

**FACTORS INFLUENCING IMPLEMENTATION OF
QUALITY STANDARDS (KAIZEN) IN FLOWER
INDUSTRY: A CASE OF KARIKI LTD IN
KIAMBU COUNTY**

BY

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**A Research Project Report Submitted In Partial Fulfillment of the Requirements
for the Award of the Degree of master of arts in Project Planning and
Management at the University of Nairobi**

2012

DECLARATION

This research project report is my original work and has not been submitted to any other university or institution for any other academic award.

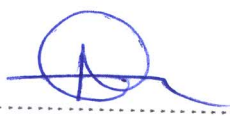
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This research project report has been submitted for examination with my approval as university supervisor.

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DEDICATION

I dedicate this work to my dear wife Mrs. Lydia Nyokabi Mathenge and my daughter Mercy Nyawira Mathenge for their esteemed support during my career development period. Their sacrifice during nights and weekend classes where they had to do without me for the best part of years 2010-2011.

May God bless them abundantly.

ACKNOWLEDGEMENT

My outstanding appreciation goes to my supervisor Dr Angelina S. Mulwa of University of Nairobi, School of continuing and distance learning, department of extra-mural studies for her assistance and support for the entire period I was undertaking my research project. During the difficult times she kept encouraging me and this made me remain focused to my goal always and I never gave up.

I cannot afford to pay back the assistance accorded to me by Mr. Richard Fernandez Managing Director Kariki group of companies who sponsored part of my school fees and enabled my dream come true by allowing me to take my leave during exam periods. He also allowed me to collect my research data from Kariki Ltd.

My gratitude's also goes to the entire Kariki ltd management staff, supervisors and all the other workers in the organization who enabled my dream come true for giving me support of running and working in the farm when I was away in class.

My appreciation also goes to entire group of lecturers at the University of Nairobi, department of extra mural studies Thika branch for their assistance and support for the entire period of I was a student. I cannot forget my course mates for the cordial support they give me during the studies. They were all eager to support and discuss when matters beyond one capacity came our way. May they get to great heights in their future Endeavors.

Last but not least I thank God for giving me good health, knowledge, time and finances during the period of my study which all could be in vain without his divine favour, may He receive all the honor and Glory for his blessings, Amen.

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LIST OF ACRONYMS AND ABBREVIATIONS

AQL	Acceptable Quality levels
JIT	Just In Time
KEPHIS	Kenya Plant Health Inspectorate Service
KFC	Kenya Flower Council
QCD	Quality, Cost, Delivery.
QCDMS	Quality, Cost, Delivery, Morale and Safety.
SPSS	Statistical Program for Social Sciences
5M	Manpower, Machine, Material, Method and Measurement.
3M	Muda, Mura, Muri (Japanese language)
PDCA	Plan Do Check Act
SDCA	Standardize Do Check Act
SQC	Statistical Quality Control
TQM	Total Quality Management
TPM	Total productive maintenance
TQC	Total Quality Control
TPS	Toyota Production System

ABSTRACT

Kaizen was first taught in Japan by American occupational force that came to help rebuild Japan after Second World War. Kaizen is a quality standard that aims at continuous improving on the current quality standard. The purpose of this study was to establish the factors that influence the implementation of quality standard Kaizen in the flower industry specifically at Kariki ltd. Four independent variable were selected for the study which include training to workers on kaizen, management support to workers, education level of workers and team work among workers. Four objectives were formulated to study these variables. The researcher adopted the theoretical frame work from Deming (1982) theory of fourteen points on implementing quality standards. The researcher formulated a conceptual frame work which started with four independent variables (training, management support, education level and team work) and on the dependent variable he took implementation of quality standard Kaizen. The conceptual frame work also incorporated one extraneous variable, labour turn over. The study looked at literature review from other researchers on quality standard Kaizen and reviewed their findings on the independent variables (training, management support, education level and team work).

The research adopted descriptive survey design. A target population of 220 workers from Kariki ltd was selected and a sample size of 132 workers was selected according to krejcie table. Questionnaire and interview schedules were selected as research instruments to collect data. These instruments were tested for validity using content validity and also tested for reliability using Karl Pearson correlation coefficient of split half technique. A permit letter from the National council for science and technology plus authorization letter from managing director of Kariki ltd was requested for before collection of data.

Data was analyzed starting from demographic information to the influence of the four objectives on the implementation of kaizen. The findings showed that all the four independent variables influenced kaizen implementation in Kariki ltd. However team work was leading in influence, followed by training, followed by management support and last was education level of workers. The researcher concluded that team work was very important in the implementation of kaizen while education level had very little influence in kaizen implementation. The researcher recommended further research on factors influencing implementation of kaizen in other flower farms because very little information was available on this topic, kaizen being a new concept in the flower industry and in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The flower customer Quality demands has forced the flower industry to study and understand its customer quality standard and respond by implementing kaizen a set quality standard. The secret for the survival of any organization in the 21st century in quality standard (kaizen) is by identifying the factors influencing the implementation of these quality standards. Organizations have moved from customer satisfactions to customer delight as a strategic tool and motto of their business to out beat their competitors. According to Arora (2006), Quality needs to be nurtured through positive attitude and quality culture in an organization. Any organization aiming to be world class must produce the right quality products, reduce cost of production, deliver products in time and become increasingly innovate, Imai (1997).

Factors influencing implementation of Kaizen determines the success or failure of the Kaizen quality standards. Training of workers on Kaizen standards give them the tools to implement the kaizen. Management supporting workers by either motivation or buying kaizen materials empowers the worker to implement kaizen. Team work among workers brings out synergy at work place necessary for kaizen implementation. Having educated workers help in faster learning and understanding of kaizen standards. Educated workers are also able read kaizen posters and information written in English.

According to Shigeo & Dillon (1989) advantages of using kaizen approach were observed in the case of Toyota Motor Corporation. The Kaizen programme recognized that it was always possible to dramatically change the way a company operates, through small changes or improvement using kaizen approach. They first sorted out factors influencing implementation of kaizen. They identified all the factors that would accelerate kaizen implementation and key among them were on job training, team work among workers and encouraging innovation among employees. Quality is the driving force for customer satisfaction in today's flower industry. Kaizen addresses this quality issues using a simple method of continuous improvement where the goal of the whole industry is to each day improve on quality, Imai (1997).

The international organization for standardization (ISO) was founded in 1946 in Geneva, Switzerland with a mandate to promote the development of international quality standards. This world body has the mandate to identify all factor influencing quality standards and address them. Most countries have adopted ISO 9000 series as their national standards. The main aim of implementing a quality standard in ISO is customer and market demand on compliance to quality system. Other secondary reasons are improvement of processes in their work place, Global recognition of their products and services. Also competitions for market where the choice for superior product is key to business survival where only the best quality product win the customers taste, Besterfield, Michna, Besterfield & Sacre, (2009).

Due to challenges on quality of flowers grown in Kenya, the government has formed various bodies to handle issue of quality. These include Kephis which mandate is to inspect all flowers before they leave our airports to export market and guarantee the customers abroad what leaves Kenya is Quality flowers. Quality Assurance in Kenya issues dates back to the early 1920s. These have evolved through the various frameworks of quality management, from inspection processes to Total Quality Management including applications such as 6 Sigma, Kaizen and various Quality Management System (QMS) applications as is currently. We also have the KFC which does audits to flower farm and check the level of quality standards at the farm level, Nassar (2011).

The horticulture sector is growing at the rate of 20% per annum and is ranked third after tourism and tea industry in bringing in foreign exchange to Kenya. This industry export most of it flowers to Holland, followed by United Kingdom and third is Germany then the rest to other countries in Europe. The Kenya flower faces tough competition from countries like Israel, Guatemala, Colombia, Ethiopia, Ecuador, India, China and Zimbabwe. However Kenya holds 50% share of Holland flower market hence becoming number one exporter country, according to Allan, O. (2008, January 23). Horticulture sector faces slump after robust growth.

Kaizen was first taught in Japan by American occupational force that came to help rebuild Japan after Second World War. The civil communication (CCS) developed management training program that taught statistical control methods. This course was developed and taught by Homer Sarasohn and Charles Protzman in 1949-1950. Sarasohn recommended W. Edward Deming for further training in statistical methods. It's the Kaizen concept that

made Japan production industry recover very fast from Atomic bomb destruction in Hiroshima and Nagasaki. In other words, there is always room for improvement and continuously trying to become better (Nomura, 1993).

In the words of Jan Carlsson, former CEO of Scandinavian Airlines: “We did not seek to be a thousand percent better, just 1% better at a thousand things.”Kaizen involves every employee, from upper management to the cleaners. In some Japanese companies, such as Toyota and Canon, a total of 60 to 70 suggestions per employee per year are written down, shared and implemented. In most cases these are not ideas for major changes. Kaizen is based on making little changes on a regular basis, always improving productivity, safety and effectiveness while reducing waste. Today Toyota Company is rated one of the best car companies in the world due to its strict adherence to Kaizen principles, Womack, Roos & Jones (1990)

Kariki Ltd is located in Bob Harries road, Koimu Location, Kiambu County, Central Province and in Kenya. The farm is located 50 km from Nairobi town. The farm is 26ha, 5 ha are occupied by buildings and packing space while 21ha is grown flowers. The farm grows summer flowers which include 15ha of Hypericum, 3ha of Astrantia and 3ha of Solidago. Kariki Ltd is a major source of employment to residents of Kiambu County especially Koimu location, employing 220 workers on average per month according to author (2012).

1.2 Statement of the problem

Over 90% of organization that start to implement the quality standard (Kaizen) give up in the middle of the implementation phase, Imai (1986). A study done by Kaizen institute of India in 2010 outlines challenges in implementation of Kaizen in the flower industry. The study shows most flower industry have not fully embraced and implemented the Kaizen concept and the overall effect is poor quality standards of flowers produced by these farms. Most flower farms usually start the implementation of kaizen quality standards but never complete the implementation and the few that implement don't sustain the implementation, Masaaki (1997). Therefore challenges of poor quality standards are never fully addressed in the flower industry due to uncompleted implementation of quality standard (Kaizen).

Most flower farms have employed spray team to control pest in the fields, they have employed quality assurance team in the packhouse to control quality of packed flowers but flowers continue to be rejected by Kephis at the airport due to poor quality standards. The flower industry has sponsored Kaizen trainings in their farms but Kenya is still rated as poor in terms of flower quality standard in Japan as compared to countries like Ethiopia. The challenges of implementing kaizen standards have not been addressed in this industry. These challenges are big obstacles to implementation of kaizen quality standard in the flower industry Milwaukee (1987).

The flower industry is currently faced with poor quality standards which are leading to Kenya losing its market share in the world market. This is seen in production of Poor Quality flowers, rejections of flowers by Kephis at the airport due to pest and diseases and the fumigation of Kenya flowers in the Holland and Japan market. The level of pest and diseases has increased due to global warming hence lowering quality standard in the industry. These quality challenges have leads to dwindling profits. Majority of labour in flower industry is un-skilled and untrained hence poor quality output. Gradual drop in prices of flowers in the market, Lack of workers training, lack of proper communication, lack of management support and poor team work is a major challenge in implementing quality standards. Kaizen concept is a quality standard that has sets standards which's aims at raising the quality and productivity of products in an organization. Lack of sets quality standards in flower industry has also been a challenge in this industry Ishikawa (1985).

1.3 Purpose of the study

The purpose of this study is to investigate the factors influencing the implementing of Kaizen in the flower industry, basing the study at Kariki Ltd.

1.4 Research objectives

The study selected the following objectives;

1. To establish if training of workers on Kaizen influence the implementation of quality standard (Kaizen) in flower industry.
2. To establish the influence of management support to workers in implementation of quality standard (Kaizen) in flower industry.

3. To investigate the influence of education level of workers in implementation of quality standard (Kaizen) in flower industry.
4. To determine if team work among workers influence the implementation of quality standard (Kaizen) in flower industry.

1.5 Research questions

The study addressed the following research question;

1. Does training of workers on Kaizen influence the implementation of quality standard (Kaizen) in flower industry?
2. To what extent does management support to workers influence the implementation of quality standard (Kaizen) in flower industry?
3. To what extent does education level of workers influence the implementation of quality standard (Kaizen) in flower industry?
4. How does team work among workers influence the implementation of quality standard (Kaizen) in flower industry?

1.6 Significance of the study

There was inadequate information on factors influencing implementation of quality standard (Kaizen) in the flower industry in Kenya and the study was set to address this gap. Very limited research has been done on Kaizen standard in the flower industry and this study was set to address this gap. The study looked into factors influencing implementation of kaizen hence improved on the quality of flower produced in flower industry so that it can survive the completion in the global market. Through this research findings and recommendations it was hoped that the flower industry will get enlightened on the factors influencing implementation of Kaizen in flower industry. The flower industry will also benefit by knowing the challenges of implementing quality standard (Kaizen). The study included showed importance of continuous improvement in training, team work, education levels of workers and need for management support. The study result showed flower industry can improve in quality of flowers sold to the customer hence build customer satisfaction, confidence and customer delight. With improved customer relationship the industry is assured of long live irrespective of the harsh economic times.

1.7 Delimitations of the study

The research was carried out in Kariki farm only since there are so many flower farms in Kiambu County and Kenya in general. The study had to be limited to one farm since it's too wide and unrealistic to study in a whole County or the whole Country. Kaizen is a new concept hence most flower farms have not implemented Kaizen in their operation and this also led to choosing of Kariki Ltd that is one among the few that has started implementing the concept. Kariki Ltd farm represent what happens on a day to day basis in terms of operations in the flower industry. The research focused on a few Kaizen issues; training, management support, team work and education level of workers. This selection was due to Kaizen concepts being so broad to be studied in one research so a few issues were picked for this study.

1.8 Limitations of the study

One of the limitations of this study is the limited knowledge of Kaizen concept among the general workers. This is because Kaizen is relatively a new concept in Kenya. The other limitation is some respondent may be unwillingness to spend time to answer question on the research. To overcome these limitations the researcher sort for management help plus permission to interview the workers and also had to explain the importance of research towards improving quality standards in flower industry.

1.9 Assumptions of the study

The study assumed that all respondent would be willing to share information. The study also assumed that respondent will share honest and valuable information needed for the study. The study assumed permission was to be granted by the relevant authorities to enable the research to be carried out.

1.10 Definition of terms

Kaizen - a Japanese word meaning Kai (change), Zen (good), continuous improvement. It's also mean involving everybody, everyday and everywhere.

Gemba - a Japanese word meaning real work place where value is added.

Gembutsu - a Japanese word meaning tangible objects found at Gemba like tools or machine.

ISO 9000 series standards - a set of international standard on quality management and quality assurance developed to help companies document the quality system element to be implemented to ensure the conformance of a product to specification.

Kaizen systems - TQM, JIT, TPM ,policy deployment, suggestion system, small group's activities.

Kanban - is a sign board used as a communication tool in JIT system whenever batch production is involved.

Muda - a Japanese word meaning waste or non value adding activities like motion, inventory, rejects, over production and waiting.

Mura - A Japanese word meaning irregularity and variability. Not standard.

Muri - A Japanese word meaning strain and difficulty.

Pull production - JIT requirement where previous process produces only as many product as are consumed by following process.

Standard - Is the best way to do a job, a set of policy, rules, procedure.

Quality - Is conformance to specification and customer requirement.

Training - planned process to modify attitude, knowledge, skills or behavior

through learning experience to achieve effective performance.

Education level – is the stage which an individual has reached in academic classification. They include primary, secondary, college and university.

Management support – is the help workers get from managers in an organization, like leadership, guidance, formulation of policy and motivation.

Team work – Is working in social units made of people who come together to do a certain function.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter involves a systematic process of identification, location and analysis of documentation containing information related to the proposed research problem being investigated. It reviews attributes by authors from different parts of the world on the effect of training, management support, education level and team work on implementation of quality standard. The extensive body of literature indicates the factors influencing implementation of Kaizen in flower industry. This chapter takes the perspective of other scientist on implementation of quality standards.

2.2 Quality standards in flower industry

Quality is conformance to requirement according to ISO 8402. Phillip Crosby defined quality as conforming to specifications Suganthi, Anand & Samuel, (2004) . He believed quality means getting it right the first time. L. Juran defines quality as Fitness of use which stresses the reliability of a product or service for users Suganthi, Anand & Samuel, (2004). ISO 9000:2000 defines quality as a degree of inherent characteristic fulfill requirement. Deming defined total quality as a predictable degree of uniformity and dependability at a low cost and suited to the market, Suganthi, Anand & Samuel, (2004).

Quality flowers and quality production process is the dream of flower industry. For the Kenya flower industry to raise to world class it must achieve five goals; quality flowers, speed production, high efficient labour force, flexible workmanship and team work. All these are geared toward customer satisfaction. The world quality has moved now from customer satisfaction and the next level world class organization are looking for is customer delight which should be the ultimate goal for Kenya flower industry. Dr W. Edward Deming (1900-1993) is considered the Guru of modern quality standards. He came up with a philosophy that organizations must change and adapt new way of doing business. He came up with 14 points that will enable an organization achieve quality standards. First is creating constancy of purpose toward improvement of quality of a

product. Second is adopting new philosophy which is modern technology which has reduced mistakes. Third is cease dependence on mass inspection instead build in quality processes. Forth is to improve on quality of incoming materials for end product to be quality. Five is find problems and solve them. Six is constantly train and educate workers on how to implement quality standards. Seven is institute modern method of supervision which includes coaching the workers. Eight is remove the barrier of fear in workers so they can give maximum output. Nine is remove slogan that praise some workers and which kills team work. Ten is eliminating work that is measured by quotas' and numerical figure instead institute leadership. Eleven remove barriers that rob people ownership of their workmanship. Let worker own their job. Twelve institute programs for continuous improvement of workers either by education or training on the job. Thirteen encourage management support to the whole process by providing leadership and commitment.

2.3 Influence of training in implementation of Kaizen.

According to Mangal (2009) Training is a planned process to modify attitude, knowledge, skills or behavior through learning experience to achieve effective performance in an activity or range of activities. Its purpose in the work situation is to develop the abilities of the individuals and to satisfy the current and future manpower needs of the organization. Curtis (2003) defined training as a systematic process of changing the behavior, knowledge and motivation of present employees to improve the match between employee's characteristics and employment requirements. Training is critical to performance of employees at all levels in the implementation of Kaizen. Training is the motivator and is essential to acquiring and maintaining skills necessary for optimal job performance.

Trained worker is a better informed worker who will improve on quality. He will make less operational mistakes hence help in implementation of Quality standard in the flower industry. Training increases the level of performance of workers hence increased productivity. Training helps workers implement a new technique that requires new skills like kaizen. Training addresses a performance gap in work place. Training reduces waste and improves on quality. It reduces accidents and makes workers multitasked hence making them a cushion for the organization in case an employee exist Otto (1970).

According to Mangal (2009) training improves performance of learner. This happens by since training is independent variable and learning is dependent variable. It emphasizes

the planning and structuring of appropriate training tasks and stresses on analyzing training task into proper elements for creating learning conditions.

Frederick (2009) ,training refers to the process of passing along the skills, knowledge and attitude or know how through carefully selected methods according to a well conceived plan by competent and well prepared people ,in a suitable learning environment to help equip a trainee for his assigned job or responsibility. Training is therefore the process that enables an individual to acquire appropriate skills that enable him fulfill the requirement of the job. It must be continued until the point the trainee is capable of handling the job independently from the trainer. The general objective in training are two namely to acquire knowledge theoretically and academically and two field based practical experience and behavior change.

There are two types of training which include on job training and off job training. The on job training includes demonstration where a trainee works with an experienced trainer and is shown how to perform a task. Trainee is then left to perform alone. Coaching involves a trainee getting support plus guidance from trainer. However, most learning is done by trainee themselves. Job rotation is a process where a trainee is moved to various jobs for a period of time to enable him acquire new skill. Do it yourself training is where a trainee is left to discover for himself. Simulation is where a trainee is provided with simulators to train using them to avoid risk involved by using real training machines like a pilot using real plane Blakely (1981).

The second type of training is off job training. Lecturing where the trainer formerly delivered a carefully planned expository address on some topic. It makes the learner a passive agent in the learning process. Case study is short stories and a description based on real event. Through the case study a trainee is able to develop skills in analyzing, reasoning and knowledge. Role playing is where a trainee is given a certain role to play as he learns how to perform a job. Discussion group is where trainee is given a topic and they brainstorm and come up with ideas how to perform a task from their own thinking. Projects are where a trainee is required to design a project and run it. This help the trainee develop knowledge and skills to run a project. Business game occurs where trainees are grouped into teams and they play games together which have lessons to learn especially on co-operation and working as a team Adar (1973).

Training on quality standards has brought the following benefits; reduction of complaints from customers, reduction in cost of the product, reduction of production time, increased

system efficiency, increased morale of workmen and increased customer satisfaction. Training must be experimental since trainees retain 20% of what they hear and 90% of what they see and do, Besterfield, Michna & Sacre (2003). Teams for quality standard cannot perform well if not trained on how to solve quality problems. Kaizen has a PDCA cycle of solving quality problems.

Deming a quality expert or Guru proposed the PDCA cycle. Its start with planning for quality then goes to doing the action plan, then checking if every when on okay and finally acting on areas where quality failed. Training is key to success of implementing quality as taught by first quality Gurus American Feigenbum, Juran and Deming. TQM was later advanced by Japanese quality Gurus Kaoru Ishikawa, Genichi Taguchi and Shigeo Shingo. Later 1970 -1980 other American Quality gurus notably Philip Crosby and Tom Peters extended the quality management concept after Japanese successes in production industry Crosby (1980).

According to Suganthi (2008), TQM philosophy have evolved through four stages namely; Inspection, Quality control, Quality assurance and then Total Quality Management. Inspection stage identified non –conformities, it did a lot of salvaging, had end of pipe approach and survived on principle that the end justified the means. The second stage was Quality control that looked on process performance data, quality planning, statistical tools, control instrumentation; Quality assurance was third stage which had quality manuals, system certification, quality cost and documentation. The last stage is TQM which is customer focused, has employer involvement, has continuous improvement and has performance measurement, Suganthi (2008).

2.4 Influence of Management support in implementation of kaizen

According to Revees (1962) management is the utilization of physical and human resources through co-operation effort. Management support is the process of planning, organizing, leading and controlling the available resources in a way to achieve stipulated objectives efficiently and effectively. According to Leadership Obstacle Model (Ornstein & Hunkins, 1998). The Model grew out of the work by Neal Gross, (1979) to determine the success or failure of the Organization. His model explained if management supports any activity the rest of the workers will equally support it and it will succeed. The management provides materials for training and implementation of any quality standard. The management motivates workers hence building an environment for success in

implementation of quality standard. Management does handling, controlling and directing (Dale, Carol, Glen & Mary (2003). Management provides vision, policy and strategic plan for any organization. Management also motivates worker by getting involved in quality activities.

Hersey and Blanchard (1977) defined management as a process of working with and through individuals and groups of people to accomplish organizational goals. Management plays a vital role in planning of all Kaizen programmes. Management sets goals and objectives for Kaizen activities. The management makes short and long term plans for Kaizen. Management communicates all action plans for implementing quality standard Kaizen. This communication helps influence the people implementing the quality standard by motivating them. Management offer support by organizing the employees to carry out the organizational plans in quality standards. In case of any changes management support helps employees to absorb and understand the changes. Organizing entails assembling together human, material resources to attain organizational goals and objectives.

Management support also involves directing employee toward the right direction. Although a work plan is laid down employees needs to be pushed to the right direction for the goals to be achieved. According to Castetter (1976) directing is a complex management process whose primary purpose is to get people to work effectively and willingly. Motivation plays a big role by giving employees a reason to do a job and to give their best. Management support also involves controlling where management does evaluation and checks if set objectives are being achieved or not. Management finds out whether employee implements Kaizen as per plan. Here management collects information on action taken in implementation of Kaizen and then measures performance against feedback.

According to Pande, Neuman & Cavanagh (2000), management support establishes quality standard by implementing principles of total quality management. These principles include proper communication at work place, upholding of integrity and ethics, providing leadership, establishing team work, sponsoring training and recognizing workers who have excelled in quality implementation by rewarding them. These quality management principles that can be used by top management to guide their organizations towards implementing quality standards. Since the organizations depend on their customers, therefore they should understand current and future customer needs, should

meet customer requirements and try to exceed the expectations of customers. An organization attains customer focus when all people in the organization know both the internal and external customers and also what customer requirements must be met to ensure that both the internal and external customers are satisfied. This can be achieved by implementing a quality standard called Kaizen.

Leaders of an organization establish unity of purpose and direction of it. They should go for creation and maintenance of such an internal environment, in which people can become fully involved in achieving the organization's quality objective. Leadership guides the organization in the implementation process of quality standard. People at all levels of an organization are the essence of it. Their complete involvement enables their abilities to be used for the benefit of the organization. The desired result can be achieved when activities and related resources are managed in an organization as process. An organization's effectiveness and efficiency in achieving its quality objectives are contributed by identifying, understanding and managing all interrelated processes as a system. One of the permanent quality objectives of an organization should be the continual improvement of its overall performance. Effective decisions are always based on the data analysis and information. Since an organization and its suppliers are interdependent, therefore a mutually beneficial relationship between them increases the ability of both to add value. These eight principles form the basis for the quality management system standard [ISO 9001:2008](#).

Figure 1: Total Quality Management



Source: Pande, Neuman & Cavanagh (2000).

Management support also involves communication, which is the ability to pass information. The information must be easily understood and a feedback given so that it's complete. The purpose of communication is to influence behavior and attitude. Successful information must motivate the listeners to implement the message carried by the information. Communication in implementation of quality standards must show what quality is target for the market. Visual communication is the most successful since human being retain up to 90% of what they see but can only remember 20% of what they hear. Kaizen concept basically uses visual management in quality, Crosby (1984).

To Communication is to impact, transmit, share and receive. Communication is the act of impacting a piece of information given a connection between places. Communication is a two way process which information is sent, received and acknowledged. Types of communication include verbal, written, non-verbal or body language and visual. For effective communication we need to listen, feel, see and smell, Chase (1993).

2.5 Influence of team work in implementation of Kaizen

Team means social units made of people who come together to do a certain function, Shuster and Stewart (1973). Team effort is therefore a co-operative effort where people from different background, experience and specialization come together to perform a task as a unit. A team comes together to achieve a common objective. Members of a team need to focus on how to relate to each other listen to suggestion of each other and build on previous information and use their conflict creatively. They need to set a standard, maintains discipline, build team spirit and motivate each other. Since each member has his own experience he can bring in the group to help meet the objective. Team work is best system to meet objectives because many heads are knowledgeable than one.

In kaizen there are various types of team work. They include process improvement team where members improve a certain process or work unit. Usually the scope of the team activity is limited to the work unit. A team consists of six to ten members. Cross function teams is a team consisting of members from different functional areas such as engineering, marketing, accounting and production. It can also include customer plus suppliers. These are mostly temporary teams with task that cut across different department. Natural work teams have voluntary team members. The manager is part of the team while some employee may opt not to be part of the team. Self directed or self managed work teams are extension of natural teams but they have no supervisors. There is a wide discretion to organize their work subject to organizational work flow requirements. There is a team coordinator to liaison with senior management that may rotate among members Bushe and shani (1991).

According to Besterfield (2003) successful teams have effective means of achieving team work. This includes having a sponsor who is a member of quality council and he provides organization support to the team. He also guides the team and navigates the improvement of team quality standards. The team should have a charter. The charter defines the team mission, boundaries, authority, duties, resources and background of the problem they want to solve. Team composition should not exceed ten members. The members should be having different skills, perspectives and potential. Team member should be trained in problem solving techniques, team dynamics and communication skills. Team must develop ground rules for operation and conducting quality standards. Clear objectives and goals determine the success of a team activity. Accountability on performance of a team

is important and period reports should be sent to quality council to evaluate performance. This help to gauge a team weakness and strength. Well defined decision procedures which are effective, acceptable and timely have to be made by the team and their information given out to members. Team should have enough resources in terms of funding, time and tools to perform as expected. Team must operate in trust among each other and also responsibility on every member.

Teams must have an effective problem solving mechanism to handle matters arising during team operations. Teams must have open communication where members listen to each other, ask question and clarify where they need more information. Teams need good quality leadership who can be elected, proposed or emerged within the team. He guides team activity and provides directions as well as keeping the team together in harmony. Balanced participation is important in a team by allowing opinions of all members and encouraging members to participate in team activity. Team members must be cohesive and must feel comfortable working with each other and not as single unit or sub-groups Parker (1994).

Kaizen helps build teamwork. Teamwork is an action performed by a [team](#) towards a common goal. A team consists of more than one person, each of whom typically has different responsibilities. A team also includes seven common elements: common purpose; interdependence; clear roles and contributions; satisfaction from mutual working; mutual and individual accountability; realization of synergies; and empowerment. The advantages of team work include; increase in information sharing among team members, create better decisions, product/services and increase of employee motivation plus engagement. Quality teams are very effective in improving quality. Every member of a team has a special talent which when put together brings out synergy power in a team. A quality team should have a sponsor for training purposes. A team should not exceed ten workers to maintain commencement. A quality Team must meet regularly to review progress. A case study o Airedale spring ltd that was founded in 1945 by Timothy Parkinson implemented TQM and achieved the following; workers developing quality team work, worker skills were recognized and working condition were flexible, company invested in the people, they reduced labour by 25%, they increased productivity by 43%, they reduced their rejection from 45% to 2% cited on Gordon (1992).

2.6 Influence of education level in implementation of Kaizen

According to Twoli (2007) Education goes beyond teaching and training. It involves individual using acquired knowledge and skills to increase, adjust and enrich self and society. An educated person should be seen as one whose interaction with others is socially acceptable and useful. There are three forms of education. Formal education which is carried out in institution and also follows a curriculum like the 8-4-4 system. This is carried out in schools, colleges and universities. There is syllabuses, time table and course outline to be followed. Occasionally there is supervision by inspectors, examination, formal evaluation and awarding of certificates. No-formal education is any organized activity outside the structured or formal system but which meant to meet needs of a particular group of people. A system according to Groenewegen (1993) is a complex mixture of factors interacting according to an overall plan for a common purpose or goal. It can be children, youth and adults in the community. This is common in family planning where officials explain to group of women or people on new methods of practicing family planning. Informal education takes place unconsciously at homes, places of work, among peers and through natural environment .its pursues its own pace in a spontaneous way throughout each person life. The learning is not structured.

According to (UNESCO 1965) is a mean through which a country can free its people from poverty, ignorance and diseases. Education is the backbone for any development in the society. The problem of literacy is a global concern. Since the formation of UNESCO in 1946, it has been keenly interested and involved in literacy and adult education. In 1961, the United Nations General Assembly requested UNESCO to study the problem of illiteracy in the world and to come up with objective measures to combat illiteracy. According to Mulira (1978) by 1978 there were 94 million illiterate adults in the age group of 15-24 years. Due to increase in population and economic challenges, this number is bound to increase tremendously. UNESCO (1996), twenty years of service to peace under the heading” The scandal and shame of illiteracy, illiteracy is not only a clerical of a fundamental human right the right to education but also a major obstacle to economic development and a threat to peace.

According to Maundu (2007) UNESCO has set goals for education which gives general direction of the education offered by individual countries in the world. These goals include foster international consciousness, improve standard of living in various countries

of the world and solve continuing problems that affect humanity such as war, hunger, disease and unemployment.

2.7 Kaizen concept

Kaizen, which in Japanese word meaning (kai) change, (Zen)) good and is a philosophy that motivates people to constantly improve their surroundings Imai (1986), Monden (1985) says Kaizen is often emphasized small group activity such as quality circles and/or suggestions made by individual workers. Wormack, Roos & Jones (1990) diffused the notion of “Lean Production” through the Industrial world, treating kaizen as quality circles, as if all improvement of Assembly line was realized by quality circles organized by working team, surely though in cooperation with shop engineers. In the bible of TPS Ohno, (1978), this explains Kaizen methods to increase productivity and product quality. Monden (1985) reduce kaizen activities to those of quality circles. Monden (1995) explains Toyota's cost reduction management starting from “target costing” in the product development phase and carrying through to “kaizen costs” in the production phase.

Kaizen is a system of continuous improvement in quality, technology, processes, corporate, culture, productivity, safety and leadership. Kaizen reflects the philosophy that there is .Always a better way to do things. According to Imai (1996) kaizen is the philosophy of incremental continuous improvement with involvement of everyone.

Imai (1996) today’s managers often try to apply sophisticated tools and technologies to deal with problems that can be solved with a common sense, low cost approach. Kaizen involves setting standards and then continually improving those standards. To support the achievement of higher standards, Kaizen also involves providing the training, materials and supervision that is needed for employees to meet those standards on an on-going basis. Kaizen is also about quality. Quality begins with the customer, but customers' views are continuously changing and standards rising, so continuous improvement is required. Kaizen therefore fits into quality improvement programme too. Everyone has a role in Kaizen: top management must allocate the resources and establish the strategy, systems, procedures and organizational structures necessary for Kaizen to work middle managers are responsible for implementing Kaizen, they must monitor performance of the continuous improvement programme and ensure that employees are educated in the use of the necessary tools supervisors are responsible for applying Kaizen, they must maintain the rate of suggestions, coach people, and improve communications at the workplace

shop-floor and field employees must make suggestions, learn new jobs, use the tools and generally participate in continuous improvement activities individually and in teams.

In Kenya Kaizen concept is relatively new but has been practiced by a few industries. A good example is Unga Ltd in Nakuru which has improved not only their quality in production but also created a quality name and brand name in Kenyan market. Most farmers in Kenya in the poultry and Dairy industry will go first for Unga Ltd animal feed due to better quality. In the flower industry Finlays Ltd has also taken up Kaizen and is in the system of implementing it. Kariki group of companies is also in the process of implementing Kaizen. Today's manager often try to apply sophisticated tools and technologies to deal with problems that can be solved with a common sense, low cost approach Imai (1997). They need to unlearn the habit of trying to eat (ugali) using a computer Robot technology instead learns to wash their hands and use them to eat ugali and (sukuma wiki). The end result is low cost in production, higher efficiency and goal is achieved.

2.8 Principles of Kaizen

There are some guiding principles which are applicable in implementing Kaizen:
Question the rules, standards are necessary but rules are there to be broken from time to time develop resourcefulness; it is a management priority to develop the resourcefulness and participation of every employee. Get to the Root Cause try not to eliminate symptoms but rather solve the real problem eliminate the whole task question whether a task really adds value reduce or change activities be aware of opportunities to combine tasks.

2.9 Theoretical framework

Deming (1982) theory of fourteen points on implementing quality standards states that an organization must create constancy of purpose toward improvement of products and services with an aim to become competitive and remain customer focused. An organization must adopt new philosophy in its work place and provide leadership in change. Organization must cease dependence on mass inspection by building quality into a product in the first place. Organization must cease awarding business based on price instead look at quality of product, minimize total cost and build relationship with a single supplier with loyalty and trust. Organization must continuously improve production and service using PDCA cycle commonly called Deming cycle. It starts with plan, do, check

and act on failures by improving. Organization must continuously do an on job training to its workers to improve their knowledge on the work they are doing. Organization must institute leadership at work plan by providing guidance, vision and strategizing to achieving set objectives. Organization must drive out fears within its work force for them to achieve maximum output from the labour force. Organization must breakdown barriers between departments so as to allow team work within the whole process. Organization must eliminate slogans and exhortations which associate quality improvement to one individual rather than entire work force. Organization should eliminate numerical goals and quota systems of evaluating work instead institute management by objectives where quality standards should be set. Organization must remove barriers that rob workers their pride due to merit rating, annual review instead create responsibility and quality standards. Organization must institute vigorous education programme for its workers with an aim to workers self improvement. Organization must involve everybody in the company to accomplish organization transformation in every step of the process creating ownership of the job Suganthi and Samuel (2004).

2.10 Conceptual framework

In this conceptual frame work there are four independent variables selected for this study namely; training, management support, education levels of workers and team work within the flower industry. These variables were selected to check their effect on the dependent variable; influence on implementation of Kaizen in flower industry.

In the conceptual framework we also had one extraneous variable which also influence dependent variable and its effects could have been confused with those of independent variable but the researcher was aware of this. In this study one extraneous variable had been adopted for study which was labour turn over and the researcher is away of it. To mitigate the influence of extraneous variable in this study the researcher decided to incorporate the extraneous variable in the research so as to control its effect on dependent variable. Due to labour turn over only workers who have worked for more than one year were used for research to avoid opinions of new worker who had no idea how Kaizen works.

Independent variables

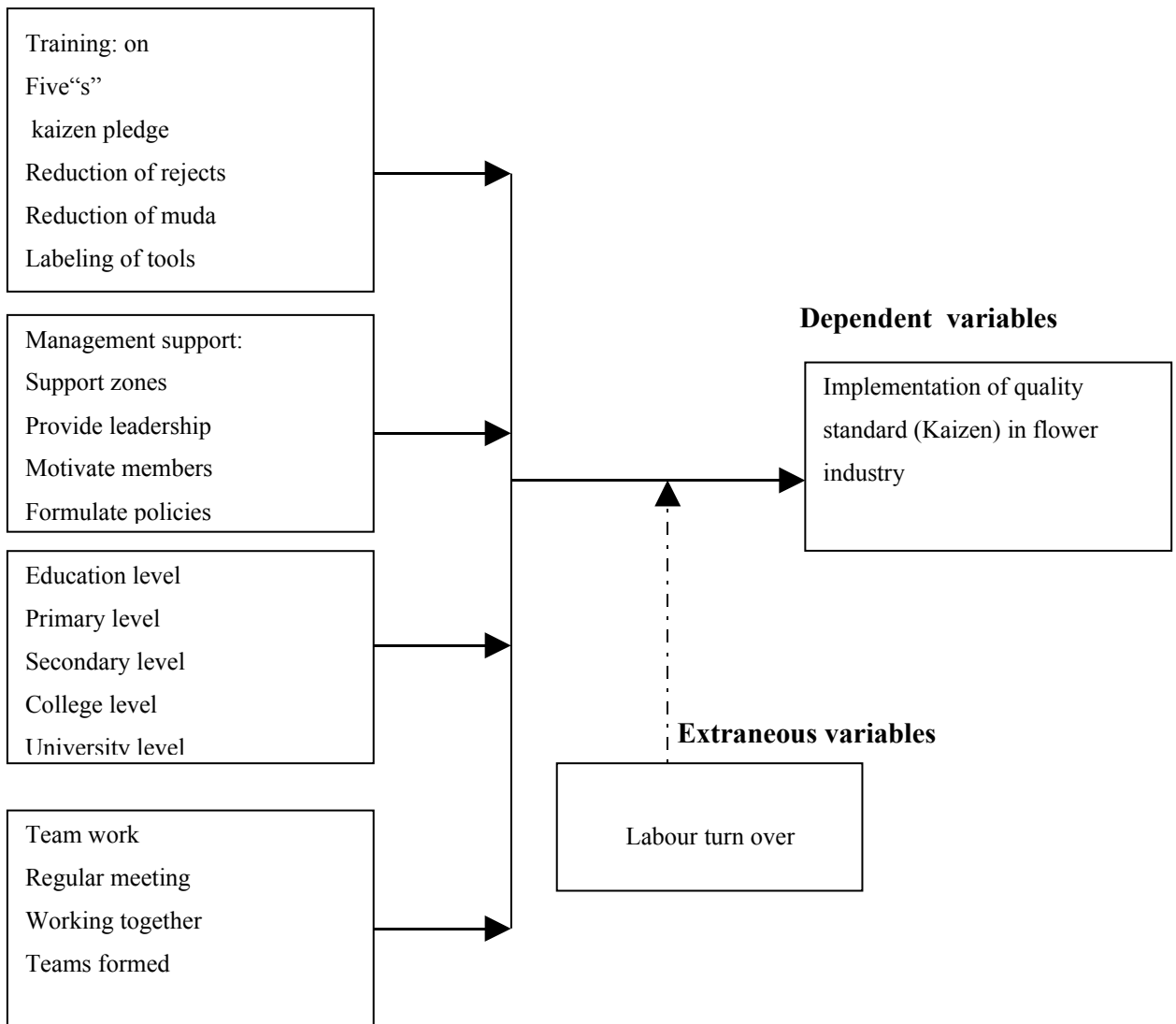


Figure 2 Conceptual Frame work

2.11 Summary of gaps identified in the Literature Review

The flower industry like other industries has been faced with big challenges of implementing quality standards. From the literature review the factors influencing the implementation of the quality standard (Kaizen) have not adequately been researched on. These factors include training, education levels of workers, management support and

team work among workers. This study aimed to investigate in depth the role played by these factors in the implementation of Kaizen specifically in the case of Kariki farm.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter dealt with research methodology which includes research design, target population, sample selection and sample size, research instruments, instrument validity and reliability, data collection procedures and data analysis technique. The purpose of this study was to find out the factors influencing the implementation of Kaizen in flower industry.

3.2 Research design

According to Kerlinger (1973) research design is the plan, structure of investigation conceived so as to obtain answers to research question and to control variance. The study employed descriptive survey design. Descriptive survey design is a research used to obtain information concerning the current status of the phenomena to describe “what exists” with respect to variables or conditions in a situation (Chandran, 2004). Descriptive research design enabled the researcher to analyze the factors influencing the implementation of Kaizen in Kariki ltd.

3.3 Target Population

Target population refers to the total number of subjects or the total environment of interest to the researcher (Oso & Onen, 2005). The target population was comprised of 220 workers in Kariki flower farms. Kariki farm is located within Juja location, Kiambu County in Central province which is within Kenya.

The table below summarizes the targeted population used in this study

Table 3.1 Target Population for Total Kariki population

CATEGORY (STRATA)	SAMPLE
Management staff	5
General workers	215
Totals	220.0

3.4 Sample size and sampling techniques

A sample refers to a part of the target population that has been procedurally been selected to represent it (Oso and Onen, 2005). The sample population taken in Kariki ltd was 132 workers. According to Krejcie (1970) model sample size should be selected according to the corresponding table column population size. The study used stratified sampling technique. The design involved selecting the samples from a population that was dividend in into two sub-groups. These sub groups are called strata and are more homogenous than the whole population. Stratified sampling gives more accurate information since each strata will have a certain opinion due to their type of work. Within each sun-group the study used probability sample design to select the sample. Sampling frame for this study was the staff in Kariki ltd who had worked for at least one year in the farm.

Table 3.2 Krejcie sample sizes for given population size

POPULATION SIZE	SAMPLE	POPULATION SIZE	SAMPLE
10	10	250	162
20	19	300	169
30	28	400	196
40	35	1500	306
50	44	2000	322
60	52	3000	341
70	59	4000	351
80	66	5000	307
90	73	10000	370
100	80	20000	377
150	108	50000	381
200	132	10000	384

Source: Krejcie (1970)

Table 3.3 Sample Table for the selected Kariki ltd Respondent

CATEGORY (STRATA)	SAMPLE
Management(top management)	3
General workers(production department)	129

Totals**132.0**

3.5 Research Instruments

According to Ogula, (1995), the instruments recommended for data collection in descriptive research studies include use of questionnaires and interview schedules. The researcher used questionnaire and interview schedule to gather the intended data. According to Polit & Hungler (1997), a questionnaire is a tool for getting self-report information from the respondents about their attitude, knowledge, beliefs and feelings.

Questionnaire contained six Sections ; Section I: gathered background information of the respondents, Section II: gathered data on influence of training on kaizen. Section III: gathered data on influence of management support on Kaizen. Section IV: gathered data on influence of education level of workers on kaizen. V: gathered data on influence of team work within workers on kaizen. Section VI gathered data on implementation of kaizen. Interview schedule was used to interview managers. This is individual interview which was structured to capture data in six sections; Section I: gathered background information of the respondents, Section II: gathered data on influence of training on kaizen. Section III: gathered data on influence of management support on Kaizen. Section IV: gathered data on influence of education level of workers on kaizen. V: gathered data on influence of team work within workers on kaizen. Section VI gathered data on implementation of kaizen.

3.5.1 Validity of Instruments

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomenon under investigation (Orodho, 2009). The research used content validity, which means the extent to which a measuring instrument provides adequate validity that the instrument has been tested by discussing their contents with other colleagues with consultation with the supervisor as recommended by Orodho (2004).The questionnaires was subjected to a pilot test and then subjected to an expertise opinion on their validity. According to Dr. Ian Price, (2000), the most common definition of validity is best described by the question: are we measuring what we think we are measuring? The pilot test was done on 13 respondents from Finlays flower farm. The data

results were discussed by researcher and her supervising lecturer and they were found to be answering the research questions. This made the instrument to be accepted as valid.

3.5.2 Reliability of Instruments

Mugenda & Mugenda (2003) define reliability as the degree to which a researcher instrument yields consistent results or data after repeated trials. The researcher tested for reliability of the questionnaire using correlation coefficient computed by split-half technique. This technique involves randomly splitting the data set into two and correlating the score for each half. If a questionnaire is reliable, then correlation between the two halves is significantly high. A correlation coefficient of 0.7 and above was considered to indicate acceptable levels of instrument reliability. After using the Pearson correlation analysis the instrument gave a coefficient of 0.85. This made the researcher have confidence on the research instrument reliability.

3.6 Data Collection Techniques

The researcher first obtained a permit from the National Council of Science and Technology. The researcher then wrote a request letter to the managing director of Kariki Ltd seeking authority to collect data in his flower farm. The researcher requested Kariki human resources offices to assist four research assistance to administer the questionnaires to the farms workers. The human resource officers assisted in interpretation to workers who cannot understand English and also help to explain the relevance of the research to the farm. The human resource officer provided a list of all workers who have worked over one year to research assistance who will select respondent by random sampling by picking the first worker then jumping worker two to pick worker three. This selection was stratified into two; one being general workers strata and two management strata.

3.7 Data Analysis

Data analysis deals with the organization, interpretation and presentation of collected data (Oso & Onen, 2005). The researcher analyzed data using descriptive statistics for quantitative data through frequency tables, percentages and measure of central tendency and measure of dispersion. All the data in the answered questionnaire was coded before

analyses. Respondent opinion was rated using lickert scale. Data analysis was done with the help of Statistic Package for Social Science (SPSS), version 17.0

3.8 Ethical consideration

The researcher observed fundamental clauses in social research ethics. Hence confidentiality was guaranteed for all respondents and their names were not written on the questionnaire. Permission was sought from the necessary authorities like the University of Nairobi and Kariki ltd before field work commenced. Authorization letters were attached at the appendices.

3.9 Operationalization of variables

The Table 3.4 on operationalization of variables was formulated to give the study a frame work on how the variables are going to be researched. It also shows the measuring levels for each variable measuring tools and tools for analysis.

Table 3.4 Operationalization of variables

Objectives	Variables	Indicators	Measuring levels	Tools of data collection	Tools of analysis
To establish the influence of training in implementation of a quality standard (Kaizen)	Training	On five “s” On kaizen pledge On reduced rejects On reduction of muda On labeling of tools	Ordinal Ordinal Ordinal Ordinal	Questionnaire and interview schedule	Percentage, frequencies, mean
To establish the influence of management support in implementation of a quality standard (Kaizen)	Management support	To team members Provide leadership Motivating workers Buying materials for kaizen Formulating policies	Nominal Nominal Nominal Nominal Nominal	Questionnaire And interview schedule	Percentage, frequencies, mean
To examine the influence of Education level in implementation of a quality standard (Kaizen)	Education level	Primary school Secondary school College level University level	Ordinal Ordinal Ordinal	Questionnaire And interview schedule	Percentage, frequencies, mean
To establish the influence of Team work in implementation of a quality standard	Team work	Formed zones Regular meetings Working	Nominal Nominal Nominal	Questionnaire And interview schedule	Percentage, frequencies, mean

(Kaizen)		together Having sponsors and team leaders Bring together workers across departments	Nominal Nominal		
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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION OF FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of the data collected from the sampled workers of Kariki ltd, flower farm located in Kiambu County, central province in Kenya on factors influencing the implementation of quality standard (Kaizen). Interpretation of the data is according to the research questions and data collected. The analysis was done through descriptive statistics. The findings of the study were summarized and presented in form of frequencies, percentages and mean. The discussion of the outcome was based on the output from statistical package for social science (SPSS).

4 Questionnaire Return rate

Out of the selected 132 sample respondents only 126 respondents filled the questionnaire which was a 95.5% response from the total sample taken at Kariki ltd. Questionnaire was given to 129 general workers and 3 interview schedules were administered to managers. General workers response was 95.3% while the manager's response was 100%. The response from managers was highest due to the fact that managers were able to answer all questions without communication problems. The general worker response was 95.3% since they did not return 6 questionnaires. This was attributed problem of communication where some of them could not read or write neither could they understand the questions.

5 Demographic characteristics of respondents

The study looked at the gender of general workers and collected the data in Table 4.1

Table 4.1: Gender Distribution of general workers

Gender	Frequency	Percentage
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Male	50	40.7
Female	73	59.3
Total	123	100.0

The study showed that most workers at the flower farm were women accounting for majority 73 (59.3%) while men were 50 (40.7%) of the sample size of 123 general workers. This indicates women population seeking for jobs in flower industry was more than men. The gender distribution for managers was women were 66.6% and men were 33.3% of the total sample size of 3 managers. The data showed Kariki ltd preferred more women managers than men.

4.4 Departments within the farm

The study looked at the department of respondent in the flower farm in order to establish the percentage of worker per department for the general workers.

Table 4.2: Departments which general worker works

Department	Frequencies	Percentage
Field	78	63.4
Pack house	28	22.8
Workshop	3	2.3
Security	11	8.9
Administration	3	2.4
Total	123	100.0

The field had the largest percentage of worker leading with 78 (63.4%) and the workshop had the smallest percentage with 3 (2.3%). This data showed that in the flower industry majority of the workers work in the field where flowers are grown.

4.5 Training frequency at Kariki ltd

The study looked at the number of times per year that the general workers received trainings as per Table 4.3

Table 4.3: Training frequency at Kariki ltd

Duration/Months	Frequencies	Percentage
Every month	85	69.9
2-3 month	28	22.8
4-5 month	2	1.6
Over 6 month	7	5.7

Total	123	100.0
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The study found out that the frequency of training every month on kaizen topics at Kariki Ltd was 85 (69.9%). This is an indication that Kariki Ltd was holding regular training every month.

4.6 Education level of Respondent

The study looked at the level of education qualification of general workers as per

Table 4.4: education level of general workers

Level of Education	Frequencies	Percentage
Primary	83	67.5
Secondary	32	26.0
College	8	6.5
University	0	0
Total	123	100.0

The findings shows that 83 (67.5%) of the general workers had reached primary level of education. This represent majority of the general workers in Kariki Ltd were semi-illiterate.

Table 4.5 education level of managers

Level of Education	Frequencies	Percentage
Primary	0	0
Secondary	0	0
College	2	66.7
University	1	33.3
Total	123	100.0

The findings shows that 2 (66.7%) of the managers had reached college level of education while 1 (33.3%) has attained the university level. This represent majority of the managers were not only literate but highly educated.

Comparing the education level of general workers and that of managers, Kariki Ltd employs unskilled labour for general workers jobs and skilled labour for management's jobs.

4.7 Influence of Training on implementation of Kaizen

The study looked at the influence of training on implementation of kaizen using frequency, percentage and mean as per table 4.6

KEY: 1 – strongly does not influence, 2 – does not influence, 3 – not sure, 4 – influence, 5 – strongly do influence. (N) –Frequency, (%) - percentages

Table 4.6: Influence of training on implementation of Kaizen

Training	1	2	3	4	5	Total
General workers (f)	0	1	3	34	85	123
General workers (%)	0	1	2	27	69	100
						Mean 4.6
Managers (f)	0	0	1	1	1	3
Managers (%)	0	0	33.3	33.3	33.3	100
						Mean 4.1

General workers data showed 85 (69%) indicated training strongly influence kaizen implementation which is also supported by their mean of 4.6. Comparing this to managers data that showed 1 (33.3%) indicated training strongly influence kaizen implementation which is also supported by their mean of 4.1. This means general worker valued training influencing implementation of kaizen than managers. This is because most general worker had low level of education hence training was giving them the tools to implement kaizen unlike the managers who were highly educated and needed little training to implement kaizen.

4.8 Influence of Management support on implementation of Kaizen

The study looked at the influence of management support on implementation of kaizen using frequency, percentage and mean as per Table 4.6

Table 4.7: Influence of Management support on implementation of Kaizen

Management support	1	2	3	4	5	Total
General workers (f)	3	4	4	41	71	123
General workers (%)	2	3	4	33	58	100
						Mean 4.3
Managers (f)	0	0	1	1	1	3
Managers (%)	0	0	33.3	33.3	33.3	100
						Mean 4.1

General workers data showed 71 (58%) indicated management support to general workers strongly influence kaizen implementation which is also supported by their mean of 4.3.

Comparing this to managers data that showed 1 (33.3%) indicated training strongly influence kaizen implementation which is also supported by their mean of 4.1. This means general worker valued management support on influencing implementation of kaizen than managers. This is because most general worker were the beneficiaries of management support unlike the managers who were the ones giving out the support.

4.9 Influence of Education level on implementation of Kaizen

The study looked at the influence of education level on implementation of kaizen using frequency, percentage and mean as per Table 4.7

Table 4.8: Education level influence on implementation of Kaizen

Education level	1	2	3	4	5	Total
General workers (f)	2	3	3	39	76	123
General workers (%)	1	2.9	2.9	31.5	61.7	100
						Mean 4.4
Managers (f)	0	0	2	1	0	3
Managers (%)	0	0	66.7	33.3	0	100
						Mean 3.9

General workers data showed 76 (61.7%) indicated education level of general workers strongly influence kaizen implementation which is also supported by their mean of 4.4. Comparing this to manager's data that showed 2 (66.7%) indicated managers were not sure if education level influences kaizen implementation which was supported by their mean of 3.9. This means general worker valued education level on influencing implementation of kaizen than managers who doubted if education level has any influence on kaizen implementation. This is because most general worker had reached primary school and had problems understanding even kaizen poster written in English so they saw their low level of education as a challenge in implementing kaizen. This is the reason some had chosen in the questionnaire to have kaizen posters to be written in Kiswahili. Managers having college education easily understood all kaizen information and saw no reason why education could influence kaizen implementation since the workers were implementing it with their low level of education.

4.10 Influence of team work on implementation of Kaizen

The study looked at the influence of team work on implementation of kaizen using frequency, percentage and mean as per Table 4.9

Table 4.9: Team work influence on implementation of Kaizen

Team work	1	2	3	4	5	Total
General workers (f)	2	1	1	32	87	123
General workers (%)	2	1	1	27	69	100
						Mean 4.6
Managers (f)	0	0	0	2	1	3
Managers (%)	0	0	0	66.7	33.3	100
						Mean 4.1

General workers data showed 87 (69%) indicated team work among workers strongly influence kaizen implementation which is also supported by their mean of 4.6. Comparing this to manager's data that showed 2 (66.7%) indicated team work among workers influenced kaizen implementation which is also supported by their mean of 4.1. This means general worker valued team work on influencing implementation of kaizen than managers who also valued team work but on a lower rate. This showed both managers and general workers valued team work in kaizen implementation. Both groups realized not a single person would implement kaizen without the help of the entire team.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5 Introduction

This chapter discusses the summary of findings where conclusions are reached and recommendations are given as per respondent's response. This is in relation to findings from Kariki flower farm on factors influencing implementation of Kaizen. Finally the chapter points out areas the researcher thought would require further research in related fields.

6 Summary of findings

The summary of finding from the study showed the four objectives (training, management support, education level and team work) selected for this study and their influence in the implementation of kaizen.

5.2.1 Demographic of respondent

The study finding showed 59.5% of the target populations were women and men were only 40.7%. This is due to more women seeking for jobs at Kariki ltd farm than men according to personnel manager.

5.2.2 Training influence on kaizen implementation

According to the general workers data the frequency of training according to respondent for every month was 69.9%. This data show that every month's training had the highest frequency which explains that Kariki ltd did value training on kaizen every month. The data showed that training on Kaizen topics did influence kaizen implementation. Training gave a mean of 4.6 among the general workers which is very high hence it was rated as strongly influence kaizen implementation. Managers gave a mean of 4.1 which mean training influence kaizen implementation. Comparing the general workers results and those of the managers the data is in agreement that training influence implementation.

5.2.3 Management support influence on kaizen implementation

From general workers data analysis management support scored 58% for the general worker hence an important role in implementation of kaizen. General worker scored a Mean of 4.3 which is interpreted as management support influence implementation of kaizen. Managers scored 33.3% which is interpreted as mangers didn't value so much the

management support .Comparing the general workers results and those of the managers the data shows general workers valued management support but managers did not value it's as much in the implementation of kaizen . This is because the general worker were benefiting from this support but managers were the one giving the support hence they were not direct beneficiaries from the support hence they didn't put a lot of value in it.

5.2.4 Education level influence on kaizen implementation

From the data 67.55% of the general workers had only reached primary school while 26% had reached secondary school and 6.5% had reached college level of education. From the data analysis education level was scored at 61.7% by general worker on the implementation of kaizen. They achieved a mean of 4.4. The managers scored 66.7% and achieved a mean of 3.9. This is interpreted as general valuing education level in the kaizen implementation while managers had very little value for education level on the implementation of kaizen. This is because general worker had low level of education hence they had several challenges in implementation. Managers were highly educated and did not have challenge in implementing Kaizen.

Most respondent confirmed that Education level had little influence on kaizen implementation.

5.2.5 Team work influence on kaizen implementation

The data from general workers scored 69% and a mean of 4.6. Managers scored team work at 66.7% and a mean of 4.1. This mean both general workers and managers agree that team work strongly did influence kaizen implementation. This is because both managers and general workers realized everybody was required in the implementation of Kaizen quality standard. This variable had the highest score hence the most important factor that influence implementation.

5.3 Discussion of findings

Based on Masaaki (1986) , for kaizen implementation to take place at any place of work, on job training for workers must be done on regular basis so as to maintain quality production in that organization. Trained workers perform better than un-trained workers in quality production of products. Trained workers also rarely will do any mistake as they do their duties because they fully understand their work due to training. Masaaki also emphasized that team work was important in getting the workers to produce synergy at their place of work. Formation of team was important to do specific task so as to get

everyone idea and combine these ideas to get out the best way to improve on quality. He also explained the role of management support in providing leadership to workers, by planning work schedules, organizing workers into teams, motivating the workers and providing the raw material they need for their activities. The study agrees with these finding by Masaika and confirmed that by analyzing the data which showed strong influence on training, management support and team work at Kariki ltd in implementation of kaizen quality standard.

5.3.1 Influence of training on kaizen implementation

Based on Objective one, training the study aimed to establish if training had influence on kaizen implementation. The literature review supported the idea of on job training as the only way to make workers understand and specialize in their line of quality production. Trained workers therefore produce better quality flowers because they have been given skills on quality standards. According to Mangal (2009) training improves performance of learner. The biggest challenge to training in flower industry is lack of a training programme to train the workers and two the lack of investors to set aside money to sponsor such trainings. The study found out that training played a big role in influencing kaizen implementation at Kariki ltd. This was supported by data from both workers and managers.

5.3.2 Influence of Management support on kaizen implementation

The second objective was management support. The study aimed to establish if management support influenced implementation of kaizen. Management support involves directing employee toward the right direction. Although a work plan is laid down employees needs to be pushed to the right direction for the goals to be achieved. According to Castetter (1976) directing is a complex management process whose primary purpose is to get people to work effectively and willingly. Motivation plays a big role by giving employees a reason to do a job and to give their best. Management support also involves controlling where management does evaluation and checks if set objectives are being achieved or not. Management finds out whether employee implements Kaizen as per plan. Here management collects information on action taken in implementation of Kaizen and then measures performance against feedback.

The biggest challenge identified on management support to worker is the fear of management staff to loose their jobs if workers were empowered. The study showed

management support to general workers influenced kaizen implementation. However management support by buying of kaizen materials did not influence kaizen implementation. This was supported by data from both general workers and managers.

5.3.3 Influence of Education level on kaizen implementation

The third objective was education level. According to Twoli (2007) Education level goes beyond the academic standard that an individual acquired, but involves individual using the acquired knowledge and skills to help him utilize these skills in the society or place of work. Kaizen is about common sense and involving everyone irrespective of his academics background. The study found out that all the roles of education level had little influence in kaizen implementation as per general workers data finding. Managers showed a different view that education level did not influence implementation of kaizen. In Ishikawa (1985) he agrees education level is not important in kaizen implementation but instead he advocates for training. The findings agreed with this literature since majority of the general workers were semi-illiterate yet they were implementing kaizen with the help of the training offered at Kariki ltd.

5.3.4 Influence of Team work on kaizen implementation

The fourth objective was team work. Team means social units made of people who come together to do a certain function, shuster and Stewart (1973). Team effort is therefore a co-operative effort where people from different background, experience and specialization come together to perform a task as a unit. A team comes together to achieve a common objective. The biggest challenge identified on team work was worker infighting due to power struggle, tribalism and difference in opinion. Team work scored the highest marks in implementation of kaizen. The study showed that team work strongly did influence kaizen implementation. Team work activities scored very high percentages in Kariki ltd. This was supported by data from both general workers and managers. The teams work brings out unity in Kariki ltd which influence implementation of kaizen. Both managers and general findings agreed that team work was the most important influence in the implementation kaizen quality standard.

5 Conclusion of the study

Based on the research findings the researcher concluded the followings;

5.4.1 Influence of Training

There is need to train all workers on Kaizen for them to be empowered to implement the quality standards. The training will also give them the tools to implement the Kaizen. There is need to have a training register to capture trained and non-trained workers for the purpose of follow up. The frequency of training need to be established and standardized like in the case of Kariki ltd, where the frequency of training every month was rated at 67.1%. Training will give the workers the skills to implement kaizen hence fasten the rate of implementation. Directors of flower industries plus the management team must put a financial budget to sponsor all training for Kaizen.

5.4.2 Influence of Management support

The management team owes the flower farm worker management support since no kaizen will be implementation if the managers don't provide directions and guidance in the implementation process. Management need to allocate time for kaizen activity every week to sustain it implementation. Management need to buy the required kaizen material especially the soft boards for pinning kaizen information at Gemba. Management should provide guidance, to kaizen quality standards to the rest of the workers.

5.4.3 Influence of Education level

Although there is a small influence of education level in the implementation of Kaizen. The flower industry should embark on translating the kaizen poster and information in Kiswahili because from the study data even semi-illiterate worker can implement kaizen with abit of helping translating the English poster into Kiswahili to break the language barrier. This was shown from the study where 24.4% of the respondent preferred kaizen information in Kiswahili.

5.4.4 Influence of Team work

Team works among flower farm workers is vital for the implementation of Kaizen. No single worker can implement the Kaizen alone he need the synergy from the whole team. There is need to set aside personal opinions and embrace every person idea. There is need for team leaders to create a win- win situation in group discussion to avoid division within the team which is brought by winner takes it all. Team work had the greatest influence in the implementation of kaizen. So there is a need to build team spirit within the flower industry. These include making teams that have diversity. The team should

have a manager, general worker, an artisan, a supervisor and team leader. This will make bonds across the entire organization.

6 Recommendation of the study

From the finding and conclusions drawn from the study the following recommendations were made;

1. Strengthening of team work among the workers and management team needed urgent attention because team work is the most important variable in the implementation of kaizen. Conflict resolution mechanism need to be established within Kariki ltd so as to address any disagreement between workers so as to keep a strong team work and the farm will benefit from the synergy of the team work.
2. A training budget on kaizen need to be put as a major priority if kaizen implementation is going to continue at Kariki ltd. This is because from the study training was of great help to general workers in helping them to implement kaizen. Training should also be done by managers to the workers hence saving on cost of hiring experts because managers at the level of education easily understood kaizen trainings than workers.
3. Management support to workers need to evaluated and addressed. There is need to train managers in the need to empower workers through processes like motivation. This will help worker implement kaizen. There is need to enlighten the managers on their role to guide the workers in quality standard implementation. There is also need to remove from managers the fear that when general workers get enlightened they will not loose their jobs. This fear is one of the biggest hindrances of managers supporting the general worker.
4. Education level of workers need to be addressed when employing them. Some general workers required the kaizen posters written in Kiswahili. This means there a need to research further on language barriers in kaizen implementation. There is need to select literate workers during employment to ensure the workers being trained on Kaizen can understand and put the information information.

7 Suggestion for further Research

- 1) This study identified gaps in the knowledge on kaizen quality standard in Kariki ltd. There is needed to make an assessment on information available on Kaizen in Kenya. This is because Kaizen is a new concept in Kenya and very few flower farms have any information or literature about Kaizen. This assessment will serve as the bases for

bringing in missing information and books on kaizen to Kenya. Kaizen being very new concept in the country especially in the flower industry there is needed to equip the workers with information on kaizen quality standard. The researcher suggested the need for books and journals on Kaizen to help train and educated the flower industry on kaizen quality standards.

- 2) The study also identified a gap in the management support and relationship between workers and senior managers in the flower industry. This industry having operated in a system where only the manager's idea was right and final. Since the formation of flower industry it is not common a general worker to be advising management and they agree to implement his idea without superiority complex coming in and becoming a big challenge due to boss approach paradigm. Team work research finding will serve as a big breakthrough in building kaizen standards. More research on team work where workers contribute to developing the company inform of ideas and improvement on quality standards.
- 3) More research is also needed on conflict resolution within the teams so that more cohesion is established and the synergy from team work is realized.
- 4) The researcher recommended research on kaizen implementation on other flowers farm in Kiambu County which was not studied in this project due to scope of work.

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APPENDICES

APPENDEX 1: Introduction Letter

LETTER OF INTRODUCTION

May, 2012

Dear Respondent:

REF: RESEARCH PROJECT

I am a master's graduate student at the Department of Extra Mural Studies of the University of Nairobi. **This Questionnaire is designed to gather information on factors influencing implementing of a quality standard (Kaizen) in the flower industry, basing the study at Kariki Ltd.**

The study is purely a requirement for the award of Masters in Arts Project Planning and Management at the university. It is estimated that it will take approximately 30 minutes of your time to complete the questionnaire. Your responses will be treated in strict confidence and in no way will your name or that of your family be disclosed in the report or in any other place. Should you require a summary of the results, please do not hesitate to contact the researcher on the address below.

Once again thank you for your cooperation and time.

Yours faithfully,

Samuel Mathenge Kamau.

APPENDEX 2: Questionnaire for Kariki Farm Workers

This questionnaire is meant for collecting data on the factors influencing the implementation of a quality standard (Kaizen) in flower industry. The data will be collected at Kariki farm which is within Thika County, Kenya. Please respond to questions and statement honestly. Your identity will be treated with confidentiality. Don't indicate your name.

SECTION I: Background information. (Please tick where appropriate)

- a) What is your gender? Male [] Female []
- b) What is your position in Kariki ltd farm ?
General worker [] Artisan [] Team leader [] Supervisor []
- c) Have you had any formal education before? Yes. [] No. []
- d) How long have you worked for Kariki ltd ?
Less than one year [], Over an year []
- e) Which department do you work in the flower farm ?
Field [] Pack house [] workshop [] Administration []
- f) Have you ever heard of a quality standard called Kaizen?
Yes [] No []

SECTION II: Training on Kaizen. (Please tick where appropriate)

- a) Have you undergone any training on quality standard (Kaizen)? Yes []
No []
- b) If yes, how often are these trainings?
Every month [] 2 -3 month [] 4-5 month [] over 6 month
- c) If yes, indicate in the following table for each category of training what you think is their influence in implementation of Kaizen at Kariki.

	Strongly does not influence (1)	Does not influence (2)	Not sure (3)	Influence (4)	Strongly influence (5)
RESOURCES					
Training in Five “s”					
Training on Kaizen pledge					
Training on Reduction of rejects					
Training in Reduction of waste (muda)					
Training on labeling of all tools					

SECTION III: Management Support to Kaizen implementation. (Please tick where appropriate)

a) Does management team support kaizen implementation at the farm?

Yes [] No []

b) If yes, indicate in the following table your opinion on the influence of management support in the implementation of Kaizen.

(Please tick where appropriate)

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
RESOURCES					
Support to zones members					
Providing leadership in activities					
Motivating workers					
Buying of material for Kaizen activities					
Formulating policies on Quality improvement					

SECTION IV: Education levels. (Please tick where appropriate)

a) What level of education level did you reach?

Primary [] Secondary [] college [] university []

b) At your level of Education are you able to implement Kaizen?

Yes [] No []

c) Which language are Kaizen information posters written?

English [] Swahili [] Kikuyu [] others (specify) -----

d) Are you comfortable with the language? Yes [] No. []

e) If your answer is No specify the language you prefer Kaizen information to be written.

English [] Kiswahili [] Kikuyu [] Kikamba []

f) Give your opinion on the influence of education on implementing Kaizen.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Education helps understand Kaizen trainings					
Education helps in Kaizen projects implementation					
Education helps in reading Kaizen posters/information					
Education helps Implement Kaizen activities					
Formal Education helps implement Kaizen					

SECTION V: Team Work in the implementation of Kaizen? (Please tick where appropriate)

a) Is there team work practiced within Kariki farm?

Yes [] No []

b) If yes, indicate in the following table the influence of each types of team work in the implementation of Kaizen.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Teams/zones formed influence Kaizen implementation					
Regular Teams meeting influence implementation of Kaizen					
Team members working together in a project					
Teams have sponsors and team leaders					
Teams brings together workers across different department to work together					

SECTION VI: Implementation of Quality standard (Kaizen). (Please answer appropriately)

a) Has Kariki ltd implemented any quality standard (Kaizen)?

Yes [] No []

b) If yes, name one project.....

c) Give your opinion on the implementation of Kaizen at Kariki ltd.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Kariki ltd has implemented the five “S”					
Kariki ltd has implemented the kaizen pledge					
Kariki ltd has implemented the reduction of rejects					
Boma system has been implemented					
Repeat jobs has been eliminated					
Kariki ltd has implemented the visual management					

d) How would you rate the implementation of Kaizen at Kariki ltd?

Total failure [] failure [] not sure [] successful []
major success []

APPENDIX 3: Interview Schedule for Kariki Farm Managers

This interview schedule is meant for collecting data on the factors influencing the implementation of a quality standard (Kaizen) in flower industry. The data will be collected at Kariki farm which is within Thika County, Kenya. Please respond to questions and statement honestly. Your identity will be treated with confidentiality. Don't indicate your name.

SECTION I: Background information. (Please answer appropriately)

- a) Which department do you head?
 Production [] post harvest [] accounts [] personnel []
- b) How long have you worked for Kariki farm?
 Below 1 year [] 1-2 years [] 3-4 years [] above 5 years []
- c) Have you had any formal education before? Yes. [] No. []
- d) How many workers do you manage in your department ?
 1-40 [] 41-80 [] 81-120 [] over 120 []
- e) Have you ever heard of a quality standard called Kaizen?
 Yes [] No []

SECTION II: Training on Kaizen. (Please answer appropriately)

- a) Have you been trained on quality standard (Kaizen)?
 Yes [] No []
- b) If yes, state the influence of each type of training on implementation of Kaizen.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					

Five “s”					
Kaizen pledge					
Reduction of rejects					
Reduction of waste (muda)					
PDCA problem solving cycle					
Training gives the tools to implement Kaizen					

SECTION III: Management Support to Kaizen implementation. (Please answer appropriately)

a) Do you support kaizen implementation programmes at the farm?

Yes [] No []

b) What is your opinion on the influence of management support on implementation of Kaizen.

(Please answer appropriately)

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Training zones members					
Providing leadership in activities/projects					
Motivating workers					
Buying of material for Kaizen activities					
Formulating policies on Quality improvement					

SECTION IV: Education levels. (Please answer appropriately)

a) What is your academics level of education?

Primary [] Secondary [] college [] university []

b) Specify the language your workers prefer Kaizen information to be written as per their level of education.

c) English [] Kiswahili [] Kikuyu [] Kikamba []

d) Do your workers understand when Kaizen standards are being trained?

Yes [] No []

e) Give your opinion on the influence of education on implementing Kaizen.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Education helps workers read Kaizen poster/Manuscript					
Education helps workers understand training in English					
Education helps workers to feel comfortable during GKW					
Education helps workers to communicate in zones					
Formal Education helps implement Kaizen					

SECTION V: Team Work in the implementation of Kaizen? (Please answer appropriately)

a) Is there team work practiced within Kariki farm?

Yes [] No []

b) If yes, state in the following table the influence of each types of team work in the implementation of Kaizen.

	Strongly does not influence (1)	Does not influence (2)	Not sure(3)	Influence (4)	Strongly influence (5)
RESOURCES					
Teams/zones formed influence Kaizen implementation					
Regular Teams meeting influence implementation of Kaizen					
Team members working together in a project					
Teams have sponsors and team leaders					
Teams work influences Kaizen implementation					

SECTION VI: Implementation of Quality standard (Kaizen). (Please answer appropriately)

a) Has Kariki ltd implemented any quality standard (Kaizen)?

Yes [] No []

b) If yes, name one project.....

c) Give your opinion on the implementation of Kaizen at Kariki ltd.

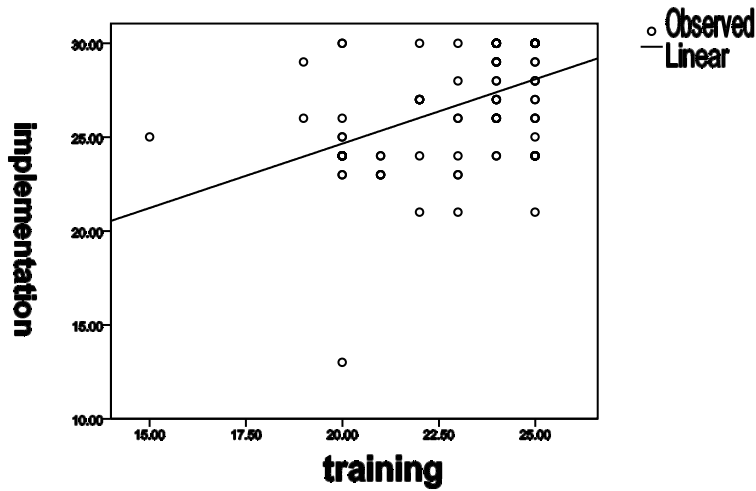
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)
RESOURCES					
Kariki ltd has implemented the five “S”					
Kariki ltd has implemented the kaizen pledge					
Kariki ltd has implemented the reduction of waste					
Kariki ltd has implemented the PDCA cycle					
Kariki ltd has implemented the reduction of motion/movement					
Kariki ltd has implemented the visual management					

d) How would you rate the implementation of Kaizen at Kariki ltd?

Total failure [] failure [] average [] successful []
major success []

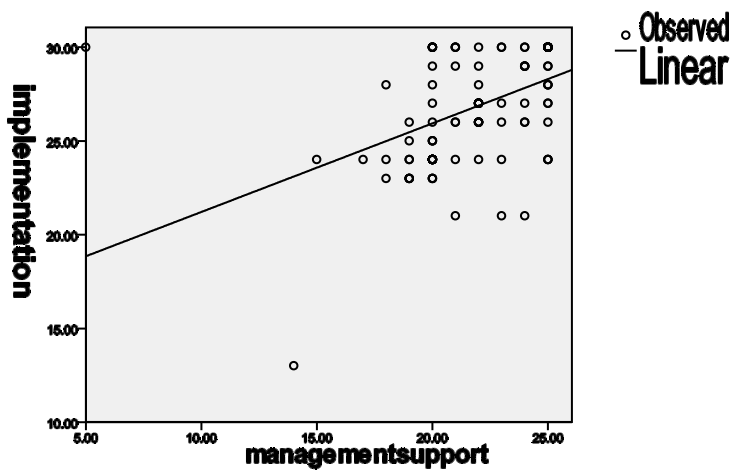
APPENDICES 4: Liner Regression Graphs

Fig 3 liner regression between summary of training and implementation of kaizen



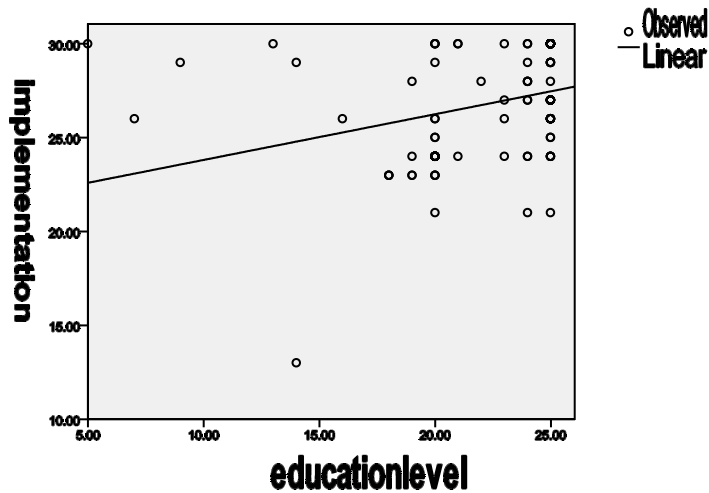
From figure 3 liner regression it show that there is a strong positive relationship between training and implementation of kaizen at 0.466 liner regression. This implies that increased training leads to increased implementation of kaizen

Fig 4 liner regression between summary of management support and implementation of kaizen



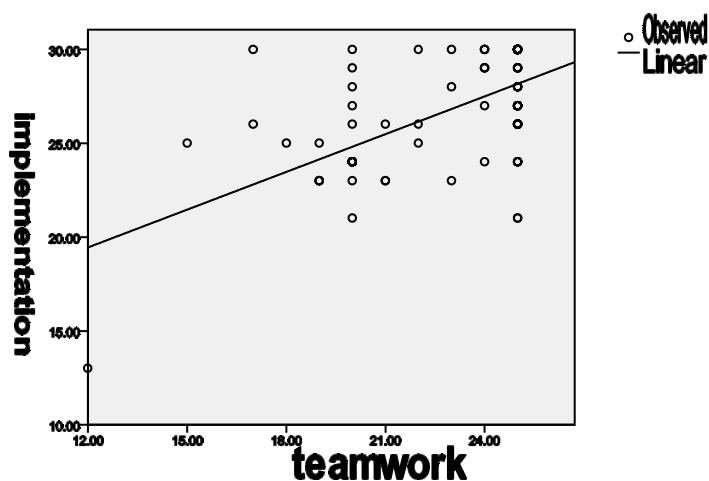
From figure 4 liner regression it show that there is a strong positive relationship between management support and implementation of kaizen at 0.464 linear regressions. This implies that increased management support leads to increased implementation of kaizen.

Fig 5 liner regression between summary of education level and implementation of kaizen



From figure 5 liner regression it show that there is a weak positive relationship between education level and implementation of kaizen at 0.307 liner regression. This implies that if we have more educated workers this would leads to a slight increase in implementation of kaizen.

Fig 6 liner regression between summary of team work and implementation of kaizen



From figure 6 liner regression it show that there is a very strong positive relationship between team work and implementation of kaizen at 0.613 linear regression. This implies that increased team work leads to increased implementation of kaizen.



Kariki Ltd
P O Box 6038, Thika - 00100
Tel: 020 2044914
Cel: 0723 579562 / 0734 600525
Email: office@kariki.co.ke

Date: 28th June 2012.

Samuel Mathenge Kamau

NCST/RCD/14/012/815

University of Nairobi

P. O. Box 30197-00103

Nairobi.

REF: AUTHORISATION TO CARRY OUT RESEARCH AT KARIKI LTD.

We are in response to your letter ref: NCST/RCD/14/012/815 requesting for authorization to carry out your research on "*factors influencing implementation of quality standard (KAIZEN) in flower industry: A case of Kariki Ltd Kiambu County,*" at our farm located within Thika West Municipality. We confirm that authorization has been granted.

In liaison with the Human Resources Manager we allow you to collect data from our employees and submit a copy of the final research paper to the organization as data collected might be useful to the continuous implementation of Kaizen in the workplace.

Richard Fernandes,
Managing Director
Kariki group of companies,

cc: HR Manager.

KARIKI LIMITED
P. O. Box 6038, THIKA - 01000
Tel: 0733 600525, 067-26002/3, 0723-579562
Email: office@kariki.co.ke



REPUBLIC OF KENYA



NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

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Website: www.ncst.go.ke

Our Ref: **NCST/RCD/14/012/815**

Date: **25th June 2012**

Samuel Mathenge Kamau
University of Nairobi
P.O.Box 30197-00100
Nairobi.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Factors influencing implementation of quality standards (KAIZEN) in flower industry: A case of Kariki Ltd in Thika County.*" I am pleased to inform you that you have been authorized to undertake research in **Thika County** for a period ending **31st August, 2012.**

You are advised to report to **the Chief Executive Officer, Kariki Ltd, Thika** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

A handwritten signature in blue ink, appearing to read 'M. K. Rugutt'.

DR. M. K. RUGUTT, PH.D, HSC.
DEPUTY COUNCIL SECRETARY

Copy to:

The Chief Executive Officer
Kariki Ltd
Thika.

