

SOCIOCULTURAL FACTORS AFFECTING TEA PRODUCTIVITY AT IRIAINI TEA
FACTORY COMPANY LIMITED OTHAYA KENYA.

BY
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DECLARATION

This research project report is my original work and has not been presented for any award in any university

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DEDICATION

The study is dedicated to the many small scale Tea Farmers spread across the country whose Factories are managed by the Kenya Tea Development Agency Company Limited, who work tirelessly to ensure that we have a tasteful cup of tea on our tables.

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ABBREVIATIONS AND ACRONYMS

GDP	gross domestic product
TBK	Tea Board of Kenya
KTDA	Kenya Tea Development Agency Limited
TRFK	Tea Research Foundation of Kenya
Kg	Kilogram
Ha	Hectare
t	Tones
FAO	Food and Agriculture Organization
RLA	Registered Land Act
IFAD	International Fund for Agriculture Development
AIDS	Acquired Immune Deficiency Syndrome
CPDA	Christian Partners Development Agency
SPPS	Statistical Package for Social Scientists

ABSTRACT

The study was conducted at Iriaini Tea Factory Co. Ltd catchment area located in Nyeri County in Kenya. The over 6000 small holder Tea Farmers are served by the Factory and they also own the Tea Factory through share holding and by virtue of their delivery of green leaf tea to the factory for processing. Majority of the tea Farmers rely on tea earnings for their livelihood. Tea productivity for Iriaini Tea Factory farmers in the financial year 2012/2013 was 2883kgs made tea per hectare which is below the potential of above 5000kg made tea per hectare per year. The study followed descriptive survey method. A sample of 302 out of the designed sample of 305 was achieved. The majority of the respondents were male. Tea productivity of farms owned by the young and old farmers was lower than that owned by the others age bracket. Dependents of the Farmers did not affect tea productivity with an average of 3 dependents for every farmer. Majority of the respondents had 1000 tea bushes having a productivity of 2883Kg of green leaf tea per hectare. The more the number of tea bushes a farmer owned the less the tea productivity, this could have been as a result of labor constraints where the farmers rely mostly on hired labor which could be erratic in duty attendance. The average income from tea was found to be below the minimum wage as prescribed by the Kenya Government. The respondents who had other income sources got better tea productivity from their farms. The Management skills of the Respondents was viewed as fair, with the farmers who kept records on tea plucked in an year having a higher tea productivity. Majority of the respondents do not hold title deed for the tea farm with a small number who lease farms. This could be a potential threat for improving of the productivity and continuation of the tea business. The respondents contact with the Tea Extension Services Assistant was not adequate, and this been the major source of advice to the respondents, then could have negative effects on the tea productivity. The researcher felt that the number of Tea Extension Services Assistants was not adequate to cater for the training needs of the large number of the farmers in the catchment. The research findings aimed at providing policy makers with information on the socio cultural factors affecting tea productivity with an aim of removing the obstacles to improved productivity and hence improved income. The farmers will be informed on what hinders their performance and where possible the farmers may undergo training. The Factory Management will be provided with the findings of this study in a view to improving on the services that they offer the farmers.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Agriculture is considered as a critical sector in the world economy. It contributes 24% of global gross domestic product (GDP) and provides employment to 1.3 billion people or 22% of the world's population. (Hosseni, Mohammadi and Mirdamadi, 2011)

According to the Government of Kenya(2010) agriculture is the main stay of the Kenya economy contributing to 26% of the gross domestic product annually. The sector accounts to 65% of Kenya's total exports among which tea is a major contributor.

Tea drinking was first discovered by the Chinese inventor and ruler The Emperor Shen Nung in 2737 BC. A dead leaf from a wild tea bush fell into the boiling water and it turned a brownish color, but was unnoticed and presented to the Emperor by his servant. The Emperor drank it and found that it was very refreshing and tea drinking was born.

Tea was largely a Chinese drink until the 6th century when tea spread to Japan and then to other countries. Tea was introduced to Kenya in 1903 by G.W.L. Canine and in the 1930's commercial planting began. In Kenya there are both large plantations and called smallholdings (TBK, 2014). Iriaini Tea Factory Co. Ltd farmers are among the small holder farmers managed by the Kenya Tea Development Agency Ltd (KTDA) which manages sixty four other factories.

1.1.1 Iriaini Tea Factory Co. Ltd

Iriaini Tea Factory was commissioned in 1981 as a small holder tea factory to cater for the tea growers around Nyeri County. It is located at Iriaini Location, Othaya Sub County and is well served with clean water by the Thuti & Gikira Streams. The area has rich volcanic soils with coffee, tea and dairy farming as the predominant agricultural activities in the area. Other food crops grown include Maize, Beans and vegetables.

The factory unit was set up with the objective of encouraging the growing and processing of tea for bulk export through the Mombasa Auction to the international markets. The factory catchment area covers over 1200 Hectares, with over 6,000 registered farmers and a production capacity of 15million kilos of green leaf tea per year. Green leaf production for the financial year 2012/2013 was 15.5 million kilograms translating to 2906 kgs made tea per hectare for the year (Iriaini 2014).

1.1.2. Productivity

Tea productivity is a measure of the ratio of input that is land and the output that is the consumable tea. Thus translating to kilograms made tea per hectare. Improved technologies, including improved clones, have increased tea yields in Kenya from an average of 1,500 kg to 3,300 kg of made tea per hectare per year on the large estates, and from an average of 600 kg to 2,300 kg of made tea per hectare per year under the smallholder production system. Fertilizer application accounts for about 50% of the increases in yields. The yield gap between the two sub-sectors is ascribed to differences in management practices, particularly the adoption of improved technologies, including improved tea clones. The Tea Research Foundation of Kenya (TRFK) has developed improved clones that are capable of producing between 5,000 kg and 8,000 kg of made tea per hectare per year under improved production systems. These yield levels are the highest in the world. The large differences between research yields and the average farm yields are due to limited adoption of improved technologies and therefore this is a major challenge for both researchers and technology transfer agencies. A previous survey showed that despite the wide range of divergent clones to choose from, only a few clones were widely cultivated. In the smallholder sub-sector, one clone (clone TRFK 6/8) accounted for 60% of the smallholder tea production, while in the large estates, five widely grown clones accounted for between 80% and 100% of the large estate tea production. (TRFK 2013)

Unlike area and production, tea productivity did not show any significant increase over the last two decades. The global productivity during 1991 was 1026 kg/ha which climbed to 1100kg /ha in 2000. In the first decade of 21st Century,

Global tea productivity hovered between 1100-1160 kg/ha. Thus, the growth rate for the two decades remained the same. (A. Basu Majumdera B. Beraa and A. Rajanb, 2010)

Although Kenya is ranked third in annual tea production after China and India, she has the highest productivity (yield per hectare per year) compared to other major tea growing regions worldwide. This is attributable to deployment of appropriate research and development technologies in the production value chain as spearheaded by the Tea Research Foundation of Kenya (TRFK). Of these technologies, the use of improved vegetative propagated tea cultivars is the most important without which application of optimal agronomic inputs like fertilizer and harvesting practices would be futile. (TRFK, 2013)

1.2 Statement of the problem

Small scale tea farmers have over the years been consistently demanding for a better for pay for their tea produce. The demand has been occasioned by several economic, social and environmental factors some of which are beyond the control of the farmers. Tea production quantities are directly influenced by the input by the farmer.

A mature tea bush has a potential of producing above 5000kg made tea per hectare per year which may vary depending on the age, clone, geographical location of the farm and other factors (TRFK 2013). Green leaf production at Iriaini Tea Factory CO. Ltd for the financial year 2012/2013 was 15.5 million kilograms translating to 2906 kgs made tea per hectare (Iriaini 2014). The majority of the farmers have therefore not exploited the full production potential of their tea bushes. The research endeavored to establish the causes of the unexploited potential.

1.3 Purpose of the study

The purpose of the study was to establish the socio-cultural factors affecting tea productivity.

1.4 Research objectives

The study aims at investigating the socio cultural factors affecting tea productivity at Iriaini Tea factory co. Ltd.

Specific objectives

1. To establish the extent which management skills influences tea productivity at Iriaini Tea Factory Co. Ltd.
2. To determine how land ownership influences tea productivity Iriaini at Tea Factory Co. Ltd.
3. To assess the influence of demographic characteristics on tea productivity at Iriaini Tea Factory Co. Ltd Farmers.
4. To establish the extent to which the attitudes of Tea Farmers toward tea extension services influences tea productivity at Iriaini Tea Factory Co. Ltd Farmers.

1.5 Research questions

1. How does the management skill of Farmers influence tea productivity?
2. How does land owner ship influence tea productivity?
3. In what ways do demographic factors influence tea productivity?
4. To what extent does the attitude of Farmers towards tea extension services influence tea productivity?

1.6 Significance of the study

The research findings aim at providing policy makers with information on the socio cultural factors affecting tea productivity with an aim of removing the obstacles to improved productivity and hence improved income.

The farmers will be informed on what hinders their performance and where possible the farmers may undergo training. The Factory Management will be provided with the findings of this study in a view to improving on the services that they offer the farmers.

1.7 Limitations of the study

The Researcher limited the study to Iriaini Tea Factory Co. Ltd farmers. The coverage of the over 6000 Farmers could not be possible because of time and financial constraints, therefore a sample of the population was investigated. The researcher engaged research Assistants to collect data because it could have been very rigorous exercise to do it alone.

The Researcher trained the research Assistants and had a mock data collection to ensure that the subject was well understood. Regular follow up on the progress of data collection was done to ensure compliance. Data accuracy depended on respondent's honesty in answering the questions; however care was taken to ensure clear instructions were given in each section of the questionnaire.

1.8 Delimitations of the study

The study was limited to social cultural factors affecting tea productivity, there are other factors affecting tea productivity but the researcher chose to study social cultural factors. There were many of the KTDA managed tea factories which the Researcher could have conducted the study but Iriaini Tea Factory Co Ltd located in Othaya Sub county of Nyeri county in Kenya, was chosen as it was easily accessible to the Researcher.

1.9 Assumptions of the study

In the study the following assumptions were made:

1. The sample that was chosen was representative of the target population. To ensure the sample was well representative, sampling procedure was followed to the letter.
2. All respondents will be cooperative and provide truthful information. To enhance this anonymity and confidentiality was preserved and the participants could withdraw from the study at any time with no ramifications.
3. The questionnaire to be issued will be returned on time and duly completed

1.10 Definition of significant terms

Tea Productivity: The weight of the black tea processed from tea plucked from one hectare of tea bushes.

Made tea: this is the product of processing of green leaf tea plucked from the tea bush

Socio-cultural factors: The larger scale forces within cultures and societies that affect the thoughts, feelings and behavior of individuals.

Attitude: Refers to positive or negative predisposition to think, feel, perceive and behave in a certain way toward a given situation.

House hold: Family members living in one house

Education level: The level of education of the respondent

Farmer's age: the age of the farmer who is the household head or the decision maker on the farm.

Farmers income: all income that the farmer receives both non farming activities and on farm activities.

Household size: Members of the household who are directly dependent and living with the household head.

Socio-cultural factors: The larger scale forces within cultures and societies that affect the thought feelings and behaviors of individuals.

1.11 Organization of the study

Chapter one gives an introduction of the study, the purpose of the study, the objectives and research questions, which are followed by the significance of the study, the limitations and the scope of the study.

Chapter two is a review of literature about the variables in the study is carried out, looking at other studies done on the subject. The theoretical frame work is discussed and conceptual frame work thus developed.

Chapter three is about the research methodology giving the research design, sampling procedure and the target population in the study. A table operationalization of variables is given at the end.

Chapter four presents the data analysis and presents the findings from the research.

Chapter five gives the summary of findings, conclusions and recommendations on the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter begins with a review of productivity by stating what it means and the situation of the tea sector in Kenya. Four social cultural factors affecting tea productivity are discussed. The social cultural factors are management skills, land ownership, demographics and attitude. The conceptual frame work showing diagrammatic presentation of the issues discussed is given at the end of the chapter.

3.1 Tea productivity

The term 'productivity' means different things to different persons. As a phenomenon, it ranges from efficiency to effectiveness, to rates of turnover and absenteeism, to output measures, to measure of client or consumer satisfaction, to intangibles such as disruption in workflow and to further intangibles such as morale, loyalty and job satisfaction. To put it bluntly, the definition of productivity is complex and this is because it is both a technical and managerial concept. Productivity is a matter of concern to government bodies, trade unions and other social institutions not minding the disagreements over its conceptualization by different groups and individuals. Hence, discussing productivity at all levels is common because of the direct relationship between productivity and the standard of living of a people. It is perceived that the more different are the goals of the different individuals, institutions and bodies that have a stake in productivity as a problem, the more different their definitions of productivity will be (Krugman, 1988).

In the OECD (Organisation for economic co-operation and development) manual productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use. While there is no disagreement on this general notion, a look at the productivity literature and its various applications reveals very quickly that there is neither a unique purpose for, nor a single measure of, productivity. The objectives of productivity measurement include: Technology, efficiency, real cost saving procedure, bench marking process, standard of living. (Tangen, 1988)

Broadly speaking, productivity is the ratio of output to input in a specific production situation. There are many different productivity measures. The choice between them depends on the purpose of productivity measurement and, in many instances, on the availability of data. Broadly, productivity measures can be classified as single factor productivity measures or partial productivity measures (relating a measure of output to a single measure of input) and multifactor productivity measures (relating a measure of output to a bundle of inputs). When multifactor productivity measures takes into account all the inputs of production it is termed as Total factor productivity. Another distinction, of particular relevance at the industry or firm level is between productivity measures that relate some measure of gross output to one or several inputs and those which use a value-added concept to capture movements of output. Agricultural productivity is measured as the ratio of final output, in appropriate units, to some measure of inputs. However, measures of productivity can be divided into partial or total measures depending on the number of inputs under consideration. Total output as a ratio of some measure of labor quantity, usually man days in developing countries, is called labor productivity and provides some notion of output per worker; while output per area of land planted is land productivity (Wiebe et al. 2003; Zepeda 2001).

Partial measures of productivity can be misleading because they ignore the role of other inputs in any observed output changes (Zepeda 2001). As a result of this shortcoming, a total measure of productivity was developed. Total factor productivity is defined as the ratio of a measure of total output quantity to a measure of the quantity of total input (Wiebe et al. 2003; Zepeda 2001).

Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. While individual products are usually measured by weight, their varying densities make measuring overall agricultural output difficult. Therefore, output is usually measured as the market value of final output, which excludes intermediate products such as corn feed used in the meat industry. This output value may be compared to many different types of inputs such as labour and land (yield). These are called partial measures of productivity. Agricultural productivity may also be measured by what is termed total factor

productivity. This method of calculating agricultural productivity compares an index of agricultural inputs to an index of outputs. This measure of agricultural productivity was established to remedy the shortcomings of the partial measures of productivity; notably that it is often hard to identify the factors that cause them to change. Changes in total factor productivity are usually attributed to technological improvements. (FAO 2007)

Tea is an industrial crop among other crops like coffee sugar cane cotton sunflower, pyrethrum sunflower barley tobacco sisal coconut and bixa all of which contribute to 55 percent of agricultural exports in Kenya Crop production can be measured from crop yield. Fermont and Benson (2011) define crop yield as;

Crop yield = (amount of harvested product)/ (crop area)

Crop yield is normally expressed as kilograms (Kg) or metric tons (t) of product per hectare (ha). As a result the estimation of crop yield involves both estimation of the crop area and estimation of the quantity of product obtained from that area (fermont and Benson, 2011).

The tea industry will often refer to the output of the tea processing which is the made tea and the area the tea bushes are planted, this then translates the definition of productivity to;

Productivity = Kilograms made tea/area of tea planted in hectares

2.2 Management skills and productivity

The FAO has realized that illiteracy and lack of basic business management skills are part of the reason why many economic activities fail. To respond to this problem the FAO (1994) has produced a training package on 'Figures for Bookkeeping'. 'Figures for Bookkeeping' is a basic training document to teach basic figures, calculations and manipulations with money. Experience has shown that the course participants immediately start using the knowledge gained from the numeracy course to keep records of their businesses.

All farmers do not operate at the same efficiency level. In a survey of rice farmers in Maligaya, Central Luzon, Philippines. Otai (1997) found that there were significant differences in rice yields of on-farm trials, farmer cooperators, and non-cooperators during the 1996 wet season and the 1997 dry season. PhilRice has estimated that only 40 percent of the farmers are as efficient as the best farmers and obtain high yields.

Significant yield differences among rice farmers do exist in other countries as well. Certain factors are responsible for yield gaps among farmers: biological (soil, water, seed quality, pests); socioeconomic (social/economic status, family size, household income/expenses/investment); farmer knowledge (education level) and experience; farmers' management skills; farmers' decision making (attitude, objectives, capability, behavior); and institutional/policy support (rural development & infrastructure, land tenure, irrigation, price, tax, crop insurance, etc.). All these factors should be addressed to reduce the yield gaps among farmers. (V. Balasubramanian, M. Bell, and M. Sombilla, 1998)

2.3 Land tenure policies and productivity

The term land tenure is derived from the Latin word *tenere* which means "to hold." Tenure defines the social relations between people in respect of the object of the tenure, in this case land. Tenure also defines the methods by which individuals or groups acquire hold, transfer or transmit property rights in land (Ogolla, Mugabe 1996). According to the Kenya Land Act, 2012 there are the following forms of land tenure;

(a) Free hold

This tenure confers the greatest interest in land called absolute right of ownership or possession of land for an indefinite period of time, or in perpetuity. Freehold land is governed by the Registered Land Act (RLA) Cap 300 of the Laws of Kenya. The Act provides that the registration of a person as the proprietor of the land vests in that person the absolute ownership of that land together with all rights, privileges relating thereto. A freehold title generally has no restriction as to the use and occupation but in practice there are conditional freeholds, which restrict the use for say agricultural or ranching purposes only. (Kenya Law resource center 2011)

(b) Lease hold

Leasehold is an interest in land for a definite term of years and may be granted by a freeholder usually subject to the payment of a fee or rent and is subject also to certain conditions which must be observed, e.g. relating to developments and usage. Leases are also granted by the government for government land, the local authorities for trust land and by individuals or organizations owning freehold land. (Kenya Law resource center)

- (c) Such forms of partial interest as may be defined under this Act and other law, including but not limited to easement; and
- (d) Customary land rights, where consistent with the Constitution.

This refers to unwritten land ownership practices by certain communities under customary law. Kenya being a diverse country in terms of its ethnic composition has multiple customary tenure systems, which vary mainly due to different agricultural practices, climatic conditions and cultural practices. Individuals or groups by virtue of their membership in some social unit of production or political community have guaranteed rights of access to land and other natural resources among other rights (Ogendo 1979). Individuals or families thus claim property rights by virtue of their affiliation to the group.

Land tenure provides the legal and normative framework within which all agricultural as well as other economic activities are conducted. When tenure rights are certain, they provide incentives to use land in a sustainable manner or invest in resource conservation whether for the individual or group of individuals (Ogolla, Mugabe 1996).

2.4 Demographic characteristics and productivity

It is estimated that 3 out of 4 persons in the poorest fifth of the world population (i.e. the poorest 1.2 billion persons) live in rural areas (IFAD, 2001), where agriculture is the main source of livelihood, any serious analysis of the prospect of reducing rural and overall poverty requires a clear understanding of this farming population, their characteristics and the obstacles they face.

Among development specialist several trends have been mentioned as possible threats to agricultural and rural development in developing nations. Many of these threats are endogenous, and with the right policy environment, or with an “investment push” can be solved, like low levels of public and private investments in infrastructure and human capital. Other threats however, are exogenous and therefore more worrisome. It is generally argued that farms are fragmenting to a point in which their own economic viability is at risk. Other examples of these exogenous threats refer to disadvantageous demographic developments,

like ageing of population or higher female to male ratios due to war or new epidemics like AIDS, which can basically cut the supply of new labor and block the prospects of rural development. As countries develop, life expectancy increases, as health services and their coverage improve, and lifestyles change reducing the risk of death. At a later stage, as countries continue developing, the fertility rate drops, as family planning services become available and / or, due to cultural and economic reasons, females reduce the amount of children they have during their fertility life-span (in demographic terms 15 – 49 years). These are well established features of development in the dynamics of populations, and are generally described together in what demographers call the demographic transition. (Lee, 2003).

One manifestation of the demographic transition is a change in the age/sex population pyramid shape, from properly a pyramid shape to a cylinder shape as countries move through the four stages of demographic transition: as the fall in the fertility rate manifests in a lower relative size of the younger cohorts, and the reduction of mortality rates shows in a higher relative size of older cohorts. (Lee, 2003)

2.5 Attitude towards tea extension services and productivity

Attitude was defined as "the degree of positive or negative effect associated with psychological objects like symbol, phrase, slogan, person, institution, ideal or ideas towards which people can differ in varying degrees" (Thurstone, 1946).

According to Tala et.al (2012) Vegetable farmers in Jordan, have conflicting attitudes towards the extension activities provided by the public sector. Some farmers accept and adopt the recommendations of these activities; on the other hand, some people are not satisfied and consider these activities a waste of time for both the farmers and the government. This situation has serious impacts on the quality, duration and efficiency of the extension activities provided by government related agencies.

The agricultural extension system being one of the personal channels has been considered as a primary vehicle for diffusing technologies (Kidd *et al.*, 2000).

Agricultural extension has a strong reliance to transfer of agricultural knowledge generated through research with the aim of acquiring useful information and changing attitudes and practices by farmers (Hedjazi *et al.*, 2006).

It is considered as a process of bringing desirable change in the behavior of the farmers to adopt innovations relating to agriculture in such a way that they are clear and convinced of their utility (Khan, 2005). Kenya Tea Development Agency factory extension staffs are a major dissemination channel of information among the small holder tea farmers. In a bid to increase the yield, KTDA extension staffs formerly under the Ministry of Agriculture were redeployed to be under specific factories to make them more effective (Owuor *et al.*, 2001). However, CPDA (2008) pointed out that there is very little support and limited extension services particularly from KTDA. Since 1974/75 the number of extension staff has been declining while the number of farmers is continually increasing (Owuor *et al.*, 2008). Owuor (2005) similarly noted that an increase in extension activities was necessary for enhanced yields. Access to extension services is a key determinant in the adoption and use of improved technologies and farming practices (Ebrahim, 2006). Therefore, the frequency of extension contact has an important role in the access to and utilization of agricultural information.

Pannell (1999) outlines the state of farmer awareness that must be achieved for widespread adoption of any agricultural innovation. These are;- awareness of the innovation; perception that the innovation is feasible and worthwhile to trial and perception that the innovation promotes farmer's objectives. Pannell conjectures that the second phase is probably the most important phase, because trials provide skills and experience about the value of the innovation that will determine its final adoption. In addition, this experience will help the farmer assess the worthiness of the innovation in meeting the farmer's own objectives. Thus, the perceived benefits from utilizing cover crops that will most likely influence the adoption of this conservation practice are going to be significantly shaped through trial and experimentation by farmers. Determining the factors that affect farmers' perceptions during the trial process may help policymakers and conservation advocates.

Extension personnel need to become well acquainted with their clientele to engage them in the knowledge-transfer process and to understand their specific needs (Bernet et al. 2001; Dougherty and Green 2011; Gaul et al. 2009). The needs deemed of interest to local small-scale farmers must be identified and Extension personnel must convey their programming message in a way that would catch the small farmers' attention and engage them in the learning process (Kroma 2003). Furthermore, Extension agents must understand the role that clientele feel they have in establishing the messages being purported by extension staff. Extension's response to the voice of their perceived needs to increase efficacy of the participants (Gaul et al. 2009; Richardson et al. 1996).

2.6 Theoretical framework

The theory of Agrarian transformation and socio-cultural change is the theoretical basis of the study.

An agrarian system is the dynamic set of economic and technological factors that affect agricultural practices. It is premised on the idea that different systems have developed depending on the natural and social conditions specific to a particular region. Political factors also have a bearing on an agrarian system due to issues such as land ownership, labor organization, and forms of cultivation. (Kuhlen, 1982)

As food security has become more important, mostly due to the explosive population growth during the 20th century, the efficiency of agrarian systems has come under greater review. This theory entails transition from "traditional" to "modernity" When modernization of agriculture takes place, old practices are abandoned in favor of the new and more viable practices thus change in agriculture creates economic development. These changes bring with them changes in the social structure and organization development therefore, has to start in rural areas if it has to take place, particularly in agricultural sector (Munyakho, 1994).

According to Todaro (1982), “the core problems of widespread poverty, growing irregularity, rapid population growth and rising unemployment, all find their origins in stagnation and often retrogressions of economic life in rural areas. Changes in traditional agriculture have come about either directly or indirectly, as a result of European influence. Several processes have been the main agents of change, but major ones have been introductions of new forms of socio-economic organizations, mostly based on private ownership, and development of commercial agriculture.

The main aspects of agricultural change and development have been technological and economic. The pillars of technological change, the Green revolution, have been plant selection and the creation of new high yield varieties, fertilizer technology, pest control and storage preservation. Socio- economic changes include land reforms, adapting the structure production units, training of and provision of information to farmers, the organization of farmers, the organization of markets and the intervention of government institutions and services (Malasis, 1975).

According to Orodho,(2005) the theoretical focus on increasing agricultural output and improving income distribution in the rural sector may be the only effective way to get their economies moving. Productivity can be improved by use of high yielding varieties of seed, application of fertilizer, good farming practices and the development of intermediate or appropriate technologies to complement labor. A number of critical factors constrain the productivity of small scale farmers, These include hostile climate, poor soils, rapid population growth, limited market opportunities, and a lack of commitment to rural development by the government (Munyeko,1994: Orodho, 1984)

2.7 Conceptual framework

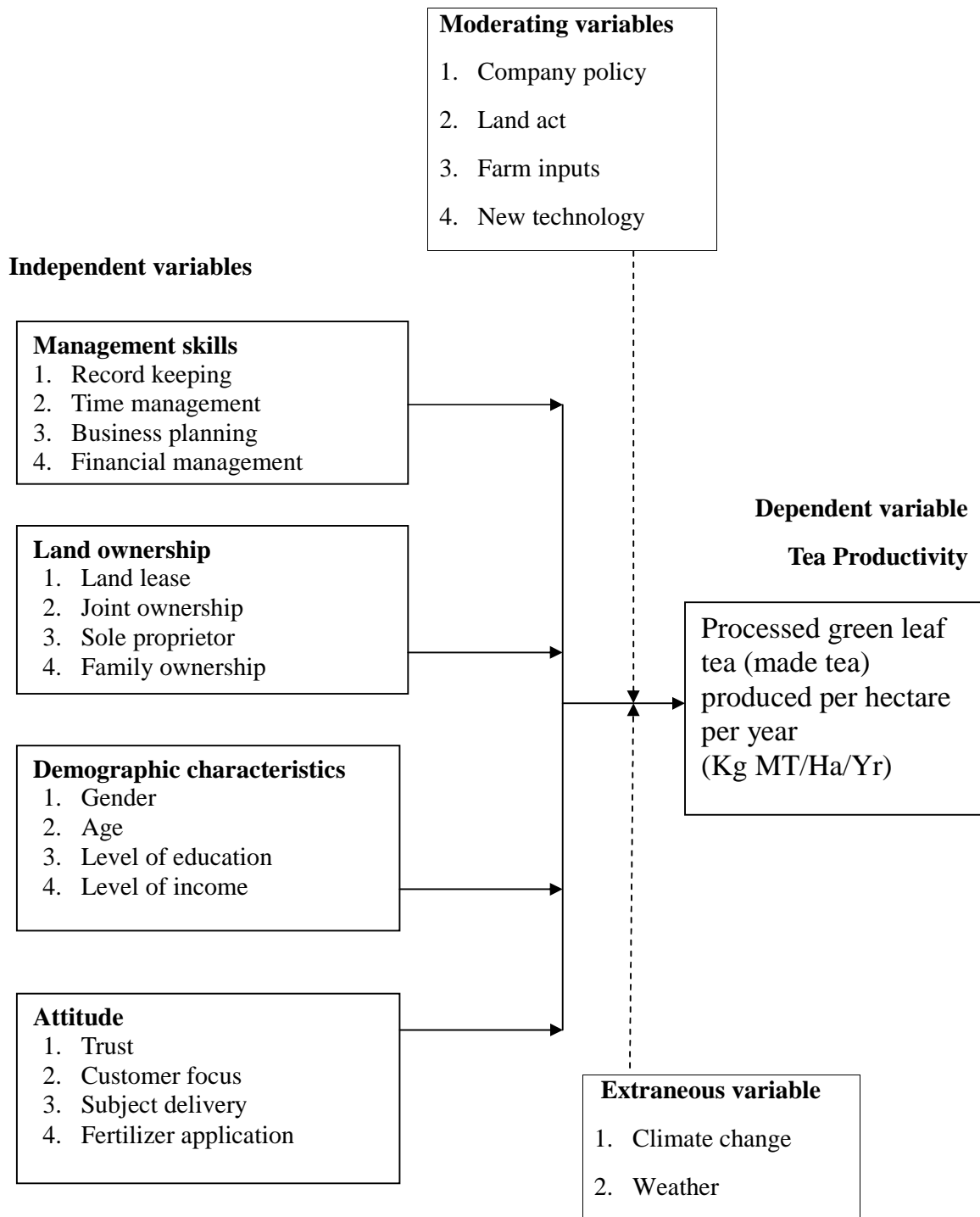


Figure 1.0: Conceptual framework

Kombo and Tromp (2006) defined conceptual frame work as a set of principles taken from the relevant fields of enquiry and used to structure a subsequent presentation.

It is identification and descriptions of elements, variables or factors to be measured or addressed by the research. The goal of conceptual framework is to categorize and describe concepts relevant to the study and map relationships among them. Figure 1 shows how moderating and extraneous variables influence independent variables effect on dependent variable.

Extraneous variables are those variables that affect the outcome of a research study either because the researcher is not aware of their existence or, if the researcher is aware, she or he does not control them (Mugenda and Mugenda, 1999). Extraneous variables are not related to the purpose of the study, but may affect the dependable variable (Kothari, 2004)

2.8 Knowledge gap

Literature review has shown that productivity is affected by management skills of the farmers, land tenure policies, demographics and attitude of farmers. At Iriaini tea factory farmer's productivity is below the potential.

The research therefore intends to explore the extent to which each of the factors is influencing tea productivity at Iriaini tea factory thus filling the knowledge gap. The research will also aid in bridging the knowledge gap by comparing what is known elsewhere and what will be established at Iriaini Tea Factory Co. Ltd.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter details the study methodology by giving the research design and the target population. Also explained is the sampling procedure, sample size, data collection instruments to be used and how the data would be analyzed and presented. Reliability and validity of instruments are included and there is a section on ethical considerations. The table operationalizing the variables is given at the end.

3.2 Research Design

The research followed a descriptive survey method, Kothari (2004) states that the major purpose of descriptive research is description of the state of affairs as it exists at present. Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual or of a group. The study followed the descriptive survey design. Stratified random sampling was used to achieve the desired representation from the various sub groups in the population.

3.3 Target Population

The target population is the tea farmers who supply their green leaf tea to Iriaini Tea Factory Co. Ltd in Kenya, Nyeri county, Othaya Sub county, Iriaini Location. The population's farm area is located between River Gikira to the south, Tunuka river to the North, the Abardares ranges to the west and Karima hill to the east. Total target population is 6344 farmers covering a total area of 1183 hectares of tea bushes (Iriaini, 2014).

3.4 Sampling procedure and sample size

Stratified random sampling was used to achieve the desired representation from the various sub groups in the population. Stratified sampling technique is applied in order to obtain a representative sample Orodho (2004).

Iriaini Tea Factory Co. Ltd is divided into six administrative boundaries referred to as electoral areas. The target population was thus divided into the six electoral areas, further the sample for each electoral area was divided by the number of buying centers in the electoral area. Using random numbers the stratified sample size was selected.

The population is divided into six electoral areas for administrative purposes, with each electoral area having an average of 1057 farmers.

The total sample size was calculated as follows;

$$n = z^2 pq / d^2 \text{ (Mugenda \& Mugenda, 1999)}$$

Where

n = desired sample size

z = the standard normal deviation at the required confidence level (95% is 1.96)

p = proportion in the target population estimated to have characteristics being measured (0.6 for 60%)

q = 1 - p (1.0 - 0.6 = 0.4)

d = the level of statistical significance (0.05)

$$n = (1.96)^2 (0.6) (0.4) / 0.05^2 = 307$$

Sample for each electoral area = n / no of electoral areas = 307 / 6 = 51 farmer per stratum.

The elements of the sample from each electoral area will be chosen using random sampling.

3.5 Data collection instruments

Data was collected from the Factory where primary data on total production of the over 6000 farmers is kept while a questionnaire was used to collect data from the household heads. The study used primary data which was qualitative and quantitative. The data was collected through administration of questionnaires. The questionnaires used captured the various variables of the study and had both open and closed ended questions covering issues on the socio cultural factors affecting tea productivity at Iriaini Tea Factory Co. Ltd Tea Farmers.

The study had one set of questionnaires which were administered by research Assistants. The questions were divided into four sections A, B, C, D and E. Section A on demographic data sought to know the gender, age, education level, the marital status and

number of dependents of the respondent. Section B sought to know the production details of the respondents and answers of tea bushes owned, production in kilograms for the year 2012/2013, use of labor for tea plucking and sources of income of the Respondents. Section C sought to establish the management skills of the respondents through enquiries on record keeping, time management skills, farm improvement programs and financial management skills of the Respondents. Section D was on land ownership where the researcher sought to know the status of land ownership of the tea farmers and finally section E which dwelt with the attitude of farmers toward tea extension and sought to know the number of visits the Tea Extension Services Assistants make to the respondents and effectiveness of their knowledge exchange to the Respondents.

3.6 Validity of instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results. In other words, validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under the study. Validity, therefore, has to do with how accurately the data obtained in the study represents the variables of the study has to do with how accurately the data obtained in the study represents the variables. (Mugenda & Mugenda, 2003).

The Researcher used validating techniques for the study. External validity which is the extent to which the results of the study can be generalized from a sample to a population. Sampling procedures was followed to avoid bias in the sample taken. Establishing external validity for an instrument, then, follows directly from sampling. An instrument that is externally valid helps obtain population generalizability, or the degree to which a sample represents the population. (Denzin & Lincoln, 2005)

Content validity refers to the appropriateness of the content of an instrument. In other words, do the measures (questions, observation logs, etc.) accurately assess what you want to know? (Denzin & Lincoln, 2005). The questionnaires were validated for appropriateness by applying theoretically derived hypotheses involving the concept under consideration through the theoretical framework of the study.

3.7 Reliability of instruments

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. Reliability in research is influenced by random error (Mugenda & Mugenda, 1999). Testing of the questionnaire for reliability was done using the split-half technique where the questionnaire was administered to 10 randomly sampled households. The questionnaires from the sample were randomly labeled and separated for odd and even numbering. The reliability of the instruments was tested by calculating correlation of odd and even items separately and using t-function of Spearman-Grower's formulae. The reliability half of the scores was 0.802 on half of the scores

According to Orodho (2004) a correlation coefficient of about 0.8 should be considered strong enough to judge the instrument as reliable for the study;

Reliability of score on total tests = $\frac{2 \times \text{reliability for } \frac{1}{2} \text{ test}}{1 + \text{reliability for } \frac{1}{2} \text{ test}}$

$$1 + \text{reliability for } \frac{1}{2} \text{ test}$$

$$= \frac{2 \times 0.802}{1 + 0.802}$$

$$1 + 0.802$$

$$R = 0.89$$

R is the quantitative measure of reliability on a scale of 0 to 1, such that as r tends to 1, the stronger the reliability and vice versa.

3.8 Data analysis and presentation

The raw data collected from the questionnaires was systematically organized in a manner as to facilitate analysis. Where quantitative data was collected numbers were assigned for the possible responses, for example where the response is a No or Yes numbers 1 and 2 were assigned for the responses respectively. Where the responses received were for open ended questions unique numbers to categorized responses were assigned. The data was entered into the statistical package for social scientists (SPSS) and analyzed. Means and standard deviations were used to describe interval data of the Respondents characteristics for example, income, while. Frequency and percentages were used to describe ordinal data like education level.

3.9 Ethical considerations

The Researcher observed research ethics by following the procedure outlined by the University of Nairobi and by seeking permission from relevant authorities before carrying out the study. Honesty, integrity and confidence were maintained throughout the study. Information the Respondents wished to know about the study was given and truthfulness maintained. All the information quoted in the report was referenced to the source by acknowledging the Author.

3.11 Operationalization of variables.

Table 3.1: Operationalization of variables

Objective	Variable	Indicators	Measurement	Measurement scale	Type of analysis	Tool of analysis
To establish the extent which management skills influences tea productivity.	Independent variables Management skill	Management skills 1. Record keeping 2. Time management 3. Business planning 4. Financial management	Frequency No of cases	Ordinal and ratio or interval	questionnaire	Descriptive Mean standard deviation, frequency and percentage
To determine how land ownership influences tea productivity.	Land ownership	1. Land lease 2. Joint ownership 3. Sole proprietor 4. Family ownership	Frequency No of cases	Ordinal and ratio or interval	questionnaire	Descriptive Mean standard deviation, frequency and percentage
To access the influence of demographics on tea productivity	Demographic characteristics	1. Gender 2. Age 3. Level of education 4. Level of income	Frequency No of cases	Ordinal and ratio or interval	questionnaire	Descriptive Mean standard deviation, frequency and percentage
To establish the extent to which Tea Farmers attitude toward tea extension services influences tea productivity	Attitude	1. Trust 2. Customer focus 3. Subject delivery 4. Fertilizer application	Frequency No of cases	Ordinal and ratio or interval	questionnaire	Descriptive Mean standard deviation, frequency and percentage

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS.

4.1 Introduction.

The data collection was conducted at Iriaini Tea Factory Co. Ltd catchment area where 302 farmers out of 305 farmers responded to the questionnaires representing 99%. The questionnaires were facilitated by six Research Assistants each handling about 50 respondents. Data was analyzed for significance of correlation using the Pearson correlation significance using the two tailed significance test. The research findings are as presented in the sub headings below.

4.2 Demographic data.

Data on demographic factors was analyzed as shown below;

4.2.1 Gender

Data on the gender of the respondents was collected with an aim of establishing the mix of the respondent's gender and analyzed as below.

Table 4.1 Gender of respondents

Gender	Frequency	Percent
Male	203	67
Female	98	33
Total	302	100.0

67% of the respondents were male while 33% were female. Gender is well represented in the respondents and is in line with the advocacy of a third presentation of gender.

4.2 1 Age of the respondents

Age of the respondents was collected to establish the age distribution of the respondents, as shown in the table below.

Table 4.2 Age of the respondents

Age bracket	Frequency	Percent
did not disclose	1	.3
Under 18 years	1	.3
19-25 years	2	.7
26-35 years	27	8.9
36-45 years	68	22.5
46-55 years	89	29.5
56-65 years	70	23.2
over 66 years	43	14.2
Total	301	100

Majority of the respondents were aged between 36 to 55 years at 52% with 10% at below 36 years, 37% were over 55 years. The respondent's age follows a normal distribution curve with the majority of the respondents aged 46-55 years.

4.2.2 Education level

The respondent's education levels was collected and categorized in the table below.

Table 4.3 Education level of the respondents

Education level	Frequency	Percent
did not disclose	2	.7
Primary	128	42.4
Secondary	148	49.0
Certificate	12	4.0
Diploma	6	2.0
Bachelors Degree	4	1.3
Total	300	99.3

The respondents' education level was 42% up to primary level, 49% secondary and 7% tertiary level. The level of education achieved by the respondents was noted to be fairly good with only 2 respondents not disclosing their education level possibly due to lack of confidence.

4.2.3 Marital status

The marital status of the respondents is as below, analyzed to establish the spread of the different marital status.

Table 4.4 Marital status

Marital status	Frequency	Percent
Single	36	11.9
Divorced	2	.7
Married	220	72.8
Widowed	43	14.2
Total	302	100.0

12% of the respondents were single, 73% married and 13% either widowed or divorced.

4.2.4 Dependents

Data on the persons depending on the respondents for their daily upkeep was analyzed as shown in the table below.

Table 4.5 Persons depending on respondent

Number of dependants	Frequency	Percent
0	3	1.0
1	19	6.3
2	42	13.9
3	60	19.9
4	89	29.5
5	32	10.6
6	20	6.6
7	7	2.3
8	4	1.3
9	3	1.0
13	1	.3
did not respond	21	7.0
Total	302	100.0

41% of the Respondents have at least between 1 to 3 persons who depend on them for their up keep while 52% support more than 3 persons.

4.3 Production Data

Data on the Respondents production was analyzed as in the below sub topics.

4.3.1 Tea Productivity

Data on the number of tea bushes and the production for the financial year 2013/2014 was collected and calculations done to establish the production in kilograms per hectare. The table below shows the summary.

Table 4.6 Production data

	Mode	Maximum	Mean
Number of Tea bushes	1000	11000	1860
Production per hectare (Kg/Ha)	2883		2855

Majority of the respondents had 1000 tea bushes having a productivity of 2883Kg of green leaf tea per hectare.

4.3.2 Labor

Tea plucking in the small holder is labor intensive therefore data on hired labor use was collected and analyzed as below.

Table 4.7 Hired labor use

Hired labor use	Frequency	Percent
Uses hired labor	147	49
Does not use hired labor	154	51
Total	301	100

49% of the respondents use hired labor while 51% do not use hired labor

4.3.3 Sources of income

Income sources of the respondents were tabulated as shown in the table below.

Table 4.8 Income sources

Income sources	Frequency	Percent
Farmer has other income source	226	75
Farmer does not have another income source	75	25
Total	302	100.0

Majority of the respondents have other income other than tea at 75% of all the respondents while 25% of the respondents rely on tea for income

4.3.4 Types of income

Data on the types of income with employment, non farming and other farm activities as the different types of income the respondents had, the summary is as below.

Table 4.9 Types of income

Type of income	Frequency	Percent
Employment income	28	9
Non farming activities	84	28
Other farm activities	169	56

Respondents who have other sources of income, majority have other farm activities at 56% with 9% from employment income and 28% from non farming activities.

4.3.5 Monthly earning

Data on the monthly income for the respondents is as below.

Table 4.10 Amount of monthly earning

Amount in Ksh	Mode	Mean
	4000	6523

Majority of the respondents earn Ksh 4000.00 per month while a mean of Ksh 6523.00 is earned monthly.

4.4 Management skills

Management skills for the respondents was analyzed as detailed in the below sub topics.

4.4.1 Types of records

Data on records that the respondents kept was analyzed to establish the number of respondents who kept various records as detailed below.

Table 4.11 Types of records

record	Frequency	Percent
Green leaf plucked daily	226	75
Number of Pluckers employed	77	26
Amount paid to tea Pluckers	106	35
Monthly tea plucking	253	84
Other records	56	19

75% of the respondents kept records on green leaf tea plucked daily, 26 kept records on tea Pluckers employed, 35% kept records on amount paid to tea Pluckers while 84% kept records on monthly green leaf and 19% kept other records

4.4.2 Days Programme

Time management data of the respondents was collected and the data analyzed as below.

Table 4.12 Days programme

	Frequency	Percent
makes a days programme	261	87
does not make a days programme	41	13
Total	302	100.0

87% of the respondents made a days programme while 13 did not

4.4.3 Time allocated for farming

The respondents allocated an average of 4.71 hrs to tea farming activities while they allocated an average of 3.27 hrs to other activities

4.4.4 Tea farm improvement

Data on the number of respondents who had a tea farm improvement programme was collected and analyzed as below.

Table 4.13 Tea Farm improvement

	Frequency	Percent
There is an improvement plan	280	93
There is no improvement plan	20	7
Total	301	99

93 % of the respondents indicated that they have a tea farm improvement plan while 7% did not have an improvement plan.

4.4.5 Tea income

The respondents indicated their opinion of the adequacy of the income from tea as summarized below.

Table 4.14 Adequacy of income from tea

	Frequency	Percent
Tea earnings are adequate	32	11
tea earnings not adequate	268	89
Total	301	100

According to 89% of the respondents tea earnings are not adequate while 11% felt that the tea earnings are adequate.

4.4.6 Sources of income

The respondent's income sources were tabulated as below.

Table 4.15 Source of income

	Frequency	Percent
Other income generating projects	152	50
no income from other income generating activities	148	49
Total	300	99

50% of the respondents get their income from other income generating project while 49% do not have other income generating projects.

4.4.7 Sources of finances

The sources of income by the respondents are tabulated below.

Table 4.16 Sources of finances

	Frequency	Percent
Family and Friends	84	28
Loan from Banks and other financial institutions	183	61

Respondents who get loans from banks and other financial institutions were 61% while 28% got their finances from family and friends

4.4.8 Use of finances

The respondents indicated the use the finances they get are used to do as below.

Table 4.17 Use of finances

	Frequency	Percent
Loan used to buy food and other basic necessities	96	32
Loan used for expanding tea business	46	15
Loan used for other purposes	31	10

The respondents who took loans used the finances to buy food and other basic necessities were 32%, 15% for expanding tea business while 10% used for other purposes.

4.5 Land ownership data analysis

Data analysis of the ownership of the tea farms was analyzed as detailed in the subtopics below;

4.5.1 Title deed holder

The respondents had different ownership arrangements for the parcels of land the tea farms lie. The analyses are tabulated below.

Table 4.18 Title deed Holder

	Frequency	Percent
owns a title deed	135	45
Father	87	29
Husband	34	11
Brother	4	1
Jointly owned	40	13

Majority of the respondents do not hold title deed for the tea farm with 29% having title deeds held by their Father, 11% by the Husband, 1 % by the Brother 13% jointly while 45% hold the title deeds.

4.5.2 Land lease

Some of the respondents have leased tea farms from other farmers; the data was collected and analyzed as below.

Table 4.19 Land lease

	Frequency	Percent
have leased land	50	17
has not leased land	252	83
Total	302	100

83% of the respondents have not leased land while 17% have leased tea farms

4.5.3 Lease period

The leased tea farms have different lease periods, the analysis of the lease periods is as shown below.

Table 4.20 Lease period

Number of years	Frequency	Percent
1.00	9	3.0
2.00	20	6.6
3.00	9	3.0
4.00	4	1.3
5.00	2	.7

The respondents who have leased tea farms, 6.6% have leased for 2 years, 3% for 1 year while 2% for 4 years and above.

4.6 Respondents attitude data analysis

The attitude of the respondents was analyzed as below

4.6.1 Visits to respondents by the Tea Extension Services Assistants

Visits by the TESAs were analyzed for frequency in the financial year 2013/2014 and results shown below.

Table 4.21 Tea Extension Services Assistants visits

	Frequency	Percent
non	126	42
once	73	24
thrice	41	14
four times	7	2
more than4 times	34	18
Total	301	100

42% of the respondents were not visited by the respondents in the preceding year while 24% were visited once, 14% thrice and 20% four times and above.

4.6.2 New knowledge

Respondents indicated whether there were new learning's or not after the TESA visit and data analyzed as show in the table below.

Table 4.22 New learning's

	Frequency	Percent
new learning's	245	81
no new learning's	56	19
Total	301	100

81% of the respondents learned new skills during the training sessions by the Tea Extension Assistants, while 19% did not learn new skills

4.6.3 Understanding of training

The understanding of the trainings carried out by the TESAs was analyzed to establish the level of understanding by the respondents as tabulated below.

Table 4.23 Understanding

	Frequency	Percent
understood training	250	83
did not understand training	51	17
Total	301	100

83% of the respondents understood the lessons by the TESA while 17 % did not understand the lessons.

4.6.4 Application of learning

Data on the respondent's application of the learning's from the training session by the clerks was analyzed as shown below.

Table 4.24 Application of learning's

	Frequency	Percent
applied learning's	251	83
did not apply learning's	49	17
Total	301	100

83% of the respondents applied the lessons learned from the lessons taught by the TESA, while 17% did not apply any lessons learned.

4.6.5 TESA friendliness

The friendliness of the TESAs was analyzed with the below frequencies

Table 4.25 TESA friendliness

	Frequency	Percent
TESA friendly	255	85
TESA not friendly	46	16
Total	301	100.0

Majority of the respondents felt that the TESA was friendly at 85% while 16% felt that the TESA was not friendly.

4.6.6 Delivery of solutions

Data on the TESAs delivery of the subject to the respondents was analyzed for frequencies as below.

Table 4.26 Delivery of solutions

	Frequency	Percent
TESA offer a solution	256	85
TESA did not offer a solution	45	15
Total	301	100

85% of the respondents felt that the TESA offered solutions to problems they encounter related to tea, while 15% felt that they did not offer any solutions

4.6.7 Fertilizer application

There are a fixed number of bags of fertilizer bags for a certain number of tea bushes, the respondents had different views on the adequacy of the number of bags issued to them, the table below shows their opinion.

Table 4.27 Adequacy of fertilizer

	Frequency	Percent
Fertilizer adequate	158	52
Fertilizer not adequate	143	48
Total	301	100

52% of the respondents indicated that the fertilizer issued was adequate, while 48% felt that it was not adequate.

4.7 Spearman correlation of independent variable measures and dependent variable measures.

The survey data was analyzed for correlation of independent variables and dependent variable measures using the Spearman's correlation coefficient at the two tailed 0.01 and 0.05 level. The sub topics below present the findings.

4.7.1 Spearman's correlation coefficient for demographic data and tea productivity

The section presents Spearman's correlation coefficient for productivity and demographic data indicators.

Table 4.28 Spearman's correlation between age of respondent and tea productivity

Tea productivity	Number of respondents	Age of respondent	
		Spearman's correlation coefficient	Significance 2-tailed
	294	-0.116	0.047

**. Correlation is significant at the 0.05 level (2-tailed).

There was a positive correlation between the age of the respondent and tea productivity significant at 5%

4.7.3 Tea productivity and sources of income other than tea.

Table 4.29 Spearman’s correlation coefficient for sources of income other than tea and tea productivity

Tea productivity	Number of respondents	Income sources other than from tea	
		Spearman’s correlation coefficient	Significance 2-tailed
	294	0.114	0.015

*, Correlation is significant at the 0.05 level (2-tailed).

There was a positive correlation of sources of income other than tea with tea productivity. The respondents who had other sources of income had higher tea productivity from their farms.

4.7.4 Tea productivity and records of tea plucked.

Table 4.30 Spearman’s correlation coefficient for records of tea plucked and tea productivity

Tea productivity	Number of respondents	Records of tea plucked in an year	
		Spearman’s correlation coefficient	Significance 2-tailed
	294	0.226	0.001

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

There was a positive correlation for records of tea plucked in an year with tea productivity, the respondents who kept the record had a higher tea productivity.

4.7.5 Tea productivity and other types of records

Table 4.31 Spearman's correlation coefficient for records of any other type and tea productivity

Tea productivity	Number of respondents	Records of any other type	
		Spearman's correlation coefficient	Significance 2-tailed
	294	0.190	0.001

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

Tea productivity was affected positively by other records kept by the respondents.

4.7.6 Tea productivity and tea farm improvement programmes.

Table 4.32 Spearman's correlation coefficient tea farm improvement and tea productivity

Tea productivity	Number of respondents	Tea farm improvement	
		Spearman's correlation coefficient	Significance 2-tailed
	294	0.233	0.001

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

Data analysis indicated that the respondents had better tea productivity for the respondents who have a farm improvement programme.

4.7.6 Tea productivity and time allocated for tea farming

Table 4.33 Spearman's correlation coefficient for time allocated and tea productivity

Tea productivity	Number of respondents	Time allocated for tea farming	
		Spearman's correlation coefficient	Significance 2-tailed
	294	0.234	0.001

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

The more the time allocated to tea farming the more the tea productivity.

4.7.7 Tea productivity and sources of finances

Table 4.34 Spearman’s correlation coefficient for sources of finances other than tea and tea productivity

Tea productivity	Number of respondents	Sources of finances other than tea	
		Spearman’s correlation coefficient	Significance 2-tailed
	294	-0.119	0.041

*. Correlation is significant at the 0.05 level (2-tailed).

There was a negative correlation between sources of finances and tea productivity, the respondents who had other sources of income had a lower productivity.

4.7.4 Spearman’s correlation coefficient for land ownership data and tea productivity.

There was no positive correlation between land ownership and tea productivity

4.7.5 Spearman’s correlation coefficient for attitude data and tea productivity

There was no significant correlation between attitude of the respondents toward tea farming and tea productivity

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION.

5.1 Introduction

This chapter covers the summary of findings from the study making relevant conclusions and recommendation. A section on further study is also covered. The discussion in this chapter is based on the data analyzed and other findings from the literature reviewed and desk top analysis.

5.2 Summary of findings

The summary of findings is covered in the sub-section below covering the independent variables in relation to tea productivity the dependent variable.

5.2.1 Demographic data

The majority of the respondents were male at 2/3 and 1/3 were female, 37% of the respondents were 55years and above with 10% less than 36 years. Spearman's correlation between age and tea productivity reveals a positive correlation. The level of education and the marital status of the respondents did not have correlation with tea productivity. Majority of the respondents indicated that they support more than 3 persons but this did not correlate with tea productivity.

5.2.2 Production data

Majority of the respondents had 1000 tea bushes having a productivity of 2883Kg of green leaf tea per hectare. Half of the respondents use hired labor while the others use own labor, majority of the respondents have another income source other than tea with only a small percentage relying on tea as a business. Respondents who have other sources of income, majority have other farm activities at 56% with 9% from employment income and 28% from non farming activities. Majority of the respondents earn Ksh 4000.00 per month while a mean of Ksh 6523.00 is earned monthly. There was a negative correlation between number of tea bushes the respondents own and tea productivity. The amount of income earned by the majority is below the minimum wage of Ksh 6000 per month. The respondents who had other income sources got better tea productivity from their farms.

5.2.3 Management skills

Management skills are key to good performance; majority of the respondents had a days programme and fairly adequate time allocated to tea farming. Most of all the respondents have a tea farm improvement programme. Only 11% of the respondents felt that tea earnings were adequate with the majority feeling that it is not. 50% of the respondents have other income generating projects, with 28% getting financing from family and friends and the majority getting loans from banks and other financial institutions, with only 15% directing the funds toward expanding tea business. Data analysis revealed that the records on tea plucked in a year and other records had a positive relation with tea productivity, while the respondents who had a farm improvement programme also correlated positively with tea productivity. Respondents who had other sources of income had lower tea productivity.

5.2.4 Land ownership

Majority of the respondents do not hold title deed for the tea farm with 29% having title deeds held by their Father, 11% by the Husband, 1 % by the Brother 13% jointly while 45% hold the title deeds. There were a small number of the respondents who lease tea farms and have leased for periods 1 to 2 years.

5.2.5 Attitude of Farmers towards tea extension

The respondents contact with the Tea Extension Services Assistant was not adequate, and this been the major source of advice to the respondents, then could have negative effects. The researcher felt that the number of TESA was not adequate to cater for the training needs of the large number of the farmers in the catchment. The TESAs according to the researcher have adequate training skills and the respondents apply adequately what they are taken through by the TESA. The researcher felt that the respondents do not understand the ratios for fertilizer application.

5.3 Discussions of findings

The findings from the study are discussed in the sub headings as below:

5.3.1 Demographic data and productivity

There was a positive correlation for tea productivity and age, the Researcher believed that the low productivity at the extremes of the age bracket was mainly due to the young person's not treating the tea business as a worthwhile enterprise while the older age bracket would either not supervise properly the tea picking and or would not offer themselves to pluck the tea. This is in agreement with Tauer L. W. (1994) who in the study of Age and Farmers productivity concluded that efficiency increases at an average of 4.5% every ten years of age, to the average interval of 35 to 44, and then decreases at the same rate.

The number of dependents the Respondents support, though not having a correlation with tea productivity, the researcher felt that the dependents would offer support, by provision of resources to enhance tea production. Kloss M. etal (2014) concluded that for the United Kingdom the family farms that family members provide labor and supervision of farm activities are more productive than those relying on hired labor. The respondent's dependents did not affect tea productivity depicting a divergence.

5.3.2 Production data and productivity

There was observed low productivity where the respondents who own more tea bushes. The researcher felt that the more the number of tea bushes the respondents owns then the less he or she was able tend to the bushes therefore achieving low tea productivity. This is in line with early studies on the subject found a negative relationship between farm size and output per hectare, a phenomenon that is referred as inverse relation of farm size and productivity inverse hypothesis (Mazumdar,1965 et.al)

The amount of income earned by the majority is below the minimum wage of Ksh 6000 per month. The researcher felt that the need for more income should act as a motivator to optimize production. Further the researcher felt that the respondents should have diversified their income source to breach the gap to cater for their needs.

The respondents who had other income sources got better tea productivity from their farms, a view the researcher felt was due to the entrepreneurial initiatives with the respondent.

5.3.3 Management skills and productivity

Management skills are a driving force to optimal performance of any enterprise, the researcher felt that the respondents depicted only a fair level of management skill with only a few keeping all the records which the researcher felt were necessary for the success of the business. The researcher felt that the respondent's time management skills were fair with the majority of the respondents having a days programme and fairly adequate time allocated to tea farming. The researcher felt that the records kept by the respondents fell short of the necessary records for good tea productivity. Data analysis revealed that the records on tea plucked in a year and other records had a positive relation to tea productivity. Respondents who had other sources of income had lower tea productivity, this the researcher felt that the other sources of income could have been competing with the tea business. The findings are in line with previous studies where it was concluded that management capabilities have been defined as 'higher-order capabilities that help a firm extend, modify, or improve its ordinary or operational capabilities that are relevant to managing any given task' (Kale and Singh, 2007). They are a set of 'processes to integrate, reconfigure, gain and release resources to match and even create market change' (Eisenhardt and Martin, 2000). It is increasingly recognized that productivity is determined not only by tangible technologies such as machinery and new products, but also intangible technologies such as management techniques and new processes, whose encouragement by government policy is no less important and necessary (Alexopoulos and Tombe, 2009).

5.3.4 Land ownership and productivity

The researcher felt that land ownership could be a threat to improved tea productivity as the majority of the respondents do not hold title deeds of the land they are farming; the ownership of the land could give the title holder more impetus to develop the tea bushes in it.

Further the succession plan for the tea business could be hampered; this is in line with the research findings that revealed that there are only a small number of respondents who are youth. The researcher felt that the small number of the respondents, who lease tea farms have leased for periods too short to make gainful farm improvements, therefore could affect the tea productivity on the long term. Land tenure provides the legal and normative framework within which all agricultural as well as other economic activities are conducted. The research findings are in line with early research findings which concluded that when land tenure rights are certain, they provide incentives to use land in a sustainable manner or invest in resource conservation whether for the individual or group of individuals (Ogolla, Mugabe 1996).

5.2.5 Attitude of Farmers towards tea extension and productivity

The respondents contact with the Tea Extension Services Assistant was not adequate, and this been the major source of advice to the respondents, then could have negative effects. The researcher felt that the number of TESA was not adequate to cater for the training needs of the large number of the farmers in the catchment. The TESAs according to the researcher have adequate training skills and the respondents apply adequately what they are taken through by the TESA. The researcher felt that the respondents do not understand the ratios for fertilizer application.

The TESAs according to the researcher have adequate training skills therefore they should disseminate the necessary technical knowledge of best tea husbandry for optimal tea productivity. The findings are in line with previous studies where it was concluded that, the needs deemed of interest to local small-scale farmers must be identified and Extension personnel must convey their programming message in a way that would catch the small farmers' attention and engage them in the learning process (Kroma 2003).

5.4 Recommendations

Farmers of Iriaini Tea Factory Co. Ltd should be trained with an aim of increasing tea productivity, this the researcher suggests that would be done through research based practical training through experimentation on proper tea husbandry and general tea farm management.

Farmers owning large parcels of land should explore use of machine plucking to ease on demand for plucking labor as the plucking labor is likely to be a challenge. The umbrella body KTDA which manages the small holder farms should give engage in trials for machine plucking by the small holders.

The Farmers should be trained on basic management skills in order for them to be equipped with skills on record keeping, basic book keeping and debt management to assist them in managing their tea farms.

Farmers should be encouraged to have a succession plan for the tea business, where they train them dependents especially the youth on the business and transfer parcels of land to them for complete ownership of the tea business.

The Farmers contact with the Tea Extension Services Assistant was according to the researcher not adequate, and this been the major source of advice to the respondents, then this could have negative effects. The researcher felt that the number of TESA was not adequate to cater for the training needs of the large number of the farmers in the catchment; therefore number of Tea Extension Staff should be increased to increase the frequency of farm visits by the staff, and increase the reach to the farmers. The TESAs should enhance information dissemination to dispense of misnomer that the more fertilizer one applies the more the productivity.

5.5 Suggestions for further research

Respondents who had other sources of income had lower tea productivity, this the researcher felt that the other sources of income could have been competing with the tea business. The researcher believes that further research is required to establish why the tea enterprise is affected negatively by other enterprises.

The researcher felt that an in depth study would be carried out to establish why there is no comprehensive succession plan for the tea farming activities including land ownership

The researcher felt that more in-depth analysis would be carried out to establish why 15% of the respondents believed that the TESA are not friendly. This is in the view that one will not understand instructions or new knowledge when one has no confidence on the person giving the information.

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INTRODUCTION LETTER

George Ngugi Mwangi,

P.O. Box 34-00216,

Githunguri.

Tel. 0733278327.

Email- gmwangi03@gmail.com

TO WHOM IT MAY CONCERN

I am a student at the University of Nairobi taking a Master of Arts Degree in Project Planning and Management. I am currently undertaking a research project on: *“Socio-cultural factors affecting tea productivity at Iriaini Tea Factory Co. Ltd at Othaya sub County in Kenya.”*

I write to request you to fill the attached questionnaire and provide any further information that may be required for the purposes of the study.

Kindly note that all the information you will give will be confidential and will only be used for the study.

Thank you for your anticipated response.

Warm regards

George N. Mwangi

Section A: Demographic Data

Name(Optional).....Growers Number.....

Electoral area.....

1. Gender: Please put a tick one.

Male Female

2. How old are you? Please tick one

18 years and below		46-55 years	
19 – 25 years		56 – 65 years	
26 – 35 years		Over 66 years	
36- 45 years			

3. What is your highest level of education? Please tick one

Primary		Diploma	
Secondary		Bachelors Degree	
Certificate		Post graduate diploma	

4. What is your current marital Status? Please tick one

Single () Divorced () Married () Widowed ()

5. How many people depend on you? (indicate the number below)

.....

Section B: Production data

6. How many tea bushes do you own? (indicate the number).....

7. What was the last year’s (2012/2013) total production in Kilograms? (indicate on the space provided).....

8. Do you use hired labor to pluck you tea?
Yes () No ()
9. Other than tea do you have another source of income? Please tick one
Yes () No. ()
- 10.If yes indicate the source that is appropriate. (please tick)
Employment () Non Farming activities ()
Other Farm Activities ()
- 11.What are your monthly earnings from all income generating activities in Kenya shillings? (Indicate on the space provided).....

Section C: Management skills

12. What kind of records do you keep (please tick)
(a) Green leaf tea plucked daily ()
(b) Number of Pluckers employed ()
(C) What is the amount of money used to pay to Pluckers. ()
(d) The total amount of tea plucked in each month of the year. ()
13. Do you make a programme of activities for the day?
Yes () No ()
- 14.If yes, how much time in hours do you allocate for tea farming?.....
- 15.How much time in hours do you allocate for other income generating activities?.....
16. Do you have a plan for improving on the tea farming?
Yes () No ()
17. Does the income generated from tea meet your financial needs?
Yes () No ()

18. If no where do you get your finances? Please tick

Other income generating projects ()

Family and friends ()

Loan from Banks and other Institutions ()

19. If you get funding from loans what do you use it for? Please tick

To buy food and other basic necessities? ()

To expand the tea business? ()

To pay school fees and other capital projects? ()

Section D: Land ownership

20. Do you have a title deed for the land that your tea bushes are planted?

Yes () No ()

21. If no who holds the title? Please tick one

Father () Husband () Wife () Brother () Sister () Jointly Owned ()

22. Have you leased land the tea bushes are planted on?

Yes () No ()

23. If yes for how many years?.....

Section E: Attitude

24. In the last year how many times did the Tea Extension Assistant (TESA) of your area visit your tea farm? Please tick one

Non () once () twice () thrice () four times () More than 4 times ()

25. During the last visit by the Tea Extension Assistant (TESA) did you learn ways of improving your tea farm? Please tick

Yes () No ()

26. Did you understand what the TESA taught you? Yes () No ()

27. If yes have you applied what you learned? Yes () No ()

28. Was the TESA friendly? Yes () No ()

29. Did the TESA officer offers solutions to questions you asked? Yes () No ()

30. How many 50 kgs bags of fertilizer did you apply on your farm in the last year?.....

31. In your opinion do you think the fertilizer applied was adequate?

Yes () NO ()

THANK YOU FOR YOUR VALUED CONTRIBUTION