EFFECT OF OPERATIONAL MANAGEMENT PRACTICES ON ORGANIZATION PRODUCTIVITY OF FLOWER FARMS IN KENYA

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DECLARATION

I declare that, this thesis is my original work and has not been presented for a study in any University or college.

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This thesis has been submitted for examination with my approval as the University supervisor.

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DEDICATION

To my Husband Shadrack, Children Angeline, Christine and to my Parents, family and friends for their encouragement and support.

ABSTRACT

The business operating environment is volatile, dynamic, uncertain, has scarce resources, limited opportunities and enormous risks. The market demand for high levels of efficiency standards failure to which firms will face extinction. Hence, there is need for careful optimization among all firms aiming to achieve competitive advantage. This is possible if an organization pursues control process of internal resources and capabilities. To yield this operational management practices has pivotal role in horticultural firms. Consequently, the current study sought to examine the effect of operational management practices on organization productivity of flower farming firms in Kenya. Specific objectives of the study were to determine the effect of supply chain management on organization productivity of flower farms in Kenya, examine the effect of inventory management practices on organization productivity of flower farms in Kenya, and establish the effect of quality management practices on organization productivity of flower farms in Kenya. The study was anchored on agency theory, systems theory and contingency theory. The study adopted descriptive research design. Simple and stratified sampling were used to draw 164 respondents from 70 flower farming firms in Kenya will be adopted. The target respondents included agronomists, procurement, finance and operational managers of flower farms. Primary data was collected through administration of questionnaires. Data was analyzed using descriptive and inferential statistics in aid SPSS version 22. Descriptive statistics adopted included mean, standard deviation, frequency and percentages. Inferential statistics adopted include correlation and multiple regression analysis. The study findings indicated that 78% agreed that supply chain management, inventory management practices and quality management practices have effect on organization productivity of flower farms in Kenya. Regression analysis indicated that supply chain management practices, inventory management practices and quality management practices have 78.4% positive and significant effect on organization productivity in flower farms in Kenya. It is concluded that there is need for flower farming companies to develop measures aimed at strategic supplier partnering, supplier segmentation and supplier development so as to optimize their organization productivity.

Key words: Supply chain management practices, inventory management practices, quality management practices, Productivity

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LIST OF ABBREVIATIONS AND ACRONYMS

BRC British Retail Consortium

EOQ	Economic Order Quantity
ERP	Enterprises Resources Planning
FMCG	Fast Moving Consumer Goods
IM	Inventory Management
JIT	Just on Time
MRL	Maximum Residue Level
OMP	Operations Management Practices
SCM	Supplier Chain Management
SPSS	Statistical Packages for Social Scientists

OPERATIONAL DEFINITION OF KEY TERMS

Inventory Management Practices These are stock management practices adopted in an organization to ensure that there is optimal stock and elimination of likelihood of holding

	excess stock (Otundo & Bichanga, 2015).
Operational Management Practices	This is the procedural guidelines of activities, costs, authorities and supply approaches to be adhered to in an organization (Ogbo, 2014).
Organization Productivity	This is the state of organization to achieve its set goals and objectives. Set corporation goals include reduction of wastage, compliance with regulatory standards. It ought to not only efficient but also effective (Oakland, 2015).
Quality Management Practices	These are procedures and policies governing products and services features that are acceptable in an organization (Ahire et al, 2012).
Supply Chain Management	These are set of activities undertaken in an organization to optimize supply management (Mueni & Moronge, 2018). The activities mainly include supplier partnership, outsourcing, cycle time compression, continuous process flow, healthy customer relations, and quality purchase and information technology sharing (Makena & Iravo, 2013).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Organization productivity is the culmination of unified Operational Management Practices (OMP). Through them an organization can define its supply management practices, inventory management, enterprise resources planning and quality management (Otundo & Bichanga, 2015). Despite of intended symbiotic relationship between OMP and organization productivity there are challenges in achievement of desired goals and objectives. Though, proper OMP should ensure that there are low chances of excessive holding stock. In flower farms cases of it are rampant (Makena & Iravo, 2013). Its causes, effect on organization productivity had gained currency value empirically.

Organization productivity is the overall outcome of the input of factors of production such as labour, raw materials (Dawson, 2010). Organization productivity can be measured using financial and non-financial measures. Financial measures can examine profitability, changes in market capitalization of listed companies. Non-financial measures include customer loyalty, customer satisfaction and operational efficiency. According to Kimaiyo & Ochiri (2014) organization productivity should be in line with achieved of market-oriented objectives and goals.

Flower companies operate in business environment, which is subject to regulations, trade agreements, procurement guidelines, business dynamic and exposure to volatile climatic conditions (Learner Guide, 2007). Despite of them adopting OMP there is high probability of missing productivity targets since regulation changes, business dynamic and procurement policies has far reaching consequences on their productivity (Prempeh 2015). Further, Yang, Zhnag and Zheng (2016) called for prudent regulations since development of trade policies that are in contrast to business environment hampers their operational capacity. Obiageli (2015) called for adoption of internal and external polices geared towards responding to

threats and opportunities that may enhance organization productivity. Adala (2014) called for liberalization of business environment to optimize its capacity.

1.1.1 Operational Management Practices

Operations management refers to procedural guidelines of activities, costs, authorities and supply approaches to be adhered to in an organization (Ogbo, 2014). It is aimed at acquisition, allocation, improvement and adoption of organization resources to achieve desired goals and objectives (Karimi & Rafiee, 2014). It ranges from operations to strategic activities adopted. Operational activities in any corporate entity include planning and control, inventory administration, quality assessment and control, capacity planning and control, supply chain management, lean synchronization and project planning (Irungu & Were, 2016). Strategic activities are procedures developed so as to achieve medium- and long-term corporate goals.

Operations management practices comprise of quality administration, inventory management and supply network administration, and risk execution and information technology. Quality management guarantees legal outlining procedure is taken after (Yang *et al.,* 2016). This planning method should be sponsored by proper process framework upheld by an appropriate technology, which affirms to the demands of clients. It additionally guarantees that deformities and mistakes are avoided and lastly expelled from the process. In this manner, quality administration includes; arranging, planning, designing, gap distinguishing proof and improvisation (Kimaiyo & Ochiri, 2014).

1.1.2 Organization Productivity

Profit and non-profit making organizations aims at achievement of efficiency in their operations. This optimizes its productivity. Organization productivity can be evaluated in comparison between outputs, goals and objectives. Set corporation goals include reduction of wastage, compliance with regulatory standards. It ought to not only efficient but also

effective (Ahire et al, 2012). Effectiveness is organization capacity is production of goods in response to market forces of demand and supply and in an efficient organization there is optimal allocation of resources with minimal wastage of time, energy and materials (Oakland, 2015). To achieve optimal productivity organization should have laid out measures that guides its operating environment and have measures to respond to threats and opportunities (Nawaza & Channakeshavalu, 2013).

Organization productivity can be examined through Cambridge performance measures (Neely et al, 1997), balance score card (Kaplan & Norton, 2001) and performance prism (Neely et al, 2002). These measures have different attributes of efficiency that include productivity, quality improvement, performance improvement, stakeholders return, efficient asset utilization, cost minimization, customer loyalty, customer retention and customer satisfaction. Other evaluation attributes are timely delivery, innovation and one-time delivery. In this study operational productivity will be examined using level of output, market share, cost efficiency, customer satisfaction and changes in profit.

1.1.3 Operational Management Practices and Organization Productivity

Poor inventory management of agrochemicals has led to underperformance of flower farming farms. This is in tandem with Prempeh (2015) who reported that 60% to 70% of organization resources are invested in raw working capital and inventory is crucial owing to its easier conversion into cash. Flower farms have no scientifically proven approach for inventory management due to heterogeneity of internal and external attributes associated with it. Consequently, organization productivity is exposed to sales reduction, low return on investment, sales loss, market share cannibalization, disgruntled customers and below capacity utilization.

Failure to carry out quick analysis may lead to stock out or excess holding stock of agrochemicals. However, missing link between OMP may low likelihood of increasing profitability of a firm (Onwuka, *et al.,* 2015). Due to the nature of flower farms operations they ought to identify activities that would aid in their planning, development and improvement in their operational process. It seems that despite use of operational

management practices for pesticides management at the selected flower farm, it is reported they have been experiencing accumulation of excess holding stock that would eventually become dead stock if not managed with in the expiry window period. If uncertainty of weather and pest threat and other factors causes excess holding stock, can then operational management practices be optimized to reduce their effect on productivity of flower firms in Kenya.

1.1.4 Flower Farming in Kenya

Flower farming in Kenya have significant contribution on Gross Domestic Product (GDP), its direct contributions is 26% and indirect 27% through integration with other sectors. According to Mohamed (2018) in Food and Agriculture Organization of United States, flower farming have at least 40% employment contribution globally and 70% in Kenya's rural population. Flower farming is dependent on agrochemicals to mitigate against pests, their use should be guided by universally acceptable principles and regulations.

According to Learner Guide (2007) stock management in flower farming sector should be guided by robust management principles. This is because excess or under stocking would have effect on fertilization and production time of flowers. There are higher odds of some stock being obsolete over a short period of time due to changes in international flower market practices. Hence, there is need for proper planning and creation healthy supplier relationship to optimize flower farm productivity.

In flower farms there are instances of excess or deficient inventory of agrochemicals, obsolete, expired and deregulated agrochemicals. This would create opportunity for idle capacity and underutilization of the factors of production. Consequently, there would be failure to meet desired organization objectives. It seems that despite use of inventory systems for pesticides management at the selected flower farming farm, it is reported they have been experiencing accumulation of excess holding stock that would eventually become dead stock if not managed with in the expiry window period. If uncertainty of weather and pest threat and other factors causes excess holding stock, can then OM Practise be optimized to reduce the negative impact on productivity.

1.2 Problem Statement

The business operating environment is volatile, dynamic, uncertain, has scarce resources, limited opportunities and enormous risks. The market demand for high levels of efficiency standards failure to which firms will face extinction (Kyalo *et al.,* 2018). Hence, there is need for careful optimization among all firms aiming to achieve competitive advantage. This is possible if an organization pursues control process of internal resources and capabilities. To yield this operational management practices has pivotal role in flower farming firms. Moreover, ability of a firm to manage its operational management practices may have implications on organization productivity. This may be an outcome of the nature of their operating practices. This will cause internal resources spillage, increased operation costs and low efficiency, hence the need to examine operating management practices in line with desired outcomes (Cherotich & Karanja, 2019).

Investigations on the effect of OPM and organization productivity is not exhaustive. This is because there are conceptual, methodological and contextual gaps from past findings. For instance, Mueni and Moronge (2018) documented that performance of parastatals was dependent on supplier sourcing, inventory management and reverse logistics. The findings may not be generalized in flower farming companies since they are profit making unlike parastatals meant to achieve social economic objectives. Nsikan, Etim and Ime (2015) documented significant effect of inventory management practices on performance of flour mills in Nigeria. The company had higher odds of drawing biased conclusions since it never carried out classical regression assumptions. Masudin, Kamara, Fien and Devi (2015) adopted qualitative research design in examination of the influence of inventory management practices on performance since there are challenges associated with qualitative data and mixed design should have been adopted. Majukwa and Haddud (2016) reported that there was significant association between operations management practices and strategic fit.

It is not economical and physically impossible for flower farms to demand for their input as demand falls due. Once they are exposed to stock out then they have high likelihood of incurring massive cost to alleviate the change especially when responding to business

dynamics. This call for harmonization of OMP to ensure that flower firms optimizes their operational capacity. The current study sought to examine the effects of operating management practices on organization productivity of flower farms in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The main objective of the study was to examine the effect of operational management practices on productivity of flower firms in Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To determine the effect of supply chain management practices on organization productivity of flower firms in Kenya
ii. To examine the effect of inventory management practices on organization productivity of flower firms in Kenya
iii. To evaluate the effect of quality management practices on organization productivity of flower firms in Kenya.

1.4 Research Questions

The study sought to answer the following research questions:

i. What is the effect of supply chain management practices on organization productivity of flower farms in Kenya?
ii. Do inventory management practices affect organization productivity of flower farms in Kenya?
iii. What is the effect of quality management practices on organization productivity of flower farms in Kenya?

1.5 Scope of the Study

The study was carried among 70 flower farms in Kenya. Quantitative data approach was adopted and questionnaires administered among operational managers, agronomists, finance managers and procurement managers of flower farms. The study was executed in Kenya in Naivasha sub county among the flower farms in July 2020.

1.6 Significance of the Study

The findings of the study may be important to management of flower farms in Kenya. Through the findings it may be easier for management to identify issues to be addressed in operational management practices model so as to be adopted to optimize productivity. Through the study shareholders may be notified on cost management strategies that can be adopted to enhance organization profitability. Procurement department may be guided on model to adopt to manage procurement costs. Finance and agronomists may be guided on adoption of optimal operational management practices that would optimize production costs and maximize profits.

The study may benefit policy makers who are involved in trade development policies and promoters of flower export may understand the policies that can be adopted by flower farms so as to maximize the value of flower exported from Kenya. The study may contribute in academic through empirical documentation on the effect of OMP on organization productivity of flower farms in Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter past literature showing effect of OMP and organization will be presented. Theoretical literature review will discuss theories that support the study. Empirical literature review shows past evidence on the link between study variables. Conceptual framework present schematic presentation of study variables.

2.2 Theoretical Literature Review

Theoretical foundation of the study was on agency, contingency and systems theory. Theoretical foundations give the argument in favor for the choice of study variables. Further, the relevance, weakness and relevance of the theory will be presented.

2.2.1 Agency Theory

Agency theory was developed by Jensen and Mecklig (1976). The theory argues that although stakeholders' own corporations they have to hire management who acts as their agents and they are in charge of running corporations. To ease this relationship there are rules and regulations that governs their operations. Agency principal relationship is characterized by information asymmetry, agency and monitoring costs. Those in management fully understand operational capacity of flower firm company, can pursue decisions that would expose their farms into profitability or losses. Consequently, the stakeholders incur costs to access information, have to monitor organization operations.

Arrow (1971) allude that agency theory is linked to creation of agency problems that are linked to sharing of risk among corporate entities. Different stakeholders in an organization have heterogenous risk levels thus their management decisions will be different. Principal stakeholders may have higher risk appetite which are driven by desire to earn more revenue as compared to agents who are in pursuance of short-term goals. Ross (1973) called for

formulation of institutional frameworks that would provide guidelines on investment projects selection criterions. Mitnick (1975) allude that institutional structure is crucial for organization development and all corporate entities should endeavor to seek for agency reconciliation. Alchian and Demsetz (1972) asserts that corporate organizations should ought to have contracts that supports their productions process. These contracts ought to provide mechanisms of solving conflicts that may be associated with levels of information asymmetry, organization structure and labour market dynamics that may have effect on production process.

The theory is appropriate for the study since there is need for harmony creation among all stakeholder through supply chain management practices. Flower farms should adopt strategic supplier partnership, customer relationship management, and supplier segmentation and supplier development. Ownership and control separation escalate monitoring and agency costs. In flower farming they are expected to adhere to local and international regulations governing their operations. Since they market their products in different economies regulations may differ and may trigger changes in use of agrochemicals that would ultimately lead to wastage of resources especially when there are policy changes that may have influence operational efficiency and changes in profit.

2.2.2 Systems Theory

System theory traces its foundation to (Von, 1968). Successful achievement of desired outcomes is contingent to harmony between internal and external player's failure to which project undertaking will be in vain. The theory argues that there is need for evaluation of organization operations in systematic approach and consider different levels as sub systems. This would optimize allocation of resources and evaluation of organization degree of resources endowment.

Failure to harmonize systematic operations during organization operation stages from identification, planning, implementation, monitoring and evaluation may escalate likelihood of eroding benefits to be derived from operating management practices. This is preceded by system which should have minimal resources spillage and mismanagement. This can only be

achieved through healthy and harmonious communication structure between different stakeholders in ERP. Operational guidelines and capacity to incorporate changes which may arise during identification, planning, implementation, monitoring and evaluation should be clearly documented. This should be in line with business operating environment and should consider changes that may not be in organization control.

The theory is appropriate for the study since there is need for adoption of distribution which are flexible to regulations and prevailing business dynamics. This would enhance inventory management and minimize challenges associated with excess holding of stock. Inability to understand customer needs by flower farms would injure their operational capacity and increase operating costs. To optimize organization productivity there is need for inventory categorization, vendor inventory management, demand forecasting and management of inventory through use of economic order quantity.

2.2.3 Contingency Theory

This is a management argument that there is no best strategy that can be adopted to optimize organization achievement (Burns & Stalker, 1961). The theory argues that management decision and policies should be dependent to internal and external environment. According to Carton (2004) there is need for organization to adopt sufficient measures that would cushion its operational productivity from internal and external shocks. Optimal stock management would have influence on operational productivity since there are costs and benefits associated with different stock levels. Thus, the need to develop optimal mix of monetary and non-monetary value to be derived from each decision adopted by an organization.

There is need for adoption of strategies that would lead to fruitful performance and effective value for respective corporations. Flower farms are exposed to different operating environment, have limited control of trade treaties and are expected to respond to changes in technological advancement, wealth condition and health policies. Consequently, there need for use of quality management practices that will ease in identification and elimination of possibilities of departure from expected standards and quality. Quality management will be

achieved through supplier switching criterion, inspection guidelines and serve acceptance criterion.

2.3 Empirical Literature Review

The foundations of this study were based on past empirical literature that has examined the influence of operational management practices on organization productivity. From each study knowledge gaps were identified and measures to bridge explored.

2.3.1 Supply Chain Management Practices and Productivity

Procurement management is responsible for management of corporation purchasing trend and it ought to be linked with value of money it holds instead of purchase price (Ruth, 2012). Consequently, there is need for efficient, functional and reliable inventory management strategies that would aid an organization in achievement of its goals, reduce inventory cost, enhance supply performance and create collaboration among heterogeneous stakeholders in inventory management. Shah (2013) argued that there is need for identification of operational productivity measures which would guide inventory management stakeholders. Caution ought to be exercised since poorly coordinated procurement policies would lead massive losses and injure organization market share and customer satisfaction (Hartmann, Trautmann & Jahns, 2008). This would be in line with findings by (Mamiro, 2010) who indicated that inventory management is inversely impacted poor procurement coordination and management which can be depicted by poor budgeting, limited knowledge and uncoordinated matching of customer needs with product design.

Harmonious Supply Chain Management practices would enable an organization to synchronize its vision and mission with suppliers and ultimately promote long term relationship with all stakeholders. SCM has five main faces which postures upstream through strategic supplier relationships, downstream through customer relationships, information flow through sharing and its quality and internal supply management (Karimi & Rafiee, 2014). Recently, there are many changes such as extensive product proliferation, increased risk of obsolescence, changes in market demand, technological proliferation. In contrast,

there are stocks that may be hard to find or their demand may be influenced by extraneous factors such as climatic conditions (Prempeh, 2015).

Profitable organization should manage their inventory failure to which they will hold excess stock that would increase holding costs and minimize likelihood of profit maximization (Kamau & Kagiri, 2015). There are several internal inventory management models. In Canada election body have adopted coherent inventory management procedure that have placed efficient procedures, controls, process and practices that guide purchase and supply of election materials (Elections Canada, 2010). According to Ochonke and Wanyoike (2016) there is an inventory management that stipulates how agricultural inventory procedures ought to be sought and courtesy of its there has been savings on procurement costs and minimization of likelihood of dead stock.

In Africa, inventory management has been exposed to challenges such as unmanaged lead time, low adoption to technologically support inventory management strategies, uncoordinated procurement policies and lack of staff skills (Ogbo, 2014). According to Nzuza (2012) inventory management in state corporations is challenged by conflicting procurement acts. In Kenya Swaleh and Were (2014) documented that state corporations in Kenya has no capacity hold the optimal stock and they incur high maintenance costs. Nyabwanga (2014) had recommend use of inventory control system to enhance inventory optimization and operational efficiency. This was possible if organizations developed inventory audit systems.

Mueni and Moronge (2018) investigated the effect of strategic procurement policies on performance of parastatals in Kenya. The effect of supplier sourcing, reverse logistics, inventory management on performance of parastatals was examined. The design adopted was cross sectional with primary data sought using questionnaires. Univariate, bivariate and multivariate techniques analyzed the data. Study findings indicated that performance of parastatals was determined by supplier sourcing, reverse logistics and inventory management. The study ought to have carried out diagnostic tests prior to classical modelling so as to minimize likelihood of fitting spurious model.

Onwuka, *et al.*, (2015) investigated the effect of operational management practices and improved logistics control in Nigeria. The design adopted was descriptive and primary data collected using questionnaires. Quantitative data was analysed through bivariate and multivariate techniques. Logistic control was dependent on process design, production planning and maintenance management. It was concluded that to enhance logistics it was appropriate for companies to examine their operational management practices through development of employee skills and technological adoption.

Karimi and Rafiee (2014) investigated the effect of supply chain management practices on organization performance in Iran Pump Company. The research design adopted by the study was expo facto and primary data collected through questionnaires issue. Structural modelling and descriptive statistics analysed data. Organization performance was affected by strategic supplier partnership, customer relationship, level of information sharing and quality of information sharing. The study ought to have incorporated both qualitative and quantitative data.

Makena and Iravo (2013) investigated the effect of supply chain management practices and performance of Haco industries in Kenya. Specifically, the study assessed the level of supply chain management practices implementation and its relationship with organization performance. The research design applied was cross sectional. Univariate and multivariate techniques analysed primary data collected. Performance was positively dependent on strategic supplier partnership, customer relationship, information sharing and quality training. It was recommended that to enhance organization performance measures to optimize lead time and operational cost to be adopted.

King'oo and Muli (2019) investigated the effect of procurement practices on performance of ministry of education. Specifically, the effect inventory control and contract management on organization. The research design applied was descriptive and primary data gathered through questionnaires. Univariate, bivariate and multivariate approaches analyzed the data. Performance was affected by inventory control and contract management. These results may

not be generalized in flower farming sector which is profit unlike ministry of education meant to achieve social economic needs.

2.3.2 Inventory Management Practices and Productivity

Otundo and Bichanga (2015) investigated effect of inventory management practices on operational performance of Kisii County government. Specific objectives of the study examined the effect of demand forecasting, inventory categorization, vendor managed inventory on operational performance. The research design adopted was descriptive and primary data was gathered. Univariate, bivariate and multivariate techniques were adopted for data analysis. Positive effect of inventory management practices on performance of Kisii County government was documented. Since, these results hails from non-profit making organization there may not be generalized in flower farming organization which are aimed at profit maximization.

Nsikan, Etim and Ime (2015) investigated the effect of inventory management practices on performance of flour mills in Nigeria. The research design applied in the study was expo facto and primary data collected using questionnaires. Univariate and bivariate approaches analysed the data. It was found that the choice of inventory management practice was contingent to changes in customer's demand, industry practices, demand estimates and production capacity. Classical modelling indicates significant association effective of optimal management practices and organization performance. Moreover, it was found that optimal inventory management lead to changes in lead time, minimal wastage of raw materials and efficiency in cost management.

Cherotich and Karanja (2019) investigated the effect of inventory management practices and performance of fact moving consumer goods companies in Nairobi County. The research design adopted in the study was descriptive. Data was analysed through univariate, bivariate and multivariate techniques. There was significant association between top management support, supplier evaluation, E-procurement and performance of Fast-Moving Consumer Goods (FMCG). It was recommended that supplier relationship management strategies should be adopted so as to enhance performance of FMCG.

An investigation on the effect of stock control management procedures on inventory performance in government ministries was carried out by (Kyalo, *et al.*, 2018). The study adopted descriptive research design and purposive sampling of procurement employees in 20 government ministries. Primary data was gathered through administration of questionnaires. Univariate, bivariate and multivariate methods were adopted for data analysis. The study indicated that there was significant association between stock control procedures and performance of government ministries. It was recommended that procurement policies should be customized to guide on appropriate stock levels. These findings may not be generalized in flower farming sectors since there are profit making as compared to government ministries which are meant to achieve social economic benefits.

Elisa, Andrea, Andrea and Massimiliano (2013) analyzed the effect of operational management on performance of small and medium enterprises in Italy manufacturing sector. These findings may not be generalized in Kenyan perspective since the two are different state of economic development which may have implication on adoption of operational management practices.

Majukwa and Haddud (2016) investigated the influence of operational management activities on strategic fit of retail sector in Zimbabwe. Specifically, the study examined the effect of competitive strategies and supply chain strategies on strategic fit. The study revealed that retail sector achieved competitive advantage through branding, stores positioning conveniently to respective customers, provision of heterogeneous products at different prices. Supply chain of retail sector had integrated demand and supply to achieve competitive advantage. There are contextual differences between flower farming sector and retail firms since there are in different operational industry hence faced by unique risks which may have influence on their performance.

Kithae and Achuora (2017) investigated the effect of inventory management on performance of commercial banks in Kenya. Descriptive research design was adopted and primary data gathered through issue of semi structured questionnaires. The sample size was 142 that was selected through simple random sampling. Data was analyzed through use of descriptive

statistics, correlation and multivariate analysis. There was positive and significant association between inventory management and performance of commercial banks. The study findings may not be generalized in flower farming companies since there are in different industry sectors. Hence there are exposed to different degrees of operational risks and have different inventory management strategies.

Ochelle, Muturi and Atambo (2017) investigated the effect of inventory management on procurement performance of manufacturing companies in western Kenya. The study examined the effect of economic order quantity, safety stock levels, just in time, ABC procedures on performance of manufacturing companies. Cross sectional research design was adopted and primary data gathered through administration of questionnaires. Univariate, bivariate and multivariate techniques were adopted for data analysis. There was a significant association between economic order quantity, safety stock levels, just in it, ABC and performance. It was recommended that there is need for clarity of procurement policies adopted by respective organization so as to optimize on organization performance.

Kamau and Kagiri (2015) investigated the influence of inventory management practices on competitiveness of Safaricom Company limited in Kenya. Specific objectives of the study were to assess the effects of inventory shrinkage, to determine the influence of inventory investment, to explore the effect on inventory turnover on competitiveness of Safaricom ltd. Descriptive research design was adopted and primary gathered through questionnaires administration among 103 employees. Univariate, bivariate and multivariate techniques were adopted for data analysis. Results of the study revealed that Safaricom competitiveness was significantly affected by inventory shrinkage, inventory investment and inventory turnover.

Prempeh (2015) investigated the impact of inventory management on profitability of manufacturing companies in Ghana. Correlation research design was adopted and panel data gathered from 2004 to 2014 among four companies. Ordinary least squares model was fitted. Study findings revealed significant effect of inventory management on profitability of manufacturing companies. It was recommended that manufacturing should evaluate their

working capital operating cycle so as to optimize on terms and conditions and minimize likelihood of running out cost.

2.3.3 Quality Management Practices and Productivity

Irungu and Were (2016) investigated the effect of quality management practices on performance of animal feeds manufacturers in Kiambu and Nairobi County. Descriptive research design adopted and purposive sampling was applied in selection of 55 animal feeds operating in Kiambu and Nairobi counties. Univariate, bivariate and multivariate statistics analysed the data. It was found that supplier management and process improvement had positive and significant effect on performance of animal feeds manufacturing companies in Kenya. Since the study findings are in manufacturing sector, they may not be generalized in flower farming industry due to contextual differences and exposure to different degrees of operational risk.

Sadikoglu and Olcay (2013) investigated the effect of total quality management on firm performance in Turkey. Data was analyzed through exploratory factor analysis and multiple regression modelling. The study reported that total quality management have effect on performance. Further, leadership, training, knowledge management and practices, customer focus and strategic quality planning have significant effect on performance. It was found that the success of total quality management was limited by employee involvement, their commitment, and organization culture and resources endowment. It was recommended that there was need for improved employee engagement, development of resources mobilization strategies and alignment of organization culture with current business trends and dynamics.

Oloo (2017) investigated the effect of quality control practices and performance of telecommunication companies in Kenya. The design adopted in the study was descriptive. Univariate and multivariate techniques analyzed the data. Quality process in telecommunication was influenced by leadership support, supplier quality management, employee relations, customers focus and process management. It was found that there was significant association between quality process and organization performance.

2.4 Research Gaps

From the foregoing theoretical and empirical review. It is notable that there are theoretical, methodological, conceptual and contextual gaps. Geographically some studies have been undertaken in developed economies which may make it hard to generalize the findings in developing economies due to differences in state of economic development that may have influence of business dynamic, procurement policies and regulations that may influence of excess holding stock and operational productivity of flower farming farms (Agu, *et al.,* 2016; Majukwa & Haddud, 2016; Elisa *et al.,* 2013).

Methodologically studies have used primary, secondary, qualitative and quantitative data. Owing to differences in methods of gathering primary data it would be appropriate to use appropriate quantitative data analysis method. The choice of regression modelling and not considering its diagnostic tests may have led to likelihood of fitting spurious model (Nawaza & Channakeshavalu, 2013; Mueni & Moronge, 2018; Kyalo, *et al.,* 2018).

Past studies have conceptual differences since most of them have considered direct link between factors associated with operational productivity. The current study will examine the effect of operational management practices on organization productivity of flower farming farms in Kenya. Also, there are contextual differences since studies have been carried in profit and non-profit making entities. This would have different goals and objectives for respective firms (Ahire et al, 2012; Oakland, 2015; Syed & IEng, 2014; Andrianto, 2018; Hamidreza, *et al.,* 2013).

2.5 Conceptual Framework

According to Cooper and Schnidler (2014) conceptual framework is diagrammatic presentation of the relationship between variables under examination. Study variables can be broadly classified into independent, intervening, moderating and dependent variables (Sekaran & Bougie, 2013). An independent variable is not dependent on any other variables under examination and it gives degree of association. Dependent variable is an outcome of an independent variable (Kothari, 2011). In this study organization productivity will be affected

by supply chain management, inventory management, enterprise resources planning and quality management.

Supplier Chain Management (SCM) are set of activities undertaken in an organization to optimize supply management (Mueni & Moronge, 2018). The activities mainly include supplier partnership, outsourcing, cycle time compression, continuous process flow, healthy customer relations, and quality purchase and information technology sharing (Makena & Iravo, 2013). SCM enable an organization to focus on its core competencies, eliminate excess inventory levels and enhance inter and intra organization system integration (Onwuka, Ugwu & Ndife, 2015). Exploratory factor analysis has identified main attributes of SCM as integration of supply chain process, quality information sharing, customer serve, geographical proximity, just in time capability and supply chain characteristics (King'oo & Muli, 2019).

In today's competitive market customers demand should be met optimally to eliminate likelihood of market share cannibalization (Cherotich & Karanja, 2019). Although, they ought to be served timely, they do not pay premium associated with it. They are several costs associated with holding and being out of stock (Kyalo, *et al.,* 2018). Recent business environment has integrated Enterprise Resources Planning systems as measure to integrate knowledge aimed at promoting efficiency in an organization. According to Nawaza and Channakeshavalu (2013) successful integration of ERP though couple with costs, has benefit of promoting efficiency and cost reduction. Since it integrates clients and suppliers through analysis of demand and supply data, then there are benefits to be received upon successful adoption in an organization.

Quality management practices are procedures and policies governing products and services features that are acceptable in an organization (Ahire et al, 2012). According to Schroder et al (2014) firms that have quality management practices aims at attaining and maintaining high quality outputs. These practices would optimize organization capacity to achieve its mission and evaluation of quality of its raw materials (Oakland, 2015). Moreover, production of goods and services and provision of services as per standards opines that certain threshold

has to be achieved. The elements that stipulate quality standards in an organization include defined controls, managed process, ethical operational procedures, knowledge management procedures, skills allocation and continuous process (Oloo, 2017). Conceptual framework is as shown in Figure 2.1.

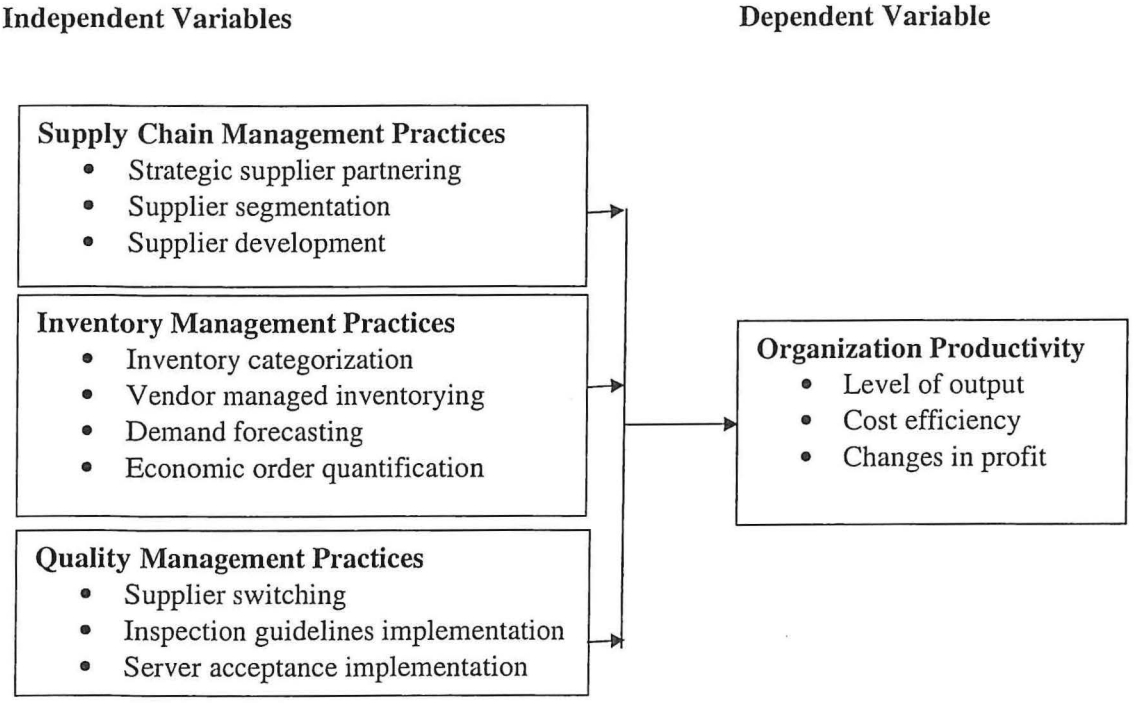

Figure 2.1 Conceptual Framework

Source (Author, 2021)

Table 2.1 Operationalization of Variables

Variable	Measurement	Scale	Analysis
Supply Chain Management Practices	Strategic supplier partnering Supplier segmentation Supplier development	5-Point Likert	Descriptive statistics Correlation Regression
Inventory management Practices	Inventory categorization Vendor managed inventorying Demand forecasting Economic order quantity	5-Point Likert	Descriptive statistics Correlation Regression
Quality management Practices	Supplier switching criterion Inspection guidelines Implementation Server acceptance criterion	5-Point Likert	Descriptive statistics Correlation Regression
Organization Productivity	Level of output Cost efficiency Change in profit	5-Point Likert	Descriptive statistics

Source: (Mueni & Moronge, 2018; King'oo & Muli, 2019; Karimi & Rafiee, 2014; Cherotich & Karanja, 2019; Prempeh, 2015; Nawaza & Channakeshavalu, 2013; Ahire et al, 2012; Oakland, 2015)

2.6 Summary of Literature

This chapter presented theoretical and empirical literature. Theoretical foundations gave propositions, strengths, weakness and relevance in the study. Empirical literature reviews documented link between study variables and corresponding gap arising from specific study. In the next section, research methodology will be presented.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter research methodology to be adopted in the study was discussed on sub sections of research design, target population, research quality and data analysis among others.

3.2 Research Design

Research design is logical guidelines that shows how a study was carried out (Saunders, Thornhill & Lewis, 2014). Research design applied in the study is contingent to research design, type of data, ethical compliance, time and resources availability (Sekaran & Bougie, 2013). Research design can be broadly classified into qualitative and quantitative depending on the type of data to be adopted (Kothari, 2011).

Descriptive research design was adopted in the study. According to Sekaran and Bougie (2013) it is adopted whenever the researcher seeks to answer questions on when, why and what in regard to the items under examination. The design is appropriate for the study since it disseminate information that would guide in understanding the effect of OMP on organization productivity of flower farming farms in Kenya.

3.3 Target Population

Target population is the collection of all individual under consideration in a study (Kothari, 2011). Currently, it will comprise of agronomists, procurement managers, finance managers and operations managers of 70 flower farming firms in Kenya who exports flowers to Amsterdam (IFTEX exhibition list 2019).

Table 3.1 Target Population

	Count	Percentage
Agronomists	70	25
Procurement	70	25
Finance	70	25
Operational managers	70	25
Total	**280**	**100**

3.4 Sampling Design

The study adopted sampling process aimed at selecting a subset from the target population (Sekaran & Bougie, 2013). Sampling process can be probabilistic if all members of the target population can be equally selected and non-probabilistic if there is a clear rule on inclusion and exclusion of individuals or elements in the study (Cooper & Schnidler, 2014).

Simple random and stratified sampling was used to select respondents from 164 respondents from a target population of 280 who were drawn from 70 flower farming companies. The respondents include agronomists, procurement, finance and operational managers. Sample size was determined through use of sample size formula by (Yamane, 1967).

$$n = {}^{N}/_{1 + N_e{}^2}$$

Where, n=sample size, N= population size, e= the error of sampling. This formula was used to calculate the sample size.

Thus n= 280/1+ 280(0.05)^2 = 164.

Table 3.2 Sample Size

	Count	Percentage
Agronomists	41	25
Procurement	41	25
Finance	41	25
Operational managers	41	25
Total	**164**	**100**

3.5 Data Collection Instrument

Primary data gathered through questionnaires administration was used in the study. Use of questionnaires in social sciences has been supported by Sekaran and Bougie (2013) because there are flexible and can be easily distributed and responded to. Moreover, the respondents can respond to questionnaires at their own convenience especially when their instructions are clearly stated. According to Cooper and Schnidler (2014) collection of data through use of questionnaires is associated with convenience between researcher and respondent. Further, if researcher is exposed to time, geographical and budgetary constraints then they can administer questionnaires electronically. To ease data collection research questionnaires were sent out to the target group by means of email, social media further queries and follow up will be through telephone conversation. The questionnaire was segmented into background information that was in nominal scale, operational management practices that was evaluated through use of 5-point Likert scale and organization productivity was evaluated through use of five-point Likert scale.

3.6 Research Quality

Prior to actual study piloting of the questionnaire was carried out. According to Kothari (2011) courtesy of piloting it is easier to identify shorting and challenges associated with the research instrument. The research instrument will be piloted among 7 Fresh Produce Farms (Vegetable & Fruit Growers). From piloted questionnaire's reliability and validity tests were carried out.

Reliability is the capacity of research instrument to yield consistent findings if administered to heterogeneous respondents (Sekaran & Bougie, 2013). In this study it was tested through use of Cronbach Alpha, whose score ranges from 0 to 1. If the coefficient is greater than or equal to 0.7 then the instrument was reliable, otherwise there was need to change some items in the questionnaire.

Cooper and Schnidler (2014) purports that validity is the capacity of research instrument to measure what it was meant to. Content and face validity were tested. Content validity was

examined through intensive discussion among supervisors, lecturers and statistician. Face validity was complied with through use of empirical arguments while developing the research instrument and ensuring it has no repetitive items.

3.7 Data Analysis

Data processing and analysis is the procedure of collating and consolidating data collected to summaries that can be easily understood (Sekaran & Bougie, 2013). Questionnaires gathered from the field was checked for completeness and accuracy prior to coding and entering into Statistical Packages for Social Scientists (SPSS, 22) for analysis. Content analysis was used to analyse qualitative data. Quantitative data was analysed through use of measures of central tendency (mean), measures of dispersion (standard deviation), frequency and percentage.

Inferential statistics that would include correlation to show the strength of association between operating management practices and organization productivity of flower farming farms in Kenya. Multiple regression analysis was adopted to examine the nature of the effect of operating management practices on organization productivity of flower farming companies in Kenya. Regression models was tested at 5 percent level of significance. The findings were presented in figures and tables. The model was of the following form.

$Y= \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where Y= Organization productivity; X_1= Supply chain management; X_2= Inventory management; X_3= Quality management; α = constant; $\beta_1 \ldots \beta_3$= the slope; ε = error term

3.8 Ethical Considerations

Prior to carrying out the study research introduction letter was sought from Strathmore school of graduate studies and it was used to seek research permit from National Commission for Science Technology and Innovation (NACOSTI). Research permit and introduction letters were used to request for administration of questionnaires among flower farming farms

in Kenya. To ease data gathering, two-week notice was issued through human resources department of respective flower farming farms.

Prior to data collection, the respondents were sensitized on the need for privacy and confidentiality and there will not be required to disclose the identity of their farms and personal details. The researcher was notified of their rights and they can withdraw at any stage of data collection. This was in tandem with voluntary consent research principle (Saunders et al., 2014). Throughout the study the researcher did not misrepresent any information, breach confidentiality with the respondents. To protect and promote respect on intellectual properties, plagiarism was avoided, and all materials used in the study will be acknowledged and cited properly (Kothari, 2011).

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

In this chapter findings of the study are presented, and interpretation provided. Data presentation are in figures and tables. The data are analysed using descriptive statistics that include mean, standard deviation, frequency and percentages and inferential statistics that include correlation and regression analysis.

4.2 Response Rate

Out of 164 issued questionnaires 116 were correctly filled and returned and they represented 71% of response rate. The high response rate was associated with prior arrangements with target respondents. The response rate was excellent since Sekaran and Bougie (2013) asserts that if the response rate exceeds 70% should be acceptable in research.

Table 4.1 Response Rate

	Frequency	Percent
Returned and correctly filled questionnaires	116	71
Non-returned or not correctly questionnaires	48	29
Total	**164**	**100**

4.3 Background Information

To appreciate the quality of data it is necessary to understand the background of the respondents. Information sought included gender, age, highest level of education, department

currently working and working experience. Since the responses were in nominal scale of measurements frequencies and percentages were used for data analysis.

4.3.1 Gender

Findings in Table 4.2 indicates 75.9% were male and 24.1% were female. Flower farming sector is male dominated sector and this may be associated with instances in which employees may be required to lift some flower boxes (Prempeh, 2015).

Table 4.2 Gender

	Frequency	Percent
Male	88	75.9
Female	28	24.1
Total	**116**	**100**

4.3.2 Age

Regarding age distribution of respondent's findings in Table 4.3 indicate that 31% aged from 41 to 45 years followed by 25.9% aged 36 to 40 years, 29.3% who aged from 31 to 35 years and 13.8% above 45 years. Majority aged above 41, In general they would have more work experience than the below age groups, alongside combining their work experience in flower industry, it is highly possible that they would easily understand quality management practices that may be required to enhance organization productivity.

Table 4.3 Age

	Frequency	Percent
31 to 35 years	34	29.3
36 to 40 years	30	25.9
41 to 45 years	36	31
46 to 52 years	16	13.8
Total	**116**	**100**

4.3.3 Highest Level of Education

Concerning the highest level of education attained findings in Table 4.4, indicates that 43.1% were either undergraduate or post graduate holders while 13.8% had college qualifications. This shows employees in flower farms in Kenya have requisite formal training that would aid them in understanding quality management practices that would influence their organization productivity.

Table 4.4 Highest Level of Education

	Frequency	Percent
College	16	13.8
Undergraduate	50	43.1
Post graduate	50	43.1
Total	**116**	**100**

4.3.4 Working Experience

Findings on working experience in Table 4.5 indicates that 40.5% had worked for 11 to 15 years, followed by 25% who had worked for 16 to 20 years and 19.8% had worked for over 20 years. Everyone participated have more than 10 years of work experienced. This indicates that most employees participated from 4 key departments in flower farming industry have departmentation that would guide while evaluating level of compliance with quality management practices in their operational practices.

Table 4.5 Working Experience

	Frequency	Percent
6 to 10 years	17	14.7
11 to 15 years	47	40.5
16 to 20 years	29	25
Above 20 years	23	19.8
Total	**116**	**100**

4.4 Descriptive Statistics on Organization Productivity of Flower Farms in Kenya

The respondents were requested to evaluate the level of organization productivity of flower farms in Kenya. Organization productivity was examined on five-point likert scale ranging from strongly agree to strongly disagree. Organization productivity was operationalized as

level of output, cost efficiency and change in profit. Data was analyzed using measures of central tendency (mean) and dispersion (standard deviation) as shown in Table 4.6. From the finding's majority agreed that they have managed to optimize resources allocation, adopted efficient management and can manage stock optimally (mean = 4.0). Further, majority agreed that their profit has improved (mean = 4). Moreover, majority either agreed that their quality of output is reliable, and their level of output is reliable (mean = 4.1). It implies the participated flower farms are able to manage inputs and outputs efficiently and are profitable.

Table 4.6 Descriptive Statistics on Organization Productivity of Flower Farms in Kenya

	Mean	Std. Deviation
We have managed to optimize our resources allocation	4.0	0.7
We have managed to optimize our efficiency management	4.0	0.6
We have managed to manage our stock optimally	4.0	0.7
Our profit capacity has improved	4.0	0.6
Our quality of output is reliable	4.1	0.8
Our level of output is reliable	4.1	0.5
Overall average	**4.0**	**0.7**

4.5 Descriptive Statistics on SCMP of Flower Farms in Kenya

The first objective of the study determined the effect of supply chain management practices on productivity of flower farms in Kenya. SCM has five main faces which postures upstream through strategic supplier relationships, downstream through customer relationships, information flow through sharing and its quality and internal supply management (Karimi & Rafiee, 2014). Recently, there are many changes such as extensive product proliferation, increased risk of obsolescence, changes in market demand, technological proliferation. In contrast, there are stocks that may be hard to find, or their demand may be influenced by extraneous factors such as climatic conditions (Prempeh, 2015). SCM was operationalized as strategic supplier relationship, supplier segmentation and supplier development. Respondents were requested to indicate their levels of agreement of five-point likert scale ranging from strongly disagree to strongly agree. Findings in Table 4.7 indicates that majority either agreed that their suppliers have independent goals as compared to them and their firms have a list of prequalified suppliers (mean = 3.5).

Majority agreed that they gather information from their suppliers on improvements that they should adopt (mean = 4.0). There was an agreement that flower farms in Kenya empower their suppliers through provision of technical assistance (mean = 3.6). Further, majority mean = 3.8 agreed that they have capacity to trace their goods while they are on transit. On overall majority agreed that supply chain management practices have effect on organization productivity of flower farms in Kenya (mean = 3.7). The relationship between Supplier and the firm is crucial and there is an exchange of knowledge technical support crucial owing to climatic threat that has direct impact on this industry. Supplier goals have to be realigned towards customer centric goals. The mean 3.7 implies that there is optimization required to mitigate upstream challenges.

Table 4.7 Descriptive Statistics on SCMP of Flower Farms in Kenya

	Mean	Std. Deviation
Supplier has independent goals as compared to us	3.5	1.0
Our firms have prequalified list of suppliers	3.5	1.2
We gather information from our suppliers on improvements to adopt	4.0	0.7
We empower our suppliers through technical assistance	3.6	1.1
Our firm can trace our goods while on transit	3.8	1.1
Overall average	**3.7**	**1.0**

4.6 Descriptive Statistics on IMP of Flower Farms in Kenya

The second objective of the study sought to establish the effect of inventory management practices on organization productivity of flower farms in Kenya. These are stock management practices adopted in an organization to ensure that there is optimal stock and elimination of likelihood of holding excess stock (Otundo & Bichanga, 2015). Inventory management practices was operationalized as inventory categorization, vendor managed inventory, demand forecasting and economic order quantity. Study findings from respondents rating in five-point Likert scale in Table 4.8 indicate that majority agreed that their firm has adopted information technology in inventory management (mean = 4.1). There was an agreement that either flower farms make inventory request at specific periods of the year or the total consignment costs determines the order size (mean = 3.8). Moreover, majority

agreed mean = 3.9 that their orders are randomly and contingent to demand. Majority mean = 3.8 either agreed that prior agreements with suppliers determine the demand of their goods or availability of discount determines their order quantity. Prempeh (2015) who reported that 60% to 70% of organization resources are invested in raw working capital and inventory is crucial owing to its easier conversion into cash. Missing link between OMP may low likelihood of increasing profitability of a firm (Onwuka, et al., 2015). Agrochemical are used to mitigate certain threat, its need is very uncertain, in such case could the practise of ordering enticed by discount, lead to excess holding stock of agrochemical which has an expiry and a narrow scope of use.

Table 4.8 Descriptive Statistics on IMP of Flower Farms in Kenya

	Mean	Std. Deviation
Our firm has adopted IT in inventory management	4.1	0.9
We make inventory request at specific periods of the year	3.8	0.9
Our orders are placed randomly and contingent to demand	3.9	0.8
Total consignment cost determines the order size	3.8	0.7
Prior agreements with suppliers determine the demand of our goods	3.8	0.9
Availability of discount determines our order quantity	3.8	0.8
Overall average	**3.9**	**0.8**

4.7 Descriptive Statistics on QMP on Flower Farms in Kenya

The third objective of the study evaluated the effect of quality management practices on organization productivity of flower farms in Kenya. Sadikoglu and Olcay (2013) investigated the effect of total quality management on firm performance in Turkey. Data was analyzed through exploratory factor analysis and multiple regression modelling. The study reported that total quality management have effect on performance. Findings in Table 4.9, indicates that majority mean = 4.2 either agreed that they have quality management practices in their farms or feedback from suppliers and customers is incorporated on quality management. Majority mean = 4.0 agreed that they carry out frequent studies to examine end user requirements of their products or their staffs are continuously empowered on quality skills. Further, there was an agreement that continuous input improvements are carried out to ensure that quality raw materials are used in their farms (mean = 3.9). On overall there was an

agreement that quality management practices have influence on organization productivity of flower farms in Kenya (mean = 4.1).

Table 4.9 Descriptive Statistics on QMP on Flower Farms in Kenya

	Mean	Std. Deviation
We have quality management system in place in our farm	4.2	0.7
We carry frequent studies to examine end user requirements	4.0	0.6
Feedback from suppliers and customers is incorporated on quality management	4.2	0.8
Staffs are continuously empowered on quality skills	4.0	0.5
Continuous input improvements are carried out to ensure quality raw materials are used in our farms	3.9	0.7
Overall average	**4.1**	**0.7**

4.8 Reliability Analysis

Reliability was examined using Cronbach's Alpha coefficient as shown in Table 4.10. Study findings in reliability coefficient ranged from 0.706 for supply chain management practices and 0.885 for organization productivity. The research instrument was reliable since the coefficient exceeded the threshold of 0.7 (Sekaran & Bougie, 2013).

Table 4.10 Reliability Analysis

Variable	Number of Items	Cronbach's Alpha
Supplier Chain Management Practices	5	0.706
Inventory Management Practices	6	0.760
Quality Management Practices	5	0.809
Organization productivity	5	0.885

4.9 Correlation Analysis

Product moment correlation coefficient was carried out to examine the strength of the effect of operational management practices on organization productivity of flower farms in Kenya. The strength will be examined through use of correlation coefficient whose value ranges from -1 to +1. A coefficient of +1, indicate perfect effect of operational management practices on organization productivity, -1 indicate inverse effect of operational management practices on organization productivity. If the coefficient will be zero, then there is no effect

of operational management practices on organization productivity. If the correlation coefficient will be greater than + or – 0.5, then it will be strong and if less than it will be weak (Saunders et al., 2014). The effect between operational management practices on organization productivity will be significant if its p value will be less than 0.05.

Findings in Table 4.11 indicates that supply chain management practices have positive and significant effect on organization productivity of flower farms in Kenya (rho = 0.912, p value < 0.05). Inventory management practices have positive and significant effect on organization productivity of flower farms in Kenya (rho = 0.871, p value < 0.05). Quality management practices have positive and significant effect on organization productivity of flower farms in Kenya (rho = 0.868, p value < 0.05).

Table 4.11 Correlation Analysis

		Organization Productivity	SCMP	IMP	QMP
Organization Productivity	Pearson Correlation	1			
SCMP	Pearson Correlation	.912**	1		
	Sig. (2-tailed)	0.000			
	N	116	116		
IMP	Pearson Correlation	.871**	.129**	1	
	Sig. (2-tailed)	0.000	0.000		
	N	116	116	116	
QMP	Pearson Correlation	.868**	.239**	.271**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	116	116	116	116

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

4.10 Regression Assumptions

Multiple regression analysis was carried out to evaluate the nature of the effect of operational management practices on organization productivity of flower farms in Kenya. Prior to modelling normality, heteroscedasticity, multicollinearity and linearity assumptions were examined.

4.10.1 Normality Test

Normality of data can be examined through statistical and graphical approaches. Statistical methods include Kolmogorov Smirnov tests that examine a null hypothesis that the data is normally distributed against an alternative that the data is not normally distributed. Normally distributed data ought to have a p value greater than 0.05 (Greene, 2008). Graphical methods of examining normality of data include use of QQ, PP plots and histogram. Normality was tested using histogram as shown in Figure 4.1. The data was normally distributed since the mean of error term was zero and standard deviation 1.

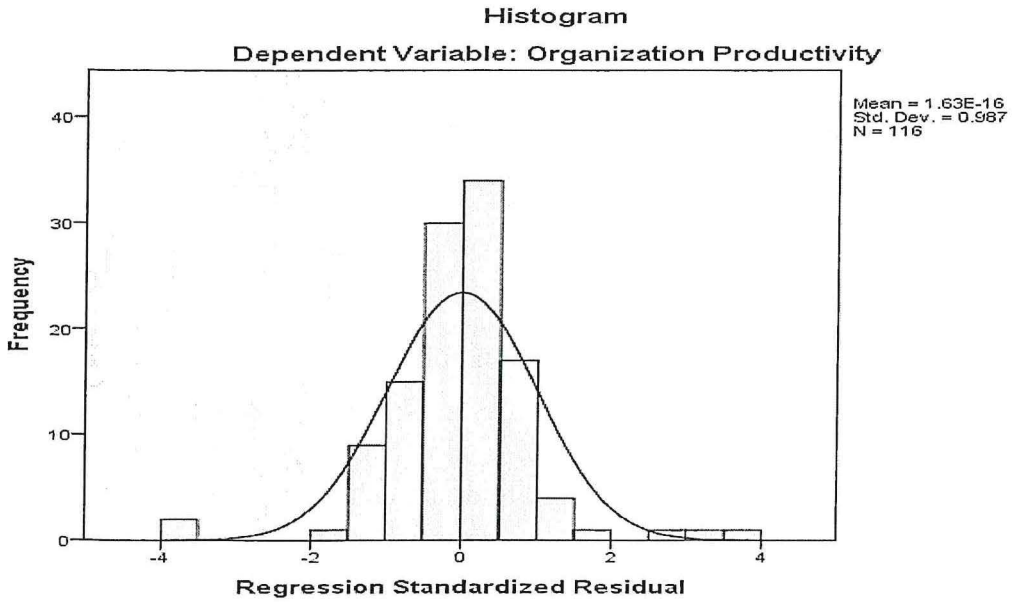

Figure 4.1 Normality Test

4.10.2 Multicollinearity Test

Multicollinearity is a condition in which independent variables are highly related. It is examined through use of Variance Inflation Factors (VIFs) or tolerance limits. According to Sekaran and Bougie (2013) there will be no multicollinearity if the VIFs are less than 10 or tolerance limits are greater than 0.1. In Table 4.12 tolerance limits and variance inflation factor results are presented. The variables were not highly correlated since none had

tolerance limits less than 0.1 or variance inflation factors greater than 10. Thus, supply chain management practices, inventory management practices and quality management practices could be jointly fitted in multiple regression model as explanatory variables.

Table 4.12 Multicollinearity Test

	Collinearity Statistics	
	Tolerance	**VIF**
SCMP	0.236	4.245
IMP	0.197	5.077
QMP	0.203	4.937

4.10.3 Heteroscedasticity Test

Heteroscedasticity is a condition in which the variance of the error terms is not uniform. Heteroscedasticty was examined using likelihood ratio tests. The test had a null hypothesis of uniform variance across the error term against an alternative of non-uniform variance. Results in Table 4.13 indicates that there was no enough evidence to warrant rejection of null hypothesis hence we conclude that there is no heteroscedasticity. Consequently, ordinary least squares model was fitted to evaluate the effect of operational management practices on organization productivity of flower farms in Kenya.

Table 4.13 Heteroscedasticity Test

F Value	P value
21.623	0.421

4.10.4 Linearity Test

Scatter plots were used to test for linearity. Figure 4.2 indicates that supply chain management practices, inventory management practices and quality management practices have positive effect on organization productivity of flower farms in Kenya.

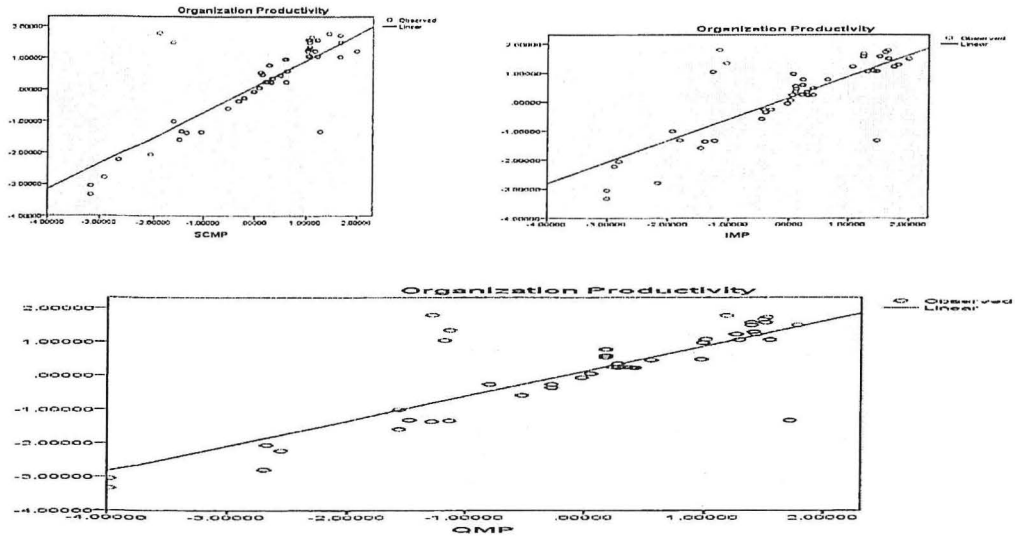

Figure 4.2 Linearity Test

4.11 Regression Analysis

In model 1 in Table 4.14, simple linear regression was fitted to show the effect of supply management practices on organization productivity of flower farms in Kenya. R squared of 0.729, indicates that 72.9% of changes in organization productivity of flower farms can be explained by supply chain management practices. A F statistic of 307.48, p value < 0.05, depicts model fitness. Further, there was a positive and significant effect of supply chain management practices on organization productivity ($\beta = 0.918$, p value <0.05). This indicates that unit increase in supply management practices increases organization productivity by 0.918 units.

In model 2, simple linear regression was fitted to show the effect of inventory management practices on organization productivity of flower farms. An R squared of 0.71, indicates that 71% of changes in organization productivity can be explained by inventory management practices while the remaining percentage is related to other issues excluded in the model. There was a positive and significant effect of inventory management practices and organization productivity of flower farms ($\beta = 0.781$, p value < 0.05). This indicates that unit increase in inventory management practices increases organization productivity by 0.781 units.

In model 3, simple linear regression was fitted to show the effect of quality management practices on organization productivity of flower farms. An R squared of 0.667, indicates that 66.7% of changes in organization productivity can be accounted for by quality management practices while the remaining percentage is associated with other attributes. Further, there was a positive and significant effect of quality management practices on organization productivity of flower farms ($\beta = 0.738$, p value < 0.05). This indicates that unit increase in quality management practices increases organization productivity by 0.738 units.

In model 4, an R squared of 78.4% that indicates that 78.4% of changes in organization 00productivity of flower farms in Kenya can be explained by supply chain management practices, inventory management practices and quality management practices. The remaining 21.6% can be accounted for by other factors that are excluded in the model. Analysis of variance results indicates that quality management practices, supply chain management practices and inventory management practices jointly have effect on organization productivity of flower farms in Kenya ($F= 135.53$, p value < 0.05.). Regression coefficients indicates that supply chain management practices have positive and significant effect on organization productivity of flower farms in Kenya ($\beta = 0.473$, p value < 0.05). This implies that unit increase in supply chain management practices while holding constant inventory management practices and quality management practices increases organization productivity by 0.473. Inventory management practices have positive and significant effect on organization productivity of flower farms in Kenya ($\beta=0.312$, p value < 0.05). This implies that unit increase in inventory management practices while holding constant supply chain management practices and quality management practices increases organization productivity by 0.312 units. Quality management practices have positive and significant influence of organization productivity of flower farms in Kenya ($\beta=0.138$, p value < 0.05). This implies that unit increase in quality management practices while holding constant supply chain management practices and inventory management practices increases organization productivity by 0.138 units.

The resultant model of the study is

Organization Productivity = 0.026 +0.473*SCMP+0.312*IMP +0.138*QMP.

Table 4.14 Regression Analysis

Dependent Variable	Organization Productivity			
Independent Variables	Model 1	Model 2	Model 3	Model 4
Constant	-0.032 (0.051)	0.112 (0.051)	0.121(.055)	0.026 (.048)
Supply chain management practices	0.918(.052)**			0.473(.097)**
Inventory management practices		0.781(.047)**		0.312(.092)**
Quality management practices			0.738(.049)**	0.138(.088)**
R	0.854	0.843	0.817	0.885
R Square	0.729	0.71	0.667	0.784
Adjusted R Square	0.727	0.707	0.664	0.778
F	307.48**	278.98**	228.32**	135.53**

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLSUION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents summary of major findings, discussion of findings in relation to past studies and theoretical foundations, conclusion and recommendations.

5.2 Summary of Findings

The main objective of the study was to examine the effect of organization management practices on organization productivity of flower farms in Kenya. Specifically, the study examined the effect of supply chain management practices, inventory management practices and quality management practices on organization productivity of flower farms in Kenya. The study was based on agency theory, system theory and contingency theory. The study adopted descriptive research design and primary data was collected through issue of questionnaires among 41 agronomists, finance managers, procurement managers and operational managers. Data was analyzed through descriptive and inferential statistics. Study

findings indicated that majority agreed that organization productivity of flower farms in Kenya was affected by supply chain management practices, inventory management practices and quality management practices. Regression and correlation analysis indicated that there was positive and significant effect of supply chain management practices, inventory management practices and quality management practices on organization productivity of flower farms in Kenya.

5.3 Discussion

To enhance organization productivity there are several inputs that are involved (Shah, 2013; Karim & Rafiee, 2015; Makena & Iravo, 2015). Key among them are operational management practices (Prempeh, 2015; Onwuka et al., 2015; Masudin et al., 2015). Through compliance with operational management practices such as supply chain, inventory and quality management practices it would be easier for a flower farm to evaluate its level of output, cost efficiency and profitability. The propagators of operational management practices would be agents of change, enhance system performance and mitigate against contingency responses to desired changes on organization operating procedures (Majukwa & Haddud, 2016).

5.3.1 Supply Chain Management Practices and Organization Productivity

The first objective of the study studied the effect of supply chain management practices on organization productivity. Regression and correlation analysis indicated positive and significant effect of supply chain management practices on organization productivity of flower farms in Kenya. The findings were in agreement with Ruth (2012) who asserts that supply chain process should provide value for resources used. This can only be achieved if there is a functional, efficient and reliable supply chain management process that would aid in dissemination of requisite information among different procurement stakeholders. According to Shah (2013) this would be achieved if there is a clear process for identification of required input and if policies are not coherent then there are higher odds of missing the requirements while seeking for supplies. Hartmann *et al.*, (2008) stipulates on the need for organization to inform suppliers its needs so as to minimize supply lead time. This is in

agreement with Mamiro (2010) who calls for coherency in supply chain management practices through coordination of budgetary resources with product requirements.

According to Karimi and Rafiee (2014) supply chain management practices should create relationships that are supported by levels of information flow and sharing between internal and external stakeholders. Prempeh (2015) purports that these processes would ensure communication of emerging issues on products development and innovation that may aid in management of specific organization productivity. Kamau and Kagiri (2015) argues that organization should manage their supply management practices since there are costs associated with it and they may minimize likelihood of profitability. Further, there is need for customization of supply management practices so to be in line with organization line of business (Ochonke & Wanyoike, 2016).

The findings supported Mueni and Moronge (2018) who reported that performance of parastatals was dependent on strategic procurement practices adopted by respective firms. Notable practices were supplier sourcing, reverse logistics and inventory management. Further, Onwuka *et al.*, (2015) reported that in Nigeria there were improvement in logistics control due to operating management practices in place. Moreover, Makena and Iravo (2013) asserted that implementation of supply chain management practices improved performance of Haco industries. Similar findings were documented by King'oo and Muli (2019) who documented significant effect of contract and inventory management on performance in Ministry of Education.

5.3.2 Inventory Management Practices and Organization Productivity

The second objective of the study documented positive and significant effect of inventory management practices on organization productivity of flower farms in Kenya. The findings were in support of Otundo and Bichanga (2015) who found positive and significant effect of inventory management practices on operational performance in Kisii County. Further, the study confirmed the findings by Cherotich and Karanja (2019) who documented positive effect of inventory management practices on performance of fast-moving consumer goods in Nairobi County. Moreover, the study mirrored Kyalo *et al.,* (2018) who argued that stock

management procedures have significant contribution on performance of government ministries.

The findings concur with system theory on the need to ensure that there is coherency on different parts of the sub system. Further, the study supported Nsikam et al., (2015) who asserts that inventory management practices significantly impacted performance of flour milling companies in Nigeria. Through, them it was easier for management to forecast demand and estimate their production capacity. Similar findings were documented by Ochele et al., (2017) when they asserted that performance of manufacturing companies in Kenya was affected by economic order quantity, safety stock levels and ABC operating procedures. Further, Prempeh (2015) asserted that profitability of manufacturing companies in Ghana was affected by inventory management practices.

5.3.3 Quality Management Practices and Organization Productivity

The third objective of the study examined the effect of quality management practices on organization productivity of flower farms in Kenya. Study findings indicated that there was a positive and significant effect of quality management practices on organization productivity. The findings were in support of agency theory since management was expected to ensure total compliance with quality standards. Failure to comply with acceptable standards may led to loss of market share, increased operational cost and loss of profitability. The findings are in support of Irungu and Were (2016) who asserts that quality management practices enhanced performance of animal feeds company in Kenya. Further, the findings were in support of Sadikoghu and Olcay (2013) who documented positive effect of total quality management on performance of firms in Turkey. Further, they agreed with Oloo (2017) who found that quality management practices have effect on performance of telecommunication companies in Kenya.

5.4 Conclusion

From the study findings that there was a positive and significant effect of supply chain management practices on organization productivity of flower farms in Kenya and the impact

is measured at 72.9%. Hence, there is need for flower farming companies to develop measures aimed at strategic supplier partnering, supplier segmentation and supplier development so as to optimize their organization productivity.

The second objective of the study examined the effect of inventory management practices on organization productivity of flower farms in Kenya. It was found that inventory management have positive and significant effect on organization productivity of flower farms in Kenya and the impact is measured at 71%. From the findings it can be concluded that there is need for adoption of operation management practices that would enhance organization productivity.

The third objective of the study evaluated the effect of quality management practices on organization productivity of flower farms in Kenya. It was found that quality management practices positively affected organization productivity of flower farms in Kenya and the impact is measured at 66.7%. Hence, it can be concluded that there is need for adoption of quality management practices that are aimed at enhancing organization productivity.

5.5 Recommendations

Based on the study findings the following recommendations can be drawn. Since supply chain management practices have positive and significant effect on organization productivity of flowers. Since there is a positive and significant effect of supply chain management practices on productivity, There is need for management of flower farming companies to focus on strategic supplier partnering, supplier segmentation and supplier development develop supplier partnership, develop suppliers and segment their suppliers so as to optimize on their respective firms' productivity. Further, there is need for development of policies that are aimed at enhancing partnership between suppliers and flower farms in Kenya. This would create partnership that are aimed at optimizing their productivity through cost efficient management approaches.

The second objective indicated that inventory management practices had positive and significant effect on organization productivity of flower farms in Kenya. It can be

recommended that there is need for management of flower farms in Kenya to develop models that are aimed at demand forecasting and categorize inventory according to prevailing climatic conditions. There is need for evaluation of local and international policies on inventory procedures of some products this would aid in planning and minimize wastage associated with change in regulations that may injure demand of flowers in local and international markets.

The third objective of the study evaluated the effect of quality management practices on organization productivity of flower farms in Kenya. Study findings documented positive and significant effect of quality management practices and organization productivity of flower farms in Kenya. There is need for management to evaluate quality standards prior to switching suppliers, develop and implement product inspection guidelines and develop server acceptance implementation procedures that would enhance on respective organization productivity.

5.6 Suggestion for Further Studies

From the study findings the following studies can be recommended. The current study adopted regression modelling to evaluate the effect of operational management practices there is need for subsequent studies to model the data using structural equation modelling.

Both dependent and independent variables in our study are latent variables and based on the regression model adopted in our study we evaluated the relationship between the variables, further subsequent studies can be elaborately done by having index set to those latent variables to model the data using structural equation modelling to get more accurate output and to narrow down the gap which could be an interest for that industry. Structural equation modeling may rank contribution of respective attributes of organization management practices. Future studies may consider incorporating more predictors and drawing data from a different context.

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APPENDICES

Appendix I Letter of Introduction

Gladys Esther Sherley Nzioka
P.O. Box 49125

Nairobi.

Date

Dear Sir/ Madam,

RE: REQUEST FOR RESEARCH DATA

I am currently undertaking masters research of development finance as part of partial requirements, this a study on **"Effect of operational management practices on organization productivity of flower farming firms in Kenya".** Kindly assists in gathering data through responding to the research questionnaire attached.

Your help will be grateful.

Yours faithfully,

_____

Sherly Shadrack

Appendix II Questionnaire

Kindly respond to the following in the questions using a tick or X.

General Information

1. Gender

   Male ☐ Female ☐

2. Age.....

3. Highest education level attained

   Secondary level ☐ College level ☐ University level ☐ Post graduate ☐

4. Indicate your department of operation.

   Agronomy ☐ Finance ☐ Procurement ☐ Other ☐

5. For how long have you worked in this industry? .....

Section B: Operational Management Practices

On a scale of 1-5 kindly indicate your agreement on level of agreement on Supply Chain Management in your flower farming firm. 1-Strongly disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly agree.

Supply Chain Management	**1**	**2**	**3**	**4**	**5**
Supplier has independent goals as compared to us					
Our firm has prequalified list of suppliers					
We gather information from our suppliers on improvements to adopt					
We empower our suppliers through technical assistance					
Our firm can trace our goods while on transit					

On a scale of 1-5 kindly indicate your agreement on level of agreement on Inventory Management Practices in your flower firm. 1-Strongly disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly agree.

Inventory Management Practices	1	2	3	4	5
Our firm has adopted IT in inventory management					
We make inventory request at specific periods of the year					
Our orders are placed randomly and contingent to demand					
Total consignment cost determines the order size					
Prior agreements with suppliers determine the demand of our goods					
Availability of discount determines our order quantity					

On a scale of 1-5 kindly indicate your agreement on level of agreement on Quality Management Practices in your flower farming firm. 1-Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly agree.

Quality Management Practices	1	2	3	4	5
We have quality management system in place in our firm					
We carry frequent studies to examine end user requirements					
Feedback from suppliers and customers is incorporated on quality management					
Staffs are continuously empowered on quality skills					
Continuous input improvements are carried out to ensure quality raw materials are used in our firms					

Section C: Organization Productivity

On a scale of 1-5 kindly indicate your agreement on level of agreement on the influence of operations management practices on organization productivity in your flower farmingfirm. 1-Strongly disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly agree.

Organization Productivity	1	2	3	4	5
We have managed to optimize our resources allocation					
We have managed to optimize our efficiency management					
We have managed to manage our stock optimally					
Our profit capacity has improved					
Our quality of output is reliable					
Our level of output is reliable					

.....*Thank you for participating in the study*.....

Appendix III Flower Farming Firms in Kenya

	Company
1	AAA Roses
2	Abuzarara Hortiexport
3	Alani Gardens
4	Aquila Flowers
5	Arvilan Growers
6	Baraka Roses
7	Beetee-EM Bloems
8	Benev Flora
9	Black Tulip Group
10	Bliss Flora Buds & Blooms
11	Branan Flowers Ltd
12	CalyFlora Ltd
13	Cartesia Blooms
14	Credible Blooms
15	Cultural De Afrique Flowers
16	Fina Flora Ltd
17	Finlay Flowers
18	Flawless Flowers International Ltd
19	Flora Delight
20	Floriken Blooms
21	Fontana
22	Galaxy Flowers
23	Greenbrook Fresh Produce
24	Hanna Flowers
25	Harvest Flowers
26	Isinya Roses - Porini Flowers
27	Jasons Gardens
28	Kemaks Blooms
29	Karen Roses
30	Karl Flowers
31	Kerys Kool Fresh
32	Kimman Roses
33	Mahee Flowers Ltd
34	Magana Flowers
35	Matanya Greens
36	MDG Flowers
37	Melden Flora Ltd.
38	Milele Flowers Limited
39	Miyonga Fresh Greens

40	Mzurrie Flowers
41	Mwanzi Ltd
42	Nile Chillies
43	NIRP East Africa Ltd
44	Norflora
45	Oboya Africa Ltd
46	Ocean Agriculture
47	Omni Agriculture Ltd
48	Orgem Flora
49	Oserian Development
50	Oserian Development
51	Phinna Flowers Ltd
52	PJ Dave Flora
53	Red Lands Roses Ltd.
54	Rose Bunk International
55	Royal and Fresh Flowers
56	Sanpac (FPS) Africa / Oasis Floralife
57	SGS Kenya Ltd.
58	Shalimar Flowers (K) Ltd
59	Sian Roses
60	Sree Balaji Farms
61	Stokman Rozen Kenya Ltd
62	Subati Flowers
63	Tambuzi
64	Three Dimension Flowers
65	Truflowers
66	Uhuru Flowers
67	Valentine Growers
68	Yellow Grove
69	Yunique Flowers
70	Zena Roses Limited