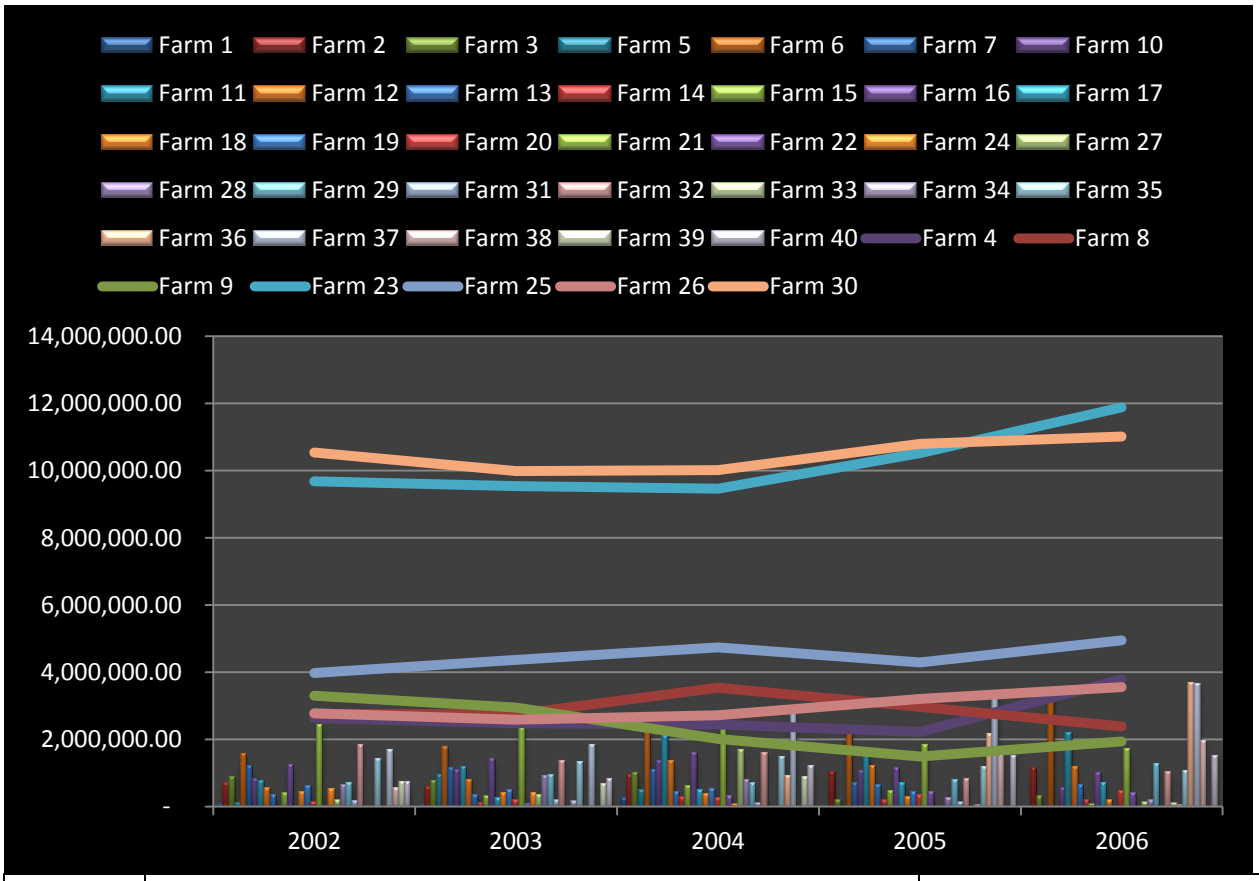
Source: Collected from individual farms, EHDA, EHPEA, DBE, and Organized by the reporter for the thesis

Appendix C.1: Projects Funded by Development Bank of Ethiopia Annual Earning (USD)

EXPORTERS	Physical Year in Ethiopian Calendar				
	2002	2003	2004	2005	2006
F1	68,659.00	55,214.73	262,943.88	8,294.05	
F2	679,781.51	567,396.04	932,040.64	1,033,868.89	1,133,010.56
F3	873,906.72	776,563.80	1,006,836.79	197,010.61	296,898.89
F4	2,636,248.64	2,478,943.38	2,449,287.92	2,230,839.68	3,784,132.66
F5	108,203.01	934,912.81	473,922.29		
F6	1,579,527.76	1,761,314.31	2,360,312.58	2,393,689.58	3,376,978.78
F7	1,184,231.02	1,135,113.42	1,089,471.33	702,467.64	3,899.03
F8	2,757,523.58	2,752,019.77	3,536,694.71	2,968,137.36	2,385,928.90
F9	3,306,134.79	2,953,532.86	2,012,818.87	1,494,749.98	1,937,217.16
F10	812,758.28	1,080,348.98	1,340,585.06	1,054,075.48	544,464.92
F11	756,713.18	1,172,237.98	2,068,682.53	1,645,399.97	2,187,219.97
F12	527,943.90	798,332.04	1,332,089.42	1,194,035.49	1,166,553.33
F13	350,862.79	339,698.33	431,415.73	626,395.35	610,499.33
F14	25,010.60	123,527.42	267,241.04	184,096.52	197,519.57
F15	385,594.68	295,668.24	583,526.88	456,294.09	75,109.18
F16	1,235,999.29	1,390,166.60	1,596,380.18	1,130,600.40	996,260.18
F17	17,155.20	261,319.97	479,332.87	702,169.94	695,364.06
F18	428,775.34	402,060.34	376,662.23	288,237.50	189,718.77
F19	587,814.93	472,380.22	516,193.70	416,842.00	16,615.54
F20	124,901.60	184,819.15	250,655.17	330,935.06	450,057.94
F21	2,431,979.03	2,344,331.19	2,423,451.90	1,829,393.08	1,703,005.05
F23	9,678,393.70	9,535,999.65	9,465,048.98	10,524,513.80	11,882,370.87
F24	511,077.49	393,523.33	82,539.85	5,274.78	
F25	3,979,480.71	4,367,339.43	4,743,684.22	4,288,624.20	4,945,723.92
F26	2,774,367.77	2,590,584.69	2,718,935.77	3,202,557.71	3,563,152.06
F27	183,266.39	335,199.77	1,678,619.20		126,990.18
F28	617,310.29	906,224.32	787,286.14	266,212.39	190,039.45
F29	717,644.63	928,069.02	680,069.91	784,427.34	1,250,848.02
F30	10,539,783.91	9,988,351.51	10,019,723.19	10,796,329.23	11,012,267.23
F31	177,124.95	193,299.09	103,032.27	129,950.31	7,208.16
F32	1,815,599.96	1,351,362.40	1,583,867.13	821,811.54	1,012,610.98
F33					103,881.38
F34		162,409.09	7,532.50	63,795.66	59,446.58
F35	1,430,256.04	1,312,716.58	1,484,199.61	1,163,581.96	1,059,152.49
F36			920,253.97	2,154,935.40	3,677,643.21
F37	1,681,327.78	1,834,713.47	2,806,180.40	3,378,521.91	3,654,619.43
F38	529,311.94			1,574,658.33	1,951,396.72
F39	735,994.26	651,500.00	878,400.59		
F40	730,040.51	821,871.89	1,196,421.84	1,513,690.44	1,516,686.58

Source : EHDA organized by the reporter for the thesis

Appendix C.2: Annual income trend (2002-2006)

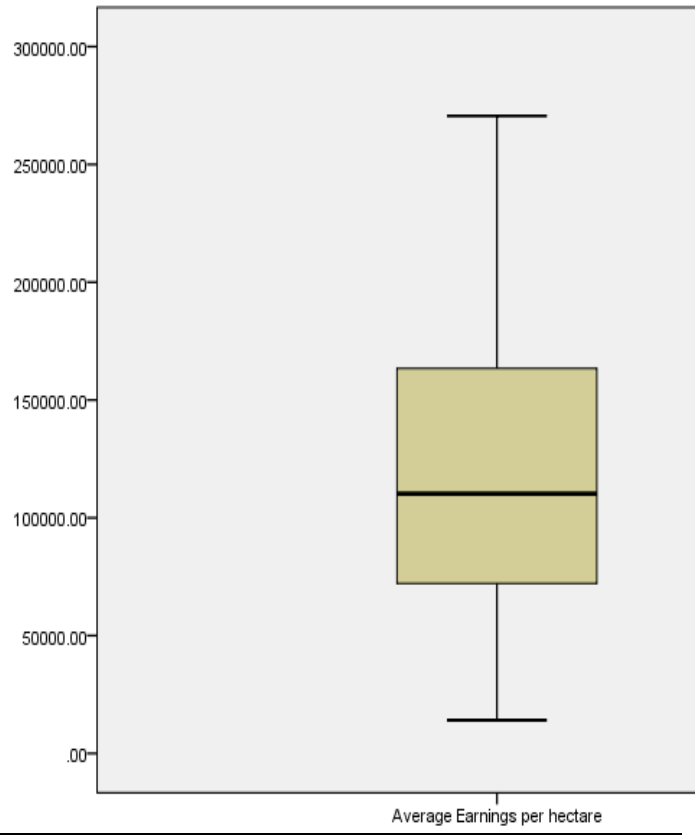


	Descriptive Statistics					Friedman Test			
	N	Minimum	Maximum	Mean	Std. Deviation	Mean Rank	Chi-Square	df	Asymp. Sig.
y_2002	37	17155.20	10539783.91	1541018.6265	2306809.82113	2.74	4.774	4	.311
y_2003	37	55214.73	9988351.51	1560603.7030	2213334.96210	2.68			
y_2004	38	7532.50	10019723.19	1717420.0626	2184172.64937	3.45			
y_2005	36	5274.78	10796329.23	1721810.7175	2436109.27817	3.03			
y_2006	36	3899.03	11882370.87	1893070.3186	2702036.19421	3.10			
Valid N (listwise)	31								

Source: Own computation from survey data, 2015

Appendix C.3: Average Earning Per Hectare

Descriptives			
		Statistic	Std. Error
Mean		117448.8803	9895.75725
95% Confidence Interval for Mean	Lower Bound	97432.8219	
	Upper Bound	137464.9386	
5% Trimmed Mean		114639.5983	
Median		110224.7550	
Variance		3917040465.439	
Std. Deviation		62586.26419	
Minimum		14111.13	
Maximum		270604.27	
Range		256493.14	
Interquartile Range		94874.80	
Skewness		.432	.374
Kurtosis		-.219	.733



Source: Own computation from survey data, 2015

Appendix D: Farms owners opinion on their performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Level of satisfaction with profitability	Dissatisfied	4	10.0	14.3	14.3
	Indifferent	5	12.5	17.9	32.1
	Satisfied	16	40.0	57.1	89.3
	Very Satisfied	3	7.5	10.7	100.0
	Total	28	70.0	100.0	
Level of satisfaction with change in work process	I Disagree	2	5.0	7.4	7.4
	I am not sure	7	17.5	25.9	33.3
	I agree	11	27.5	40.7	74.1
	I Strongly Agree	6	15.0	22.2	96.3
	Missing	1	2.5	3.7	100.0
	Total	27	67.5	100.0	
Level of satisfaction with investment in innovation	I Strongly Disagree	3	7.5	11.1	11.1
	I am not sure	10	25.0	37.0	48.1
	I agree	9	22.5	33.3	81.5
	I Strongly Agree	3	7.5	11.1	92.6
	Missing	2	5.0	7.4	100.0
	Total	27	67.5	100.0	

Source: Own survey, 2015

Appendix E: Year of Establishment of Flower Farms (European Calendar)

Geographical Location	**Year of establishment of the flower farm**	Frequency	Percent	Valid Percent	Cumulative Percent
Holeta/Sebeta	2004	4	18.2	18.2	18.2
	2005	9	40.9	40.9	59.1
	2006	6	27.3	27.3	86.4
	2007	3	13.6	13.6	100.0
	Total	22	100.0	100.0	
Zeway/Koka	2002	1	50.0	50.0	50.0
	2006	1	50.0	50.0	100.0
	Total	2	100.0	100.0	
Bishoftu	2004	4	50.0	50.0	50.0
	2005	1	12.5	12.5	62.5
	2006	1	12.5	12.5	75.0
	2007	1	12.5	12.5	87.5
	2009	1	12.5	12.5	100.0
	Total	8	100.0	100.0	
Other	2003	1	12.5	12.5	12.5
	2004	1	12.5	12.5	25.0
	2005	2	25.0	25.0	50.0
	2006	3	37.5	37.5	87.5
	2008	1	12.5	12.5	100.0
	Total	8	100.0	100.0	

Source: Own computation from survey data, 2015

Appendix F: Data Collection instrument

Appendix F.1: Data collection instrument – questionnaire (Part 1)

1. Location of the project
   a. Holeta___ 2.Sebeta___ 3. Bishoftu___4. Zeway___ 5. Others___

2. General Manger number of years of experience in flower farm management:_____

3. General Manager Year of Schooling_____

4. Technical Supervisor number of years of experience in relevant technical supervision/ profession:_____

5. Technical Supervisor Year of Schooling_____

6. Flower Varieties Used:
   a. Old Varieties____
   b. New (Premium) Varieties____
   c. Both_____

7. Export market usually adopted by the farm (2010 – 2014):
   a. Auction Market ____
   b. Direct Sales_____
   c. Mixed_____

8. Planting media used in the farm:
   a. Hydroponic (Soil-less) ____
   b. Soil_____

9. Kindly provide the following data about the company.

Item		**2010**	**2011**	**2012**	**2013**	**2014**
Total Area (Hectares)						
Utilized Farm Size(Hectares)						
1.	Yield @ M² (Stems @ Year)					
1.1	*Large bud size roses*					
1.2	*Intermediate roses*					
1.3	*Small bud size roses*					
1.4	*Other type of flowers*					
2.	Export Volume (Tons/Stems):					
2.1	*Large bud size roses*					
2.2	*Intermediate roses*					
2.3	*Small bud size roses*					
2.4	*Other type of flowers*					
3.	Revenue (Birr/ Euro/ USD):					
3.1	*Large bud size roses*					
3.2	*Intermediate roses*					
3.3	*Small bud size roses*					
3.4	*Other type of flower*					

4	Auction:					
4.1	*Large bud size roses*					
4.2	*Intermediate roses*					
4.3	*Small bud size roses*					
4.4	*Other type of flowers*					
5.	Direct Wholesale:					
5.1	*Large bud size roses*					
5.2	*Intermediate roses*					
5.3	*Small bud size roses*					
5.4	*Other type of flowers*					
No. of Farm Laborers						
No. of Other Employees						

10. What is the cost structure of the farm? (Kindly provide data for the 2010-2014 as indicated below)

Cost Structure Item	**2010**	**2011**	**2012**	**2013**	**2014**
Production Costs: Labor Cost Input Cost (incl. Royalty) Travel & Per diem Insurance Repair & Maintenance Depreciation & Amortization					
Packaging Costs					
Cold Storage at the airport					
Clearing and Forwarding					
Air transport to the export markets					
Handling charges (commission) in the export markets Other costs: …… ……					

11. Which of the following best describes the ownership of the company?

1. Ethiopian national 2.Foreign Nationals 3. Foreign Nationals Ethiopian Origin
4. Jointly Owned

12. Year of Establishment_____

13. How many years did the company stay in cut flower product export? _____

14. Number of farm (wage) laborers? Male____ Female____

15. Number of other employees on farm? Supervisory ___ Office___ Technical___ Security___

16. Amount of total investment in farm enterprise? (Initial) _____ (Current)_____

Appendix F.2: Data collection instrument – questionnaire (Part 2)

Dear Respondent,

This research study is being carried out to obtain your opinions, views and experiences on the performance of your company. Your company is one among others to take part in this study. You are therefore kindly requested to participate as your views are important for the study.

How to respond the questionnaire:

Please read the opening statement of each question carefully and follow the instructions it provides in completing the specific question. All sections have numbers/ alphabets corresponding to the answers; please make sure in such cases you place a tick (_) or give your answer in the box/ dash under/ following the number/ alphabet corresponding to your chosen answer.

1. For the most useful relationships that your company has with external partners:
Government, Business Support, and Funding institution (Bank), kindly show the extent to which you agree or disagree with the following statements as regards the relationships between your company and the other external partner organizations:

I Strongly Agree	I Agree	I am Not Sure	I Disagree	I Strongly Disagree
5	4	3	2	1

Relationships with Government

Statement:	5	4	3	2	1
The Government is proactive in initiating supportive policies and establishment of support institutions					
The Government ensures (follow-up) the execution of support programs provided by policies					
We know and collaborate with the staff in the government support institutions at a personal level					
There is a clear guidance to lodge complaint when we are not satisfied with the support provided					

Relationships with Business Support Service providers

Statement:	5	4	3	2	1
There is smooth operation in accessing business support services (business information, transport, communication, water, power, etc)					
We maintain personal ties with our business support providers (business information, transport, communication, water, power, etc)					
We consider the staff of our business support providers as individuals who keep their promises					
There is a clear guidance to lodge complaint when we are not satisfied with the support provided					

Relationships with Funding Bank

Statement:	**5**	**4**	**3**	**2**	**1**
The technical support by the Development Bank staffs adds value to our operation					
We know and collaborate with the staff in the Bank at a personal level					
We consider the staff of the Bank as professional who keep their promises					
There is a clear guidance at the Bank to lodge complaint when we are not satisfied with the support provided					

2. How satisfied are you with the following aspects of your company's ***performance*** in the last five (5) years:

Very Satisfied	**Satisfied**	**Neither Satisfied Nor Dissatisfied**	**Dissatisfied**	**Very Dissatisfied**
5	**4**	**3**	**2**	**1**

Statement:	**5**	**4**	**3**	**2**	**1**
Profitability					
Penetrating New Export Markets					
Utilizing new export marketing channels					
Customers Feedback on your product					

3. The following statements are used to indicate the ***level of continuous change*** in your company. Using the scale below show how you agree or disagree with them:

I Strongly Agree	**I Agree**	**I am Not Sure**	**I Disagree**	**I Strongly Disagree**
5	**4**	**3**	**2**	**1**

Statement:	**5**	**4**	**3**	**2**	**1**
My company has a formalized process for introducing technology (like hydroponics) and new varieties of cut flower					
My company has a formalized process for introducing new varieties of cut flower					
My company has a formalized process for developing new marketing processes					

4. This question is about your company's ***investments in innovations***. Use the scale below to indicate the extent to which you agree or disagree to the following statements as regards your company's ***investments in innovations.***

I Strongly Agree	**I Agree**	**I am Not Sure**	**I Disagree**	**I Strongly Disagree**
5	**4**	**3**	**2**	**1**

Statement:	**5**	**4**	**3**	**2**	**1**
Our company has decided to find new or alternative export market channels for its products in the near future					
Our company has decided to develop new or modified products/ varieties in the near future					
Our company has decided to develop new or modified production system (like using Hydroponic media) in the near future					

5. How is the Ethiopia Horticultural Producers & Exporters Association (EHPEA) helping its members to overcome challenges? _____
_____
_____
_____

6. To what extent is government helping the industry to overcome challenges to innovation development and its commercialization? _____
_____
_____
_____
_____

7. Has your company been able to meet the flower export market compliance requirements? Has your company experienced any problems in supplying flowers to export markets? If so what problems and how long did they persist? _____
_____
_____
_____
_____

8. Other Comments _____
_____
_____
_____

9. Major Challenges (U Can use separate page or back of the page)_____
_____
_____
_____
_____

Appendix G

Ethiopia's Investment Law

 According to the revised investment law, a foreign investor can invest on his/ her own or jointly with a domestic investor (with minimum investment thresh hold set under Proclamation No. 769/ 2012)

 The Investment law guarantees capital repatriation and remittance of dividends.

 The Investment law provides investment guarantee.

 Investment guarantee and protection; in Ethiopia both the Constitution and the

 Investment Code protect private property

Investment Incentives

 A package of incentives under regulation No.270/2012 developed

 Incentives are available both to foreign and domestic investors.

Types of Incentives

 Customs duty exemption

 Income tax exemption

 Loss carry forward

 Remittance of fund

 Execution of investors Request for loan

 Land availability for investment on leasehold basis

 Utilities: electricity, telephone, water and road

Source: Proclamation No. 769/2012 & Regulation No. 270/2012