



DETERMINANTS OF PERFORMANCE OF SMALL SCALE TEA FARMING PROJECTS: A CASE OF KISII COUNTY IN KENYA

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ABSTRACT

Tea is the most popular drink in the world and Kenya is ranked the fourth nation that produces tea in the world, where tea sector is mainly supplied by small scale tea farmers who produce about 62 per cent of total tea production. Tea production needs a lot of labor and the industry offers employment in rural areas, whereby millions of people around the world depend on tea picking and processing. The research study was carried out to explore determinants of performance of small scale tea farming in Kisii County and it was guided by four main objectives; To assess the extent to which availability of small scale tea market influence performance on SCTF; To assess the extent to which cost of farm inputs influence performance of SCTF; To examine the influence of weather conditions on performance of SCTF; To assess the influence of level of education in SCTF in Kisii County. Data was collected using random sampling a large population of 2000 small scale tea growers whereby a careful sample size of 200 farmers from the population were selected questionnaire was used as a research instrument to collect data. Obtained data was analyzed using Qualitative methods and their final results presented using frequency tables and percentages and charts through SPSS and excellent programs. The researcher decisively concluded that small scale tea farmers should be sensitized about factors that influence performance of SCTF by improving their level of education, and accessing effective farm inputs.

LIST OF ABBREVIATION

EATTA	-East Africa Tea Trade Centre
GOK	-Government of Kenya
ITC	- International Tea Committee
JICA	-Japan International Cooperation Agency
KTDA	-Kenya Tea Development Agency

MTA	- Mombasa Tea Auction
SCTF	-Small Scale Tea Farming
TBK	-Tea Board of Kenya
TRFK	-Tea Research Foundation of Kenya
KIPRA	-Kenya Institute of Public Research Analysis

INTRODUCTION

Background of the study

In its wild state the tea plant is a small tree or shrub, it was first named (The asineus is and is now known as camellia sinensis according to Nguyen Ngo c kinh (1979) who gave tea four classification, Chinese big tea leaf, Chinese small tea leaf,shan tea ,and Indian tea.

According to Muraleedhara (1991) the tea plant originated from the tea triangle formed by nagamanifouri and lusha along the borders between Assam and Burma stretching to china and south east to the hilly areas of Burma to Thailand and Vietnam, where survey of tea plants was done Djemukhatze (1976) and finally concluding that tea originated from Vietnam.

Tea plant originally grew in mountainous forest areas and then gradually moved to lower areas where the ecological systems are different from its original sources causing changes in its growth and occurrence of pests and diseases.

The colonial government restricted tea growing to large scale producers for purposes of maintaining quality but however after independence in 1963 land reforms were passed allowing small scale growing.

Currently Kenya is ranked third in tea production in the world. Kenya is one of the oldest tea producers in Africa. Tea was first introduced in 1903 however commercialization did not start until 1924 due to various dynamics according to K.T.D.A report (1956).

The tea industry went through leveled massive changes. In the early 1950's this dynamics covered complex trends, processes and affects that characterized world tea supply and consumption.

In brief the growth of global demand for tea and tea products has been fuelled by population growth, economic growth, urbanization and the nutritional and medical value in tea products (K.T.D.A 2009)

The first Kenya tea seedling came from the strengi black stock the British had introduced and Kenya was soon established as the main supplier of British empires growing demand for this heavy dark tea. Today black tea is still the most popular tea, but green, yellow and white tea is

gaining competitive edge. Tea production in Kenya is divided into large scale farmers 40% and small holding 60% who run their own small gardens and sell their tea to factory companies.

Tea has become the biggest export commodity in Kenya earning a record of 97 billion U S D in 2010 hence has overtaken all other horticultural products (Daily nation 25.1 2011).

According to international tea committees (ICT 2010) tea produced in Kenya account about 10% of the world's export share.

K.T.D.A develops and markets Kenyan tea worldwide aimed at promoting regional standards and certificate for the industry.

Kisii County has a population of approximately 800,000 residents holding about 120,000 small scale tea growers amongst six factories namely; Kiamokama, Nyamache, ogembo, Rianyamwamu, Itumbe and Eberage.

The said SCTF suffers detrimental factors like inadequate access to firm inputs, poor weather conditions to sustain tea growing and low levels of education of small scale tea growing farmers.

These has led to a challenging situation that calls in researchers to find out the possible way out

Statement of the Problem

The small scale tea growing plays a key role in the economic development and contribute to a large extent to employment and poverty reduction in the country. According to the sector plan for manufacturing 2008-2012 of the Kenya vision 2030, the manufacturing sector whose major component is value adding to tea growing among the key productive sectors identified for economic growth and development because of its immense potential for wealth and employment creation as well as poverty alleviation (JICA,2007) According to seasonal paper No.2 of 2005 on Development of small scale tea growing cost across all sectors of the country' s economy and provide one of the most prolific sources of employment, not to mention the breeding ground for entrepreneurs in medium and large industries.

In Kisii County for quite long time now, have been experiencing some conditions that have continually influenced both positively and negatively the performance of small scale tea growing. It has been affected by high costs of farm inputs, poor weather conditions. However small scale tea growing projects has greatly improved live hood of Kisii County' residents and also benefiting other sub counties

The study therefore investigated the determinants influencing performance of tea growing projects among small scale tea farmers in Kisii County.

Purpose of the study

The main purpose of the study was to explore the determinants influencing performance of tea growing projects among small scale tea farmers in Kisii County.

Objectives of study

The study was guided by the following objectives

1. To determine the extent to which availability of small scale tea market influences performance of tea farming projects in Kisii County.
2. To investigate the extent to which the cost of farm inputs influence performance of small scale tea farming projects in Kisii County.
3. To assess the extent to which the weather conditions influence performance of small scale tea farming projects in Kisii County.
4. To assess the extent to which the level of education of small scale tea farmers influence performance of tea farming projects amongst small scale tea farmers in Kisii County.

Research questions.

The study was guided by the following research questions.

1. To what extent does the availability of small scale tea market influences performance of small scale tea farming projects in Kisii County?
2. To what extent does cost of farm inputs influence performance of small scale tea farming projects in Kisii County?
3. To what extent do weather condition influence performance of small scale tea farming projects in Kisii County?
4. To what extent do level of education of small scale tea farmers influence performance of small scale tea farming projects in Kisii County?

Research Hypothesis

The study was guided by the following Hypothesis

1. H₀: availability of small scale tea market has no influence on performance of tea farming projects in Kisii County.

H₁: Availability of small scale tea market has an influence on performance of tea farming projects in Kisii County.

2. H₀: farm inputs have no influence on small scale tea farming in Kisii County.

H₁: Farm inputs have an influence on small scale tea farming in Kisii County.

3. H₀: weather conditions have no influence on small scale tea farming in Kisii County.

H₁: Weather conditions have an influence on small scale tea farming in Kisii County.

4. H₀: education level has no influence on small scale tea farming in Kisii County.

H₁: education level has an influence on small scale tea farming in Kisii County

The Significance of Study.

The study positively contributed to the development of tea business. It enabled the small scale tea growers to understand the relationship between project performance and the parameters like, cost of farm inputs, availability of tea market, changes in weather conditions and the effect of level of education by small scale tea growers which contributed to a better understanding how to improve tea growing business. Henceforth the findings of this study pointed out on the key strategies to be used to overcome challenges facing small scale tea farmers.

The Kenya tea development agency & government found the research results key to their planners who require knowledge and adaptive strategies for successful tea farming.

Henceforth economic policies & strategies can be crafted from these and used in fighting poverty and unemployment leading to economic development and self reliance& employment.

Delimitation of the study

In this study, the researcher focused on determinants of performance of small scale tea farming in Kisii County. The researcher also was out to establish the opinions of all the tea farmers, on small scale tea growing performance, further the researcher engaged on K.T.D.A and their role in small scale tea growing performance. This study covered the tea farmers as the key unit of study

Limitations of the study

The researcher encountered several limitations during the study. This included low level of literacy and inadequate time

The low level of literacy amongst small scale tea growers especially the old ones who own large tracts of tea bushes paused a threat because they could not fill in questionnaires.

On time constraint the researcher engaged research assistants to enable him complete the study on the required time.

The vastness of the area required an elaborate arrangement to cover it as a whole effectively, methodologies of identifying and recoding all growers within the short time of the study also paused a challenge because the total growers were over 120, 000 and this was only solved by attaining the map of the area from respective factories.

Assumptions of the study

The basic assumptions of the study were that all respondents gave desired information.

The instruments used gave appropriate data that was used for data analysis and presentations.

Definition of terms

Farm inputs- The resources that are used in farm production such as chemicals, equipment feed, seed and energy.

Weather conditions-The atmospheric conditions that comprise the state of the atmosphere in terms of temperature and wind and clouds and performance.

Corporate success- The way an organization is presented to or perceived by its members and the public.

Tea market- refers to easily accessible place where the farmer can deliver and sell own tea

Small tea farmer- This refers to all tea growers falling under the umbrella of KTDA

Education level –This refers to the length of formal school education, amount of technical training given by extension officers and on-farm training by factories and or extension officers

Organization of the study

This project report is organized into five chapters, chapter one consists of the background of the study, statement of the problem, purpose of the study, research objectives, research questions and significance of study, limitations and basic assumptions, Chapter two covers literature review which is also divided into various topics. The conceptual framework is provided at end of chapter linking the independent and dependent variables of the study, Chapter three constitutes the research methodology, which is divided into research design, target population, sample and sampling procedure research instrument, data collection procedure and data analysis techniques. Chapter Four constitutes of data analysis, presentation and data interpretation. It is divided into four sections; farmer's education level, availability of farm inputs, availability of market for tea and weather conditions. And finally chapter Five constitutes of discussion, conclusion drawn, recommendations made and suggestions for further research.

LITERATURE REVIEW

Tea production in the world

World black tea production was projected to grow by 1.7% annually from 2003 to reach 2.7 million tonnes in 2014, mainly due to improved yields as a result of high uptake of good agricultural practices (GAP) by farmers among countries in Africa. A significant growth in output was accepted as tea bushes reached optimum producing age and small scale tea farmers' skills were to be maximized through intensive capacity building. Tea harvested in the largest producing country like Kenya was expected to grow by 2.4% annually to reach 379 000 tones in 2014 (FAO Intergovernmental meeting on tea, 2005) while some countries like Indonesia, North India and Malawi did not confirm to these global projections, Kenya continued expanding its tea output .By the year 2010, Kenya had surpassed the global projection of 2014 and reached a production of 399,000 tones. It would be the interest of this study to investigate social economic factors that influence small scale tea farming. The growth rate in the world black tea consumption was expected to be reduced from 2.2% over the last decade (19993-2003) to 1.2% over the next decade (2004-2014) to reach 2.67 million tons by 2014. This would translate to a

reduction of the Kenyan tea global market share. Kenyan exports 95% of its total tea. It was the interest of this study to assess the small scale tea farmer perception on the level of returns.

Tea market of small scale tea farming

World tea market projections in 2005 indicated an increasing imbalance between tea supply and demand amounting to 98 000 tonnes. The growth rate in world black tea consumption was expected to reduce from 2.2% over a period 1993-2003 to 12% over the next period 2003 to 2014. The main reason being the slow-down in consumption in producing countries, as the production growth rate outpaces the growth in demand for exports (FAO intergovernmental group on tea, 2005). The available literature indicates that Kenya tea development Agency Limited (KTDA) is the responsible for leaf collection, processing and marketing on behalf of the small scale tea farmers. It was the interest of this study to find out how the market and marketing influence tea production by the small scale tea farmer in Kenya.

Local black tea consumption

In Kenya the cumulative local tea consumption for the year 2011 stood at 20,000 tonnes out of the total production of 377, 900 tonnes (Tea Board of Kenya statistics) this greatly contrasts with India, where out of about 960,000 tonnes produced annually, and local tea consumption accounts for about 805,700 tonnes. It will be seen that Kenya relies heavily on world tea market and the global views on local tea production should be noted. The available literature showed that Kenya's tea production was on upward trend (Tea Board of Kenya publication). This study intended to establish those factors that influence tea production in Kenya.

Global Net tea imports

Kenya being a major tea exporter and therefore prone to world price fluctuations, should not close its ears to global concerns. World net imports of black tea, a proxy for consumption in importing countries, were projected to consume only 49 percent in 2014, adding to demand and supply imbalance. (tea board of Kenya January –march 2012)

The largest increase in domestic consumption would occur in the Far East, as tea producing countries in Africa are expected to continue to export most of their output. Domestic consumption of black tea in Kenya is expected to grow at 1.2 per cent to reach 6.2 % by 2014. Domestic consumption of black tea in India is expected to increase by 1.5 percent annually to reach 80 percent of tea production in that country by 2014.

Global tea exports

World black tea was projected to reach 1.3 million tones on 2014, reflecting an average annual of 1.4 percent per year from 2003. About half of the increase would originate in Africa, where production is likely to continue to grow while domestic consumption remains small. The region's total black tea exports were projected to amount to 518 000 tones by 2014. Exports from Kenya would increase by 2.7 percent annually to reach 358 000 tones by 2014, giving Kenya a 27 percent share of the global black tea export market. Mwaura, F., & Muku, O.(2007).

In the year 2010, Kenya exported 441,000 tonnes of black tea, surpassing its projections. It will be recalled that while the global community is an easy with low tea prices, Kenya is equally not comfortable with its reduced tea prices in the middle of increasing costs of production. What then are some of the factors that influence tea production by small scale tea farmers in Kenya?

World tea supply and demand

Owour, P.O Kavoi MM; In the medium-term, the projections indicated an increasing imbalance between supply and demand of 98 000 tonnes. However, if the projected imbalance was to be realized then further weakening in prices would be expected. In terms of profitability, a major concern was the rising cost of production, which could only be minimally reduced by increasing mechanization as the scope was limited if quality was to be maintained. The preferred solution must lie in stimulating demand. With these remarks, one would how the tea market influences tea production in Kenya.

Cost of Farm Inputs as a factor that influence Performance.

According to Mark Mccracken, 2011, the term "farm" inputs as it applies to the area of agriculture e.g. tea farming can be defined as the resources that are used in farm production, such as chemicals, equipment feed, seed, and energy. Most farm inputs are purchased making tea production costs susceptible to nonfarm economic conditions. Over time prices of farm inputs have increased relative to tea prices, creating what farmers describe as a cost price squeeze. The relationship between prices paid for inputs compared to prices received for output is quantified in the party ratio.

Types of Inputs in Tea Farming

There are two types of tea seedlings commonly growing Kenya and other parties of the world. Purple tea according to Dustan Ngumo (director of Ragati tea factory in Nyeri) describes purple tea is a tea variety that matures faster and has a better market compared to green tea. Purple tea is ready for harvesting in two years unlike the green tea that takes three years before it is plucked. Green tea was first grown in china according to Lu Yu 1998, says that green tea is cheaper in processing. The oxidation process is halved by the quick application of heat after tea picking either with steam; hence he concludes that green tea is also the best flavored type of tea.

Fertilizer

Farmers perceive the fertilizer prices imposed by K.T.D.A to be high. There was a general feeling that K.T.D.A should subsidize the fertilizer prices. On the other hand it was expressed that the Sacco's should get involved in the buying and distribution of fertilizer for the benefit of the farmers.

There are two types of fertilizers supplied to farmers by K.T.D.A. One is for the planting of seedlings to be healthy at the initial stage of farming. This fertilizer ensures healthy pushed for high performance of yields,(Sullivan, p(2003); there is also top dressing fertilizer which represents the soil conditions and nutrients for higher performer of tea picking.

Validity of Equipments used in Tea Farming

Usually instruments used in tea farming are: sprayer pump to eliminate insects on tea susceptible to tea leaves. The pruning machete, but recently there has been introduced a tea picking machine to farms which are about larger covering around maximum area of 50 hectares but facing opposition from the labor intensive strategies as they are laying off farmer employees who depend on the income of picking tea for a living. Areas for this larger included farming areas are found in the rift valley were colonialists surrendered their land to individuals shortly after independence (smart farmer magazine 2016)

Weather Conditions Influence the Performance of Tea Growing.

According to (Thomas Gichana and Dickson nyeru,2010).They describe the viability area where tea is grown in Kenya as having the characteristics such as high attitude of between 1500m-2200m(highland area).Requires well drained acidic deep fertile volcanic soils. Requires cool temperature (21'0c) which are free from forests. Does well in a cool and wet climate

The optimum soil water, soil and air temperatures determine tea plant growth and consequently its yields. Some implications of climate change to tea include mean air cycles of plants through increased temperature stress. Consequently harvest times and quality moisture levels hence increased water stress on plants resulting in lowering of yields.

Rainfall changes and or shifts in rainfall seasons increases or lowers tea production. Since most of the Kenyan tea relies heavily on rain-fed farming, climate change coupled with the ever increasing rainfall variability will affect the production. Climate change adaptation projects are being undertaken in the country on many social- economic sectors including agriculture

Highland Conditions

The areas are favorable as they lie at high altitude of 1000m-1700m above sea level. The highlands and hill slopes have offered good natural drainage ideal for tea farming. Small scale tea growing performance in Nyaribari Chache sub- County is influenced due to its low altitudes and natural drainage (K.T.D.A, 2006).

Rainfall: The average annual rainfall in Kisii County ranges from 1200-2000 mm. However, more than the total amount, the distribution of rainfall matters a lot for sustained high yield of tea throughout the season. In the Kisii County, the rainfall distribution is not even. The excess rainfall in the months of March-June causes drainage problems. The average monthly rainfall during November to February is less than the evapo-transpiration loss and the resulting soil moisture deficit affects tea bushes.

Temperature and RH: Temperature affects tea yield by influencing rate of photosynthesis and controlling growth and dormancy.

Soils

The soils in Kisii County are not deep well drained and slightly acidic to sustain tea farming. Tea does well in areas which are shield from strong sunlight and violent winds in the tea growing areas of Kenya. There are few isolated trees on the plantation while few tea plantations are on the margins of forests that should offer protection not only to tea but also to farmers (Feeder Lawrence, I J & slade, R.H19987)

Tea grows well on high land well drained soils having a good depth, acidic pH in the range 4.5 to 5.5 and more than 2% organic matter. Shallow and compacted sub-soils limit root growth. Tea plants growing on such soils are liable to suffer from draught during dry period and water logging during the rainy months. There should not be any hard pan or concretions in the subsoil within 2m depths. The depth of ground water table should not be less than 90 cm for good growth of tea. Catchment planning is required for improved soil and water management practices in a tea estate for which land survey designed to identify all major and minor topographical features needs to be carried out.

The optimum soil water, soil and air temperatures determine tea plant growth and consequently its yields. Some implications of climate change to tea include mean air temperature whose increase is likely to affect tea production by causing change in growth cycles of plants through increased humidity levels and evapo-transpiration; lower soil moisture levels hence increased water stress on plants resulting in lowering of yields.

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Level of Education of Small Scale Tea Farmers influence tea Farming Performance

It's the care and experience of the farmer that determines the productivity and quality of tea sources of this knowledge to farmers at community level.

Paulo Freire explains through his philosophy of human consciousness into the domain of rural extension in Latin America. He explains how extension is contrary to communication thus incomparable with education. Hence one objective of this study is to enquire into how education level of small scale tea farmers influences tea farming performance in Kisii County. According to Freire, the role of extension agent is construed as extending ones' knowledge and technical capacities. It is important to establish whether there exists a training program for the farmers. The scholars also observed that in the small scale tea farming production is heavily dependent on appropriate production technologies reaching the farmers, especially the farm operators.

Community Empowerment

According to professor David Macharis in his book social change and community development of MA project planning and management a program in the University of Nairobi Community

empowerment improved adult literacy especially who turn up in large numbers is small scale tea growers, improved communication (roads & bridges) thus affording easier communication, including delivery of produce to the market e.t.c. unpersuaded tea planting allow the country where climatic conditions are favorable.

A study by Owour, Kavoi and Siele found that the extension staff recognized the need to have extension courses for the farmers. Their study on how extension staff perceived policies influencing tea production and extension activities concluded that staff's impact could be enhanced through administration of regular courses to the extension staff. The staffs were supposed to transmit the education received down to the farmers. According to Freire, the role of the extension agent is construed as extending one's knowledge and technical capacities. This study will explore whether farmers in Kisii County receive tea related trainings. It is also important to establish whether there exists a training program for the farmers. The scholars also observed that in small scale tea farming, production is heavily dependent on appropriate production technologies reaching farmers, especially the farm operators.

On the extension policy, the researchers pointed out that, a policy that is user friendly is a pre-requisite for ease of adoption. Instances where policies tend to be automatic normally meet weak acceptance or face rejection. This study seeks to establish how the technologies reach the farmers and how they influence tea production.

The study also found out that, the description by majority of the tea extension staff suggested that there was an urgent need to restructure the extension system so that it is both staff and farmer friendly. This study intended to establish whether the current extension system influence tea production

Theoretical Framework

According to Maslow's theory of Hierarchy of needs small scale tea growers will normally struggle to achieving a need that they feel they have and that the more acutely they feel they need the more willing they are to work towards meeting that need, small scale tea farmers in Kisii County face challenges due to their level of education they lack to understand tea quality, not understanding the market trends and not being firm on the prices the farmers are required to be supported by the government by high rates of enrollment in primary schools and other levels of formal education for their children in order to have future adult farmers with a lot of literacy.

Legal and policy framework

In 2005 Kenya Institute of Public Policy Research and Analysis (KIPPRA) in its policy no.1 which serves as a centralized source where the private sectors and the government may obtain information and advice on public policy issues has identified laws that govern the industry. In tea Act (chapter 343) and the Kenya tea development authority (KTDA) spelt out the specific laws governing the tea industry, order established under the agriculture Act (CAP318) to control and regulate small scale tea farming. The main regulatory body of industry is the Tea board of Kenya

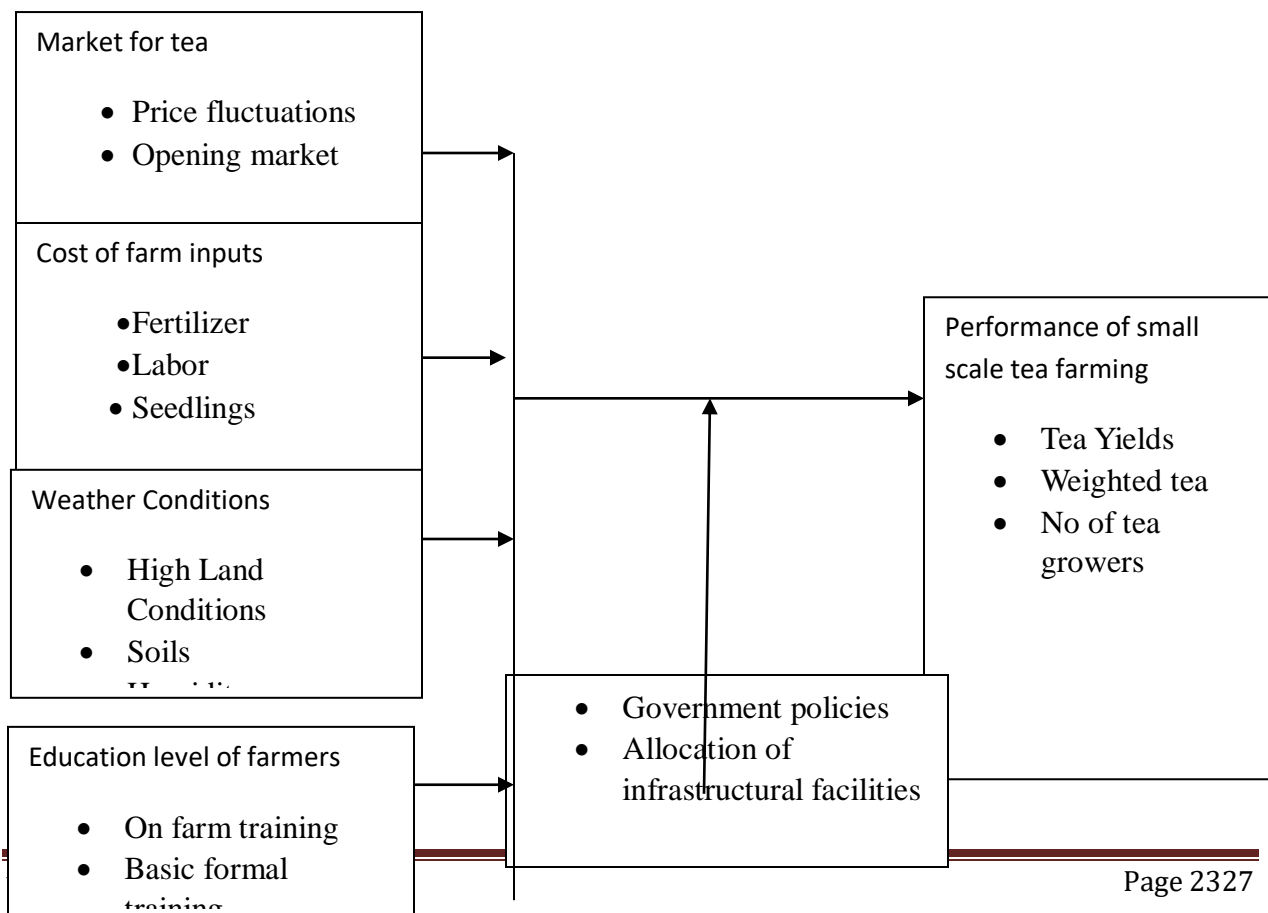
(TBK) and its restrictive powers are still intact over entry and exit into the industry through licensing of tea farmers and factories. This helps to create monopolies in providing services to farmers. In restructuring KTDA, efforts were made to privatize its functions, give more power to farmers in running factories and provide farmers with production and processing services. However KTDA still dominates in delivering such services as supplying inputs, collecting and processing green leaf marketing tea and making payments to farmers. KTDA benefits farmers by ensuring easy access to farmers since it has established itself in the world market. However, KTDA system encounters problems like poor coordination and supervision of tea collection and processing, uneven distribution of information regarding tea marketing, earnings and transfer of ownership and significant risks in transfer of ownership, whereby farmers bear the risks and costs. The major tea market is Mombasa auction. Major buyers are Pakistan, the United Kingdom, Egypt and the Middle East, but the potential markets elsewhere have not been exploited adequately. Selling tea in bulk without adding value through branding and packaging limits earnings from exports (KIPPRA, 2000). Estimates indicate earnings could be increased up to five times if this were done.

Conceptual Framework

The researcher adopted this type of framework in order to come up with a comprehensive overall idea how the following influence performance on small scale tea growing in Kisii County

Independent Variable

Dependent Variable



Moderating variables

Fig. 1 Conceptual Framework

In the conceptual framework depicted in figure 1 the determinants influencing performance of small scale tea growing are outlined as; market demand in Mombasa tea auction, cost of farm inputs, level of education of tea growers and weather conditions. The research intends to establish how these factors operate as far as tea growing in Nyaribari Chache Sub- County in Kisii County is concerned.

RESEARCH METHODOLOGY

Research Design

The study adopted a descriptive research design. This design determined and reported the way things are and attempted to describe such things as possible behavior, attitudes values and characteristics (Mugenda (2013). This technique was carefully selected by the researcher because it is economical hence convenient for a data collection process

Target Population

The study was conducted in Kisii County, it focused on registered small scale tea growers. The population therefore comprised all small scale tea growers in Kisii County. There were 2000 registered tea growers and 10 staff members in Kisii County factories.

Sampling Procedure and Sample Size

According to Mugenda (1999) a sample of 10-20% was useful where the population is high in order to give an equal chance of interviewing respondents random sampling was used because it was economical to the researcher 10% of the entire population was utilized To produce a sample size of 200 respondents from the entire target population of 2000 small scale tea farmers.

Data Collection Methods

The researcher's data collection instrument and procedures was collected using questionnaires by means of hand delivery and face to face interview methods. A likert-stlye rating scale was used by the researcher in order to collect opinion data as it was the frequency use variation of summated rating scale. The respondents were required to agree or disagree on the response which was given a numerical score based on a degree of at attitudinal favorableness. This score are totaled to measure the respondents to the variables

Validity and Reliability of Research Instruments

According to sunders (2000) a research is valid only if it actually studies what is set out to study and if studies are verifiable, Orodho (2009) further focuses on the degree on which results from analysis of data actually represents the phenomenon under investigations. To ascertain content

validity the instruments was thoroughly discussed with experts in the subject matter but especially with my supervisor.

Reliability of Research Instruments

Reliability is the consistency with which research instruments measure what it purports to measure. The test-retest technique was used to test reliability of the researcher

Validity of Research Instruments

Mugenda and Mugenda (1999) define validity as the accuracy and meaningfulness of inferences, which bases on research results. The study applied content validity as a measure of degree to which data obtained from the research meaningfully and accurately reflect or represent a theoretical concept the researcher used the expert judgment method to determine content validity. The researcher gave a copy of the questionnaire to the supervisor, to check if it represents all the objectives of the study.

Pilot Study

A pilot study was conducted to test the reliability and validity of the research. According to Orodho (2004), a pilot test helps to test the reliability and validity of data collection instruments. If a measurement is valid, it is also reliable. (Joppe 2000). The pilot test comprised 5 small scale tea farming projects In Kisii County. However to ensure that the study were not included in the final study. According to Mugenda and Mugenda (2003) a pilot study can comprise of between 4-10 members of the target population.

Data Collection Procedure

The researcher personally administered the research tools after prior cost that will assist in refining timings of distribution questionnaires, it also provided a rough picture of the respondent' expectations. The researcher agreed with the respondent when the research instruments was administered and specified dates of collecting the questionnaires.

Data Analysis

According to Kothari (2009) after collection of data it has to be processed and analyzed in accordance with the outline laid down for the purpose at that time of developing Research plan. Data collected was coded with regard to the type and source. The study applied qualitative and quantitative data analysis techniques to analyze data.

This ensures that the data was analyzed in a systematic way in order to come to some useful conclusions and recommendations. Data obtained from the questionnaires, document analysis was coded, organized and presented using frequency tables, and percentages.

Operationalization of variables

Objective	Variable	Indicator(s)	Measurement	Scale	Data collection method	Data analysis
To determine how market for tea influences tea production	Independent variable Market for tea	Delivered weights	Kilograms of tea sold	ordinal	Interview guide	Descriptive statistics
To establish how farm inputs influence tea production	Independent variable Farm inputs used in tea	Fertilizer amount, Plucking labor	Bags of fertilizer received. Man days available	Ordinal	Interview guide	Descriptive statistics
To assess how education levels influence tea production	Independent variable Farmer education level	Formal education. Training by extension officers On farm training by factory	Years of schooling. Number of annual training courses attended. Number of trainings by factory	ordinal	Interview guide	Descriptive statistics
How weather conditions influence tea	Independent variable Weather	Highland conditions Soils	Area rainfall	ordinal	Interview guide	Descriptive statistics

production	condition					
Factors influencing small scale tea farming	Dependent variable Small scale tea farming	Produced weighted tea	Tones of tea	Ordinal	Literature review	Descriptive statistics

Table gives the operational definition of variable used in the study. The table has provided the indicators and measurement for independent variables namely, tea market, farmers level of education, farm inputs used in tea production, and weather conditions. The indicator and measurement for independent variable, namely, small scale tea farmer are also given. Both measurement scales and data analysis method to be used are explained.

Ethical Considerations

In carrying out the study the researcher made sure that all the ethical issues were considered. An informed consent procedure was followed. Every questionnaire was introduced with a statement assuring respondents that data is meant for academic purposes and would be regarded with high confidentiality

Summary

Various research methodologies were reviewed and a descriptive research design method was selected as appropriate for this study. The target a population was 2000 small scale tea farmers. A representative sample size of 150 respondents was selected using Kothari formula. Stratified random sampling, as explained by Mugenda, 2000, was used to sample the desired respondents. As this was basically a case study, research questions were articulated to formulate a structured questionnaire, which was designed as the principal data collection instrument. The validity and reliability of the questionnaire was ensured to minimize errors during data collection. The desired enquiries, based on the variables of study, were to understand and describe the factors influencing small scale tea farming in Kisii County. Data collected was sorted, cleaned, edited, and coded, keyed in the computer and processed using descriptive statistics for output results. SPSS software was used to analyze and present the results. Conclusions and recommendations were drawn and made respectively.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

Background Information

This section sought to establish issues pertinent to the personal information of the respondents. This information was sought for the purpose of establishing respondent's gender, age and education level position held and Tea growing experience of the respondents.

Gender of the Respondents

The study sought to establish gender of the respondents so as to establish ratio of tea farming ownership amongst small scale tea farmers. The researcher was thus motivated to determine whether there is gender balance in small scale tea growing projects.

Table 4.1 Gender of the respondents

Gender	Frequency	Percentage
Female	50	33.3%
Male	100	66.7%
Total	150	100%

From the table above, the findings show 66.7% of the respondents are male small scale tea growers and 33.3% are female tea growers. This implies that there is relatively gender equality on small scale tea growers since difference between male and their female counterpart is minimal.

Age Brackets of the Respondents

The researcher found it paramount to establish the age brackets of the respondents.

This is a demographic feature that affects behaviors or perception of an individual on issues in farming. This is because the younger and mature persons tend to understand a given concept and the more active a person they are opposed to old people. The results of this were tabulated as indicated in the table below.

Table 4.2 Age of the respondents

Age	Frequency	Percentage
21-30 yrs.	18	12
31-40 yrs.	90	60
41-50yrs	28	18.7
Over 50 yrs.	14	9.3
Total	150	100

The findings indicate that 12% of the respondents are aged between 21-30 years, 60% are aged between 31-40 years, 18.7% of Respondents are in the age brackets of between 41-50 years 9.3% of the respondents are in the age brackets of over 50 years. This implies that small scale tea farmer's respondent age bracket of Respondents is good as a majority of the respondents are in their productive and prime years of between 21 and 50 years.

Educational Level of the Respondents

The research sought to establish the respondent's highest educational level. The level of education is a key factor when it comes to farmers' understanding and perception of farming.

The more a farmer is educated the more he or she is likely to understand marketing trends, tea quality to improve tea growing performance. The results of this item were tabulated as indicated in table 4.3

Formal education

Table 4.3 distribution of tea farmers levels of education

Education level	Frequency	Percentage
Primary	60	40
Secondary	40	26.7
Tertiary	30	20
None	20	13.3
Total	150	100

The finding in the above table indicates that 87.7% of the farmers had formal education. Almost all tea farmers in Kisii County are literate. An insignificant 13.3% of farmers did not have some form of formal education. This means that farmers were adequately educated to receive tea production information.

Informal Education

Table 4.4 Distribution of tea farmers training by agricultural extension on tea production

Training	Frequency	Percent
Yes	100	66.7

No	50	33.3
Total	150	100

Table 4.4 shows that 66.7% were trained by agricultural extension officers in past one year. This indicates that high group of farmers had received extension training from Agricultural officers to enable them carry on with tea production activities. This may have helped them to raise their productivity.

Table 4.5: Distribution on number of times tea farmers were trained on tea production last years

Training	Frequency	Percent
Once	60	40
Twice	40	26.7
Thrice	20	13.3
More than thrice	15	10
None	10	6.7
Non response	5	3.3
Total	150	100

Table 4.5 shows that 26.7% of tea farmers had attended at least two trainings while 40% had attended at least one training. This high number of growers attending training sessions could have translated to increased tea productivity by farmers. A small number of farmers who comprised 3.3% had not been trained on tea production. However their tea productivity was insignificant and could not affect the increasing tea production in Kisii County,

Rating of the Number of Training Sessions

Table 4.6: Distribution on the rating of number of annual trainings given to tea farmers

Rating	Frequency	Percent
Not enough	40	26.7

Enough	60	40
More than enough	30	20
Excessively many	15	10
Non response	5	3.3
Total	150	100

Table 4.6 indicates that 40% of the farmers felt that the number of annual trainings were enough 26.7% of the farmers wanted the number of trainings to be increased. They latter group of farmers were of the opinion that the number of sessions was not enough. This high yearning for more training could be an indication that tea farmers valued the trainings in relation to increased tea production

Respondent's Tea Growing Experience

The researcher sought to find how long tea growers have grown their tea in small scale levels. Experience contributes to an individual's competence on execution of farming duties and roles in enhancement of small scale tea performance.

Table 4.7 Respondent's Tea Growing Experience

Experience	Frequency	Percentage
1-3 yrs	37	24.7
4-6 yrs	45	30
7-10yrs	48	32
Over 10 yrs.	20	13.3
Total	150	100

The results from the findings indicate that 24.7% of the respondents have been in small scale tea growers for a period of 1-3 yrs., 30% of the respondents have also been growing tea for a period between 4-6 years, 32% of the respondents have also been in small scale tea growing for a period of 7-10 years while the remaining 13.3% of the respondents have been small scale tea growers for of small scale tea growers have grown tea relatively for a long period.

Data Analysis

This section deals with specific information of the study related to the research objectives.

Determinants Influencing Performance in Small Scale Tea Growing

The researcher sought to determine from the respondents on the major factors affecting performance of small scale tea growing in Kisii County.

The results of this item were tabulated as indicated in the table below

Table 4.8: Determinants influencing small scale tea growing performance

Factor	Frequency	Percentage
Availability of tea market	32	21.3%
Cost of farm inputs	40	26.7%
Weather conditions	50	33.3%
Farmer's level of education	28	18.7%
Total	150	100

Majority of the respondents as depicted by 33.3% indication weather conditions as a factor that influence performance of small scale tea growing, 21.3% of the respondents felt availability of tea market influence tea growing performance, 18.7% of the respondents either cited that it is the least factor and 26.7% of the respondents cited that cost of farm inputs also influence small scale tea growing performance. This indicates that in provision of good performance there are human and non- human factor that need to be identified and be put in place.

Farm Inputs Used

This section presents the analysis and interpretation of responses on fertilizer and labor being inputs used in tea production.

Fertilizer Application

Table 4.9 Distribution of Tea Farmers' Application of Fertilizers

Application	Frequency	Percent
Yes	100	67.7
No	50	33.3
Total	150	100

Table 4.7 indicates that 67.7% of the farmers applied fertilizer to their tea. A high number of farmers use fertilizer in their tea farming. This high usage of fertilizer by the farmers may have contributed to the increased tea production. Tea plants normally likes soil nutrient replenishment of sustained and increased yields as expounded by tea research foundation of Kenya.

Number of Bags of Fertilizer Applied

Table 4.10 Distribution of the number of fertilizer bags applied by tea farmers per year

Fertilizer	Percent	Frequency
1-4 bags	70	46.7
5-10 bags	50	33.3
11-15 bags	30	20
Total	150	100

Table 4.10 shows that 46.7% of farmers applied a certain amount of fertilizer to tea. Majority of farmers use fertilizer to produce tea. The varying number of fertilizer bags used to produce tea may be due to the differing farm sizes.

Adequacy of Fertilizers

Table 4.11 Distribution of Tea Farmer's response to amount of Fertilizer Adequacy

Adequacy	Frequency	Percent
Yes	80	53.3
No	40	26.7
No response	30	20
Total	150	100

Table 4.11 portrays that majority of farmer's felts that the amount of fertilizer available to them is adequate. Few farmers expressed that the fertilizer available to them was not enough. The 26.7% group that felt the fertilizer was not adequate could require further investigation to establish the reasons why, as all the farmers were found to use fertilizer.

Availability of Fertilizers

Table 4.12 Distribution of tea farmer's response on timely availing of fertilizer by factories

Timely	Frequency	Percent
Yes	70	46.7
No	50	33.3
No response	30	20
Total	150	100

Table 4.12 shows that majority of farmers receive fertilizer on time, while relatively few farmers receive their fertilizer late. 46.7% of farmers were able to synchronize their operations with the time of fertilizer arrival and 33.3% were unable. All the same, the overall tea production was on an upward trend in the county.

Why continue to Growing Tea

Table 4.13: Distribution of farmer's response on continued cultivation of tea

Reason	Frequency	Percent
Lack of better alternative income Generating crop	70	46.7
Fear to change to unknown	40	26.7
Everybody is growing tea	30	20
No response	10	6.6
Total	150	100

Table 4.13 indicates that 73.4% of the farmers produces tea simply because they lacks a better alternative or they fear to shift to unknown 20% are comfortable with producing tea as a source of income majority of the farmers can drift away from tea production, given an alternative

Key Indicators of Small Scale Tea Growing

The researcher also sought from the respondent's information on key indicators of organizational performance.

The findings were tabulated as indicated in the table.

Table 4.14 Key Indicator of Small Scale Tea Farming Performance

Indicators	Frequency	Percentage
Increased yields	80	53.3%
Accessibility of Farm inputs	30	20%
SCTG expansion	40	26.7%
Total	150	100

The table indicates that the respondents as depicted by 53.3% cited that the indicator of SCTG is increased yields, 20% cited Accessibility of farm inputs, 26.7% of the respondents cited SCTG expansion both in structures and number of tea growers.

Rating SCT Farmer's Tea Growing Skills and Training

The researcher felt it paramount to determine from the respondents how effective SCTF skills and training is. The findings were tabulated as follows.

Table 4.15 Rating SCT Farmers Skills and Training

Response	Frequency	Percentage
Very effective	60	40
Effective	90	60
Fairly effective	0	0
Ineffective	0	0
Total	150	100

The results indicate that 40% of the respondents rated SCTG skills and training as very effective and majority of the respondents as depicted by 60% indicated effective.

None of the respondents cited fairly effective, ineffective options.

Challenges facing SCTF

There are challenges farmers face or encounter while facilitating small scale tea growing. The researcher sought to establish from respondents the major challenges facing the SCTG growth and findings were tabulated as indicated in the table below.

Table 4.16 Challenges facing SCTF

Response	Frequency	Percentage
Inadequate farm inputs	32	21.3%
Poor weather conditions	72	48%
Poor pricing strategies	46	30.7%
Total	150	100

The results indicated that 21.3% of the respondents cited inadequate farm inputs is a challenge that SCTF, 48% of poor weather conditions takes the highest percentage in challenging small scale tea farming, whereby, the remaining 30.7% felt poor pricing strategies to provide all SCTF satisfactory.

Summary of data analysis, presentation and interpretation

All the questionnaires were returned and the data therein was processed and analyzed using statistical package for social scientists. The analyzed data was then tabulated using frequencies and percentage. It was finally interpreted.

Testing the First Hypothesis as per the Objective and Discussions

H₁: Availability of small scale tea market has an influence in small scale tea farming

Table 4.17: Chi- Square Testing

f	f_e	f_d	(f_d)²	(f_d)²/f_e
40	30	10	100	3.3
60	30	30	900	30
30	30	0	0	0
15	30	-15	225	7.5
5	30	-25	625	20.8

$$\sum(f_d)^2/f_e = 61.6$$

$X^2 c = 61.6 > x^2_{0.05} = 9.488$ at 4 degrees of freedom and 5 % level of confidence.

Since the calculated Chi-square value of 61.6 is greater than the critical Chi-square value at 5% level of confidence, we accept the alternative hypothesis. Thus availability of small scale tea market has an influence in small scale tea farming in Kisii County.

4.7 Testing of the second Hypothesis as Per the Objective and discussions

H₁: Cost of farm inputs have an influence in small scale tea farming in Kisii County

Table 4.18: Chi- Square Testing Second Hypothesis

f	f _e	f _d	(f _d) ²	(f _d) ² / f _e
40	30	10	100	3.3
60	30	30	900	30
10	30	-20	400	13.3
15	30	-15	225	7.5
25	30	-5	25	0.8
				$\sum(f_d)^2 / f_e = 54.6$

$X^2 c = 54.6 > x^2_{0.05} = 9.488$ at degrees of freedom and 5% level of confidence.

Since the calculated Chi-Square value of 54.6 is greater than the critical chi- square value at 5% level of confidence, we accept the alternative hypothesis. Thus, cost of farm inputs have an influence in the performance of small scale tea farming in Kisii County.

Testing of Third Hypothesis as Per the Objective and discussions

H₁: weather conditions has an influence in small scale Tea Farming in Kisii County

Table 4.19: showing Chi-Square testing for the Third Hypothesis

f	f _e	f _d	(f _d) ²	(f _d) / f _e
45	30	15	225	7.5
20	30	-10	100	3.3

15	30	-15	225	7.5
20	30	-10	100	3.3
50	30	20	400	13.3
				$\sum (f_d)^2 / f_{e=1} = 34.9$

$X^2 c = 34.9 > x^2_{0.05} = 9.488$ at 4 degree of freedom and 5% level of confidence.

Since the calculated Chi-Square value of 34.9 is greater than the critical Chi-Square value at 5% level of confidence, we accept the alternative hypothesis. Thus, weather conditions have an influence in small scale tea farming in Kisii County.

Testing the Fourth Hypothesis as Per the Objective and Discussion

H₁: The level of education of small scale tea farmers has an influence on small scale tea farming in Kisii County

Table 4.20 Testing of the Fourth Hypothesis as Per the Objective and Discussion

f	f _e	f _d	(f _d) ²	(f _d) / f _e
5	30	-25	225	7.5
40	30	10	100	3.3
25	30	-5	25	0.8
20	30	-10	100	3.33
60	30	30	900	30
				$\sum (f_d)^2 / f_e = 44.9$

$X^2 c = 44.9 > x^2_{0.05} = 9.488$ at 4 degrees of freedom and 5% level of confidence.

Since the calculated Chi-Square value of 44.9 is greater than the critical Chi-Square value at 5% level of confidence we accept the alternative hypothesis. Thus, level of education of small scale farmers has an influence in small scale tea farming in Kisii County

SUMMARY OF FINDINGS CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Summary of Findings

This section presents a summary of the findings as per the research objectives and the data presented in chapter four the summary is arranged according to research objectives and questions. From the study it came out that the high level of farmers' education, the availability and usage of fertilizer by a large group of farmers influenced positively the increased tea production. Through plucking labour was inadequate to few farmers, its availability and affordability was also found to influence accelerated tea production. The tea market was readily available and accessible and this motivated farmers to go on increasing their production. The small holder tea farmers were limited in income generating crops and some were in tea production in order to supplement their sources of income. A good number of farmers were observed to grow tea since they either did not have a better alternative or they feared to shift to unknown.

Demographic Information

a) Gender of the Respondents

The findings showed that 66.7% of the respondents male small scale tea farmers and 33% are female farmers this implies that is relatively gender equality in community development project sector since the difference between male farmers and their female counterpart is small.

b) Age Brackets of the Respondents

The filed findings indicated that 60 % of the respondents are aged between 21-30 years in their productive and prime age 18.7% of the respondents are aged 31-40 years, 12% of the respondents are in age 41-50 years.

Key Indicators of SCTF performance

The results established that the respondents are depicted by 53.3% cited that the indicator of SCTF is increased farm yields, 20% cited that accessibility of farm inputs, 26.7 of the respondents cited SCTF expansion both in structures and number of farmers.

Availability of Tea Market

The study found out that 100% of farmers delivered and solid their tea to factories. All farmers delivered their tea to the KTDA tea factories. The farmers were able to deliver between 100 kilograms and 10500 kilograms of tea, were able to deliver their produce to factory. Majority of tea farmers interviewed delivered tea leaf ranging between 100-1500 kilograms and also between ranges of 1600-3000kg to the factory within a period of one year.

Availability of Farm Inputs

The results of the study showed that 67.7% of tea farmers applied fertilizer into tea for production with only 33.3% not applying. Of the farmers interviewed, 73.2% were contended with the amount of fertilizer issued to them with 26.8% feeling that the amount they got was not enough 87.7% of farmers accepted that they were able to pay for their fertilizer while 12.1% said they were unable to pay for the same. On timely availing of the fertilizer, 62% of farmers felt that tea fertilizer were availed on time, while 38% felt that fertilizer was availed late.

The Level of Education

The findings indicated that a very high number of farmers in Kisii County have basic formal education, 87.7% of farmers had at least primary education with only 13.3% lacking formal education. 66.7% of farmers trained on tea production by Agricultural Extension Officers while 33.7% had not on the number of training sessions conducted on tea production.

Discussions of the Findings

This section presents the discussion of the findings

Availability of Tea Market

The study results indicate that all the farmers sold their tea leaf to the contracting factories.

All the tea farmers, both with 100 kilograms or 10500 kilograms of tea, were able to deliver their produce to the factory. Majority of tea farmers interviewed delivered tea leaf ranging between 100- 1500 kilograms and also between ranges of 1600-3000 kg to the factory within a period of one year. A third delivered between 1,600-3,000kg of tea leaf to the factories last year, less than a quarter of the farmers delivered between 4,600- 6,000kg and 3,100- 4,500kg of each category. Only paltry 1.5% respondents delivered between 7,600- 10,500kg of tea leaf to factory. By being able to deliver all their tea, farmers were motivated to increase on their tea production.

Most of the tea farmers were satisfied with tea collection, with a good number, 33.4% being dissatisfied with collection services. 12.7% of the tea farmers were indifferent with tea collection services while 5.6% are extremely satisfied and on 2.8% are extremely satisfied.

The implication of level of satisfaction of collection of tea leaf is critical in production, because it implies that the 28.2% and 5.6% respondent, who are either dissatisfied or extremely dissatisfied, would not be motivated to produce tea. The slow pace of leaf collection can be attributed to monopolistic nature of these markets, because farmers are required by contractual obligation to deliver tea leaf to the contracting factory (Tea Act, 200)

The food and Agricultural Organization Intergovernmental meeting on tea 2005, concurs with the following findings. Less than half of tea farmers are satisfied with tea market and more than

half are not satisfied. This again has to do with market structure, where (KIPPRA, 2000)if the government through TBK could register more players, these could change the market structure to benefit of tea farmers as it will enhance competition, 43.7% of the respondent were satisfied with tea market, while 28.2% are dissatisfied with the same. The findings show that 16.9% respondents were indifferent, while 7.0% of farmers were extremely dissatisfied and only 4.2% are extremely satisfied. In a free market economy such as in Kenya situation, prices are determined by interaction forces of supply and demand hence factories can do nothing to control this variable.

Tea farmers, because of homogeneity of their tea products can only strive to reduce their variable costs of production in order to realize maximum returns hence increasing their levels of satisfaction.

Cost of Farm Inputs

A very high number of the farmers applied fertilizer to tea, and use it to produce to get increased production. In their study, Owuor, pointed that fertilizer application was one technology which ensured farmers get higher production. This opinion then supports the findings of this study. Fertilizer is one of the most important independent variable in enhancing tea production. Further investigation may be required to establish why an insignificantly small number of farmers do not apply fertilizer.

The study results indicated that fertilizer and labour inputs are important resources in increased tea production. The results indicated that fertilizer input is easily accessible and available, and as such, not a problem in the tea production system. Most tea farmers applied fertilizer in range of 1-4 bags while a small number apply between 11-15 bags of fertilizer. Majority of tea farmers apply between 1-4 bags of fertilizer while 22.1% of tea farmers apply between 5-10 bags and only 1.5% applies between 11-15 bags. Majority of farmers felt that the amount of fertilizer available to them was adequate, few farmers expressed that fertilizer available to them was not enough, of the 72 respondent interviewed 73.2% of the farmers were of the opinion that the number of fertilizer bags issued to them was adequate, with only 26.8% of the respondents feeling that it was inadequate. The reasons for the 26.8% of the respondents, who felt the number is adequate, require to be investigated.

Majority of the farmers were able to pay for their fertilizer few farmers could not afford to pay for their fertilizer this meant that majority of the farmers were able to use fertilizer in their tea production. Further inquiry may be required to establish why the 12.1% respondents were unable to pay for their fertilizer.

Majority of the farmers were found to receive fertilizer on time, while relatively few farmers received their fertilizer late. Timely availability of fertilizer input meant that farmers were able to plan and hence increase tea production. Resources availability and accessibility is a very important component in enhancing tea production (Owour, 2001) late fertilizer arrival disrupted farmers production schedule and farm operations.

Majority of farmers engage labor on their farms while very few farmers do not engage labor. Plucking operation which aims to sell tea for income is a fundamental operation in tea production and it is dependent on labor availability. Most of farmers engaged labor ranging between 1-5 workers to pluck their tea while only 12.9% respondents engaged between 6-10 workers for the same operations per month. Very few farmers did not answer this question, probably due to misunderstanding whereby the provision of labour by house hold members was not considered by the respondents as hired labour, hence 13.9% of the respondents may have thought this question was not applicable to them.

While majority of tea farmers felt that the labour they got to pluck tea was adequate 18.2% of the farmers felt frames, meaning that the tea pluckers was adequate to carryout plucking operation in their farms, meaning that tea fields of the 18.2 % respondents can access adequate labour, then total tea output could increase tremendously hence contributing further to oversupply and depressed prices. Majority of the farmers were able to pay for their engagement labour while a good numbers had problems with plucking labour when it was required. This scenario has economic implication, in that for 60.6% tea farmers because labour resources is readily available they can bid downwards for the wages hence reduce their costs of production while 39.4% respondent, the forces of supply and demand in the labour market will make the wages demand by labour resource to go up because of its scarcity while its demand is high hence making the cost of production of the 39.4% tea farmers to increase.

The Level of Education

The high level of formal education within the farmers supplemented with high amounts of on farm trainings may have helped small scale tea farmers to comprehend and effectively accelerate tea technologies uptake. A farmer with formal education can read and understand technological aspects of tea production better. The findings also suggest that majority of tea farmers have access to informal education services provided by agricultural extension officers on tea production aspects. The farmers admitted to have attended at least one training session conducted by frontline agents on tea production. This on- farm tea production related education was observed to influence increased tea production among small scale tea farmers. Half of the farmers interviewed felt that the numbers of annual trainings were enough, while the rest of farmers wanted the number of trainings to be increased. The latter group of farmers indicated

That half of tea farmers in Kisii county feel that given more education they have a room for increasing further their tea production.

Recommendations

The study makes the following recommendations for the benefits of the small scale tea farmers in Kisii County.

Both the custodians of tea regulations, Kenya Government and Tea Board of Kenya, should put in place a practical infrastructure that ensures social-economic equity environment for the small scale tea farmers. Tea Research Foundation of Kenya and KTDA to formulate strategies and

technologies that is both economical and sustainable in small scale tea farming. The government and KTDA to put up clear and strong tea extension policy that can cater for a diversified tea farmer to become social-economically sound.

In order to educate and empower the farmer, the government and KTDA to lay down a sound structure that transforms the small scale tea farmer positively, the concept of “extension” should be reconsidered and replaced with dialogue and communication.

Suggestion for Further Research

From the findings, this project report suggests further research in the following area:

1. To investigate the socio-economic factors influencing tea production of small scale farmers in other Sub- Counties in Kenya.
2. To inquire into value addition of Kenyan tea along the marketing chain in an attempt to raise tea income and counter act the rising cost of production
3. To investigate the tea market and tea market diversification in an attempt to raise tea earnings.
4. To investigate the cultural aspect of tea production in relation to poverty levels and assist farmers to treat tea farming as a business.

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