CHALLENGES AFFECTING MARKETING OF HORTICULTURAL PRODUCE IN KENYA: MANGO FRUITS IN MASONGALENI WARD OF KIBWEZI CONSTITUENCY

BY

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NOVEMBER 2013
DECLARATION

This research report is my original work and has not been presented for a degree in any other university or for any other award.

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DEDICATION

I dedicate this research project to my grandchildren; Shani, Legend, Israel, Ezra, Azaria and Maingi Jnr. whose innocent smiles and hugs gave me the motivation and the psyche to undertake this project. May they grow to be wise and knowledgeable to serve God and humanity.
ACKNOWLEDGMENT

I wish to acknowledge the Public Service Commission of Kenya for sponsoring my Executive MBA programme. I also appreciate my supervisor, Mr. Robert Nzulwa for guiding me in writing of the research project report and all my lecturers and classmates for their support and encouragement without which this project would not have been a success. I thank individuals and institutions who contributed immensely to the success of this project particularly Mr. George Kamamia from the district agricultural office, Kibwezi and James Njeru from Jomo Kenyatta University of Agriculture and Technology. I am also grateful to my family for their unwavering support during the entire period. Finally I thank God for giving me good health and wisdom to carry out this project.
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<tr>
<td>ABD</td>
<td>Agricultural Business Development</td>
</tr>
<tr>
<td>COM</td>
<td>Commission</td>
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<tr>
<td>DAO</td>
<td>District Agricultural Officer</td>
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<td>FAO</td>
<td>Food Agricultural Organization</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<td>HCDA</td>
<td>Horticultural Crops Development Authority</td>
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<tr>
<td>ICRAF</td>
<td>World Agro forestry Centre</td>
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<tr>
<td>IDMS</td>
<td>Institution Development &amp; Management Services</td>
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<tr>
<td>IFAD</td>
<td>International Fund for Agricultural Development</td>
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<tr>
<td>UNESCAP</td>
<td>United Nations Economic and Social Commission for Asia and the Pacific</td>
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# DEFINITION OF TERMS

**Horticulture**
Horticulture is the practice and science of cultivating gardens, for the growth of flowers, fruits, or vegetables.

**Marketing**
Marketing is a discipline uniting activities aimed at enhancing the potential for sales of goods and services.

**Middlemen**
Market actors who buy mango fruits from farmers at farm gates.

**Marketing mix**
A set of controllable marketing tools that an institution uses to produce the response it wants from its various target markets.
ABSTRACT

Horticultural farmers frequently consider marketing as being their major problem. However, while they are able to identify such problems as poor prices, lack of transport and high post-harvest losses, they are often poorly equipped to identify potential solutions. Mango fruits marketing in Masongaleni ward, of Kibwezi Constituency, is affected by many challenges among them middlemen who get larger profit share at the expense of the farmers who apparently have low level of education and limited information on the prevailing market situation. Prices of mango fruits fluctuate, limiting farmers from making reliable plans from mango fruits income. Road network is poor where 8.1% of the road is passable while 91.9% is impassable. The study investigated whether middlemen were necessary in the marketing of mango fruits, the impact of education/training of mango farmers and middlemen, determined whether the poor income from mango fruits was related to farmer’s education level. The research also investigated the effects of road network. The research was conducted using a case study design and the data was collected using questionnaire method. There were fifty farmers, twelve middlemen, two exporters and one District Agricultural Officer (DAO) to whom the questionnaires were administered. The data was analyzed using SPSS software (Statistical Package for the Social Sciences) and presented in form of tables and charts. The research found that mango was the most popular horticultural produce followed by tomatoes, watermelon and capsicum in that order. Marketing of mango fruits in Masongaleni ward of Kibwezi constituency was dependent on middlemen, farmers marketing knowledge/training, pricing of mango fruits and road network. Middlemen affected the marketing the most followed by prices, road network and education/training respectively. Education/training was not viewed to be a major factor in price determination but many farmers felt that it could help improve their income from mango fruits. Infrastructure, particularly road network was found to be inappropriate. It was recommended that there should be a structured and agreed price formula beneficial to both middlemen and farmers. To realize better income from mango fruits all stake holders should be trained on marketing and post harvesting techniques. Also, road network requires to be improved to make it more accessible to common mode of transport such as lorries, pickups and bicycles in Masongaleni ward.
CHAPTER ONE

1.0 BACKGROUND TO THE STUDY

This chapter contains sections on introduction, the statement of the problem, general objective, specific objectives, research questions, significance, limitations and the scope of the study.

1.1 Introduction

Horticultural marketing involve mainly planning production, grading of products, transport, distribution and pricing, sending information from production area to market and from market back to producing areas (FAO, 2005).

Horticultural farmers frequently consider marketing as being their major problem. However, while they are able to identify such problems as poor prices, lack of transport and high post-harvest losses, they are often poorly equipped to identify potential solutions (FAO, 2005). In Kenya, changes in demand at the markets are a problem especially where the farmers marketing education is not well developed (HCDA, 2009). Studies by ABD (2011) and Kehlenbeck et al., (2010), have revealed that prices of mango fruits fluctuate by more than 100%, making it very difficult for farmers to plan reliably. As a result of perishability, lack of technical knowledge on how to handle spoilable produce is noted to be another important constraint in the industry, (Gathee, 1991). Marketing is one aspect through which mango fruits industry can be analyzed to help mitigate poor income to the farmers (GoK, 2003). Mango fruits supply follow seasonal pattern (Niyibigira et al., 2003) and attract middlemen who exploit mango farmers by paying very little for fruits while selling at high prices (Mututo, 2010). This study covered marketing of mango fruits
in Masongaleni ward, located about 235 Km east of Nairobi, the administration capital of Kenya. Masongaleni ward is situated at 2.48S and 38.05E and covers approximately 280 square kilometers with a population of 24,283 persons and population density of 75 persons per km². It is within Kibwezi constituency, Makueni County. The study focused on the role of middlemen, education/training of farmers and middlemen, prices and infrastructure particularly road network.

1.2 Statement of the Problem

According to Serem (2010), mango marketing in Kenya has faced numerous problems among them; poor infrastructure (roads), inadequate post harvest handling facilities, price fluctuation in internal and external markets and limited knowledge on marketing. Prices of mango fruits fluctuate from Ks 25 to Ks 5 per fruit limiting farmers from making reliable plans from mango fruits income (ABD, 2011). In many cases, farmers receive very low income from their mango fruits sales in spite of these fruits selling at very high prices to the final consumers (Mututo, 2011). This may result to farmers abandoning the mango farming sector which may lower their economic levels. Mango fruit farmers are hardly involved in direct selling of their fruits to the final markets. Instead, middlemen go to the farm to buy the mango fruits from farmers (ABD, 2011). Middlemen get larger share at the expense of the farmers who apparently have low level of education and limited information on the prevailing market situation (Serem, 2010). Infrastructure is poor where 8.1% of the road is passable while 91.9% is impassable (Kehlenbeck et al., 2010). Since mango is the main cash crop for Masongaleni ward, failing to address these problems will lead to increase in poverty in the area. It is against
this background that the study focused on addressing the challenges affecting marketing of mango fruits in Masongaleni Ward of Kibwezi Constituency.

1.3 General Objective
To investigate the challenges of marketing of mango fruits in Masongaleni ward of Kibwezi Constituency.

1.4 Specific Objectives
1. To determine the effects of middlemen on marketing of mango fruits in Masongaleni ward of Kibwezi Constituency.
2. To investigate the effects of education/training of mango farmers and middlemen on marketing of mango fruits in Masongaleni ward of Kibwezi Constituency.
3. To examine the effects of prices on marketing of mango fruits in Masongaleni ward of Kibwezi Constituency.
4. To find out the effects of infrastructure in the marketing of mango fruits in Masongaleni ward of Kibwezi Constituency.

1.5 Research Questions
1. What are the effects of middlemen on the marketing of mango fruits in Masongaleni ward of Kibwezi Constituency?
2. What are the effects of education/training of mango farmers and middlemen on marketing of mango fruits in Masongaleni ward of Kibwezi Constituency?
3. What are the effects of prices on marketing of mango fruits in Masongaleni ward of Kibwezi Constituency?
4. What are the effects of infrastructure in the marketing of mango fruits in Masongaleni ward of Kibwezi Constituency?

1.6 Significance of the Study

The study determined the impact of middlemen in mango marketing. Through investigating the impact of education/training of mango farmers and middlemen in Masongaleni ward, the study determined whether the poor income from mango fruits was related to their level of education. This could inform the ministry of agriculture on developing appropriate policies on training and creating awareness among the mango farmers in Masongaleni ward. The information from the study could guide the professionals/extension officers in advising farmers on appropriate pricing of mango fruits which could mitigate the huge price fluctuations. The study could also benefit financial organizations who may be interested in funding the mango production in the area. The study established the effects of the infrastructure particularly the road network in the marketing of mango fruits in Masongaleni ward which could help the government and other agencies in determining the areas requiring urgent development attention in the ward.

1.7 Scope of the Study

This study covered the middlemen who bought mango fruits on-farm, mango farmers, pricing of mango fruits and infrastructure particularly road network in relation to marketing of mango fruits in Masongaleni ward of Kibwezi Constituency. The structured questionnaire was administered to the mango farmers and the middlemen. It took about two weeks to collect the data.
CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter captures the review of some of the studies that have been carried out regarding challenges affecting marketing of horticultural produce especially those involving mango fruits. The literature will be divided into two main categories, namely, Theoretical review and empirical evidence. The empirical review will further be divided into six sub-categories that will focus on dependent and independent variables of the study. They are; horticultural marketing, marketing of mango fruits, role of middlemen on marketing, impact of education/training of mango farmers and middlemen, effect of prices and effect of road network on marketing. The chapter will be concluded with a conceptual framework which will give the hypothetical relationship between the independent and dependent variables.

2.1 Review of Past Studies

2.1.1 Theoretical Review

The marketing mix is a theoretical tool used in marketing and by marketing professionals (Umar, 2011). The marketing mix is often crucial when determining a product or brand's offering, and is often synonymous with the seven Ps to address the different nature of services: product, price, place, promotion, people, physical facilities and processes.

In this study the product is mango fruit. Mango fruits can be sold when unripe, ripe or processed into crisps or juice. In Masongaleni the mango fruits are mainly sold ripe for local market and unripe for export market.
The price element of the marketing mix is dominated by what is being charged for the mango fruits at the farm gates. The pricing element not only affects the revenues that a farmer derives from his fruits sales, but also affects consumer’s perceptions of the quality. Prices are based on the law of supply and demand. It implies that as supply increases the price will tend to drop or vice versa, and as demand increases the price will tend to increase or vice versa. Horticultural produce frequently follow this theory and mango fruits are not exceptional. In mango fruits, this is accelerated by seasonality aspect (Niyibigira et al., 2003). Fruits supply increases at particular months forcing the price downwards.

**Place** is the distribution method that the farmer adopts to provide the fruits to the market in a manner that meets consumer expectations. The development of alternative modes of distribution has grown significantly; no longer are the consumers confined to the particular place to get the fruits. Access to market in Masongaleni is mainly through middlemen.

**Promotion** encompasses all the tools that farmers can use to provide the market with information on its offerings: advertising, publicity, public relations and sales promotional efforts. When one considers the wide variety of publics with which a farmer needs to communicate, the use of just the middlemen is likely to be ineffective.

The people element of the marketing mix includes all the players that are involved in buying and selling of mango fruits. Rust and George (2003) explained that where the microstructure of trade in a product is endogenously determined, buyers and sellers of a product who wish to trade can choose between middlemen and specialist. Specialists usually follow defined procedure of arriving at a price such as bidding, whereas the prices
quoted by different middlemen are private information that can hardly be obtained. Middlemen who buy mango fruits from farmers at farm gates are very common in Makueni County (ABD, 2011).

*Physical evidence* is the tangible component of the service offering. A variety of tangible aspects are evaluated by a farmer's target markets, ranging from the infrastructure to the packaging of the fruits. As transport cost decreases, the prices fall resulting in increased demand for input use or more output supply according to microeconomic theory (Varian, 1992). Horticultural sector in most parts of Kenyan’s agricultural areas are affected negatively by transport costs since such costs are very high (GoK, 2003).

*Processes* are all the administrative and bureaucratic functions of the mango marketing: from the harvesting to consumption of the fruits or mango products. While this might seem quite straight forward, there are numerous other processes that need to be implemented concurrently (with the payment system, transportation, preservation and storage) to ensure the highest quality and consumer satisfaction.

### 2.1.2 Empirical Review

There are several empirical studies available about the challenges affecting marketing of horticultural produce. These are horticultural marketing, marketing of mango fruits, role of middlemen, impact of education/training of mango farmers and middlemen, effects of prices and effect of road network. Reviews and findings of some of the studies are presented below.
2.1.2.1 Horticultural Marketing

Fruit and vegetable sectors are appropriate sectors where small producers are able to participate due to their low demand on land and their high labor requirements (Andrea, 2012). According to HCDA (2009), the horticulture sub-sector is the fastest growing industry in the Agricultural sector. It employs directly and indirectly about 4 million people and smallholder farmers contribute over 60% of the production. The horticulture industry generated ks. 73.7 billion in foreign exchange from exported commodities and over ks. 65 billion domestically in the year 2008 (HCDA, 2009).

In horticultural marketing, enhancing collection, transport, selling of the farmers produce in the city markets and training results in providing cash income and encourage developments in both production and processing (FAO, 1991).

2.1.2.2 Marketing of Mango Fruits

As is the case for all food stuff, the mango fruit sector needs to be organized in a more coordinated and integrated way for it to be beneficial to farmers (European Union, 2000). Unfortunately, many challenges hinder proper organization of mango fruit sector. Studies by GoK, (2003) and Serem, (2010), pointed that poor road infrastructure, especially the rural and trunk roads constitute significant challenge to agriculture in Africa. Nearly 50% of African farmers still spend five hours or more to the market. Not only are there few roads, but transport costs in Africa are among the highest in the world, reaching as much as 77% of the value of exports (GoK, 2003 and Serem, 2010).

According to Griesbach, (2003), mango fruits provide a significant portion of households’ income in Kenya. However, Kenya can benefit more from mango fruit sector
if farmers can be educated or trained on maximizing prices especially through focusing on mango fruits products (Steve, 2010). According to Kehlenbeck et al., (2010) the market for fresh fruit currently constitutes the biggest market for mangoes accounting for almost 90% (165,000MT) in 2010. Within this market, the urban market is the biggest and most lucrative accounting for 75% of the total marketed production (14,200MT) valued at ks.5.3 billion annually. Apart from fresh fruit market, there is also processing of fresh fruits for extraction of juice. International market for mango fruits from Kenya account for 10% total value of marketed mangoes estimated at ks. 800 million in 2011 (HCDA, 2011).

According to Serem, (2010) major mango marketing challenges in Kenya include, poor roads, inadequate post harvest handling facilities, price fluctuation in internal and external markets and limited knowledge on value addition opportunities.

ABD (2011), pointed out that the mango fruits distribution and marketing channels are generally dominated by middlemen who play an important role in getting farmers produce to the market. The farmers selling through middlemen at farm gates get less income from their produce compared to the value released by the processors and exporters. Mututo (2011) found out that income from mango farming is shaping livelihoods in most families in Makueni County as farmers in the County adopt modern mango farming in agribusiness venture. He recommended that farmers need to form organized groups to assist in transporting fruits to the markets rather than using middlemen to get fruits from their farms to the markets.

A study by Musinga et al., (2012) found out that mango fruit prices vary per mango variety. On the overall Kent, Apple, Tommy and Ngowe fetch high prices in that order. Main challenge in Kibwezi is however on the distribution and marketing channels which
are generally dominated by middlemen who dictate the prices to farmers (Mututo, 2011). According to ABD, (2011) baseline survey of trees, there are 2,288 mango farmers in Kibwezi constituency with a total of 107,041 number of mango trees. This gives an average of 47 trees holding per farmer. The main varieties are Van dyke, Kent, Tommy, Ngowe, and Apple. ABD, (2011) pointed out that mango fruits for export market are sold at an average price of Ks 25 per fruit while the ones for local market are sold at a farm gate price of as low as Ks 5 per fruit. These challenges on poor roads, price fluctuation, limited farmer’s knowledge on marketing and many middlemen in Masongaleni ward requires to be investigated to determine how they impact on the marketing of mango fruits.

2.1.2.3 Role of Middlemen on Marketing

The middleman concept is frequently used in marketing literature to denote a particular category of market actors. A major problem is that the notion of a middleman is used to describe actors with quite different roles in the market system (Carl, 2010). Consequently, the interpretation of the concept becomes somewhat fluid and vague.

On another study, Broadbent (1985) stated that provided middlemen operate in an atmosphere of strong competition it is unlikely they will make excessive profits. When the retail and producer prices are high middlemen try to control the market prices by reducing their market margin and when the prices are low middlemen try to get more benefits by increasing their market margin (Sandika, 2011). However, Broadbent (1985) noted that, as in all businesses there are some middlemen who are dishonest. The challenge is to identify reputable middlemen and to ensure that the marketing system minimizes opportunities for dishonesty. Organizing mango production through farmers groups minimizes the need for middlemen because farmers have better chances of deciding how their products can reach
the markets (Andrea, 2012).

According to USAID (2005), middlemen tend to control the mango sector from purchasing of mango fruits in the farms, through ripening facilities and distribution networks to the markets. Supermarkets tend to build long-term relationships with preferred middlemen in order to guarantee a continuous mango supply (GoK, 2003). USAID (2005) articulated that some farmers and middlemen may open new opportunities as they permit access to particular market segments. At the same time, the process of distributing market shares is accompanied by marginalization and exclusion, as middlemen may impose prohibitively high barriers on farmers in terms of short-run and long-run efforts needed for marketing (FAO, 2004). According to Mututo, (2011) linking of farmers to markets is necessary in order to overhaul the sub sector because the mango market is mainly being controlled by unscrupulous middlemen.

2.1.2.4 Effect of Education/training on Marketing

Feder et al., (1987) noted that training farmers is beneficial because it results in improvement in the management of the farm. Lack of proper training on the other hand leads to various challenges. For example Serem (2010), pointed lack of education on value addition as one of the factors challenging the marketing of mangoes in Kenya. Lack of enough training may result to seasonal over-production, inadequate post-harvest handling techniques and limited access to information on technology in value addition (Serem, 2010 and Gathee, 1991). All these challenges affected the marketing of mango fruits.

Niyibigira et al., (2003) noted that the main constraints in the production and marketing of mango fruits, included lack of technical know-how on scientific management
practices. Kameri, (2012) established that, training and research is one of the major requirements for profitable enterprise and recommended that research on marketing should be intensified and the findings made available to farmers. Farmers’ success and sustainability are determined by extent of their equitable participation in markets accompanied by their higher level of training on marketing (Serem, 2010).

2.1.2.5 Effect of Prices on Marketing

Pricing of mango fruits is one of the most important factors that determine the economic status of mango farmers (USAID, 2005). According to Steve (2010), mango fruits prices can be raised if farmers can focus on mango concentrate for juice production, consumption on fresh fruits and dried fruit products. There should be a shift from mere “marketing” to “supply chain management” in order to realize more prices (Sarada, 2013).

Analysis of the production segment of the mango value chain shows that mango farmers can make significant returns from mango farming (Griesbach, 2003). Given prevailing cost structures and mango prices, a farmer adopting good agricultural practices can make a gross profit of ks. 161,200 per acre per year (Kehlenbeck et al., 2010). To generate this level of income however, farmers have to invest on average ks. 1,088 per tree annually (or ks. 108,800 per acre) (Musinga et al., 2012).

2.1.2.6 Effect of Infrastructure on Marketing

Improvement of rural roads results in elimination of frequent road closures during rainy seasons, reduction in vehicle operating costs and increased traffic volume, ownership of motorized vehicles, access to market and social services, and improvement in passenger services (World Bank, 1996). Villages with good road network have a
significantly improved situation in terms of agricultural production and incomes compared to the villages with poor road network (Raisuddin and Hossain, 1990).

The improvements of feeder roads, bridge construction, and rural road routine and spot maintenance results in increased participation of vendors at local markets, increased variety of available agricultural products and the geographic size of markets for agricultural products (Lucas et al., 1995 and Torbjorn and Bharat, 2012). Good road accessibility significantly reduces farm gate prices of manufactured goods and increase farm gate prices of agricultural goods (Torbjorn and Bharat, 2012). Households with poor access to road are confronted with wider price bands and are less likely to participate in markets, so policies towards integrating remote areas with urban areas through infrastructure development are needed (Torbjorn and Bharat, 2012). This raises speculations that poor road network among other factors could be contributing to huge price fluctuations in Masongaleni ward.

Provision or improvement of transport services results in reduction of transport cost and/or travel time which in turn lead to increased production (Torbjorn and Bharat, 2012 and IFAD, 2001). Similarly, Bhalla, (2000) argued that the marginal cost decreases as a result of improved transportation. In line with this, improving transport in Masongaleni ward will likely raise profit margins of the mango farmers. World Bank (1994) terms transport as one of the factors of production. Local farmers of Masongaleni ward may benefit from improvement of roads because of the reductions in the cost of transporting agricultural products to markets.
2.2 Critical Review of Major Issues

There are many challenges that affect horticultural marketing which have been brought to light in various studies. HCDA (2009), has summarized these challenges as follows; Inadequate legal and policy frameworks; Low effectiveness of extension services; Low application of modern technology; Poor governance in agricultural institutions; Inadequate quality control systems; Multiplicity of taxes; Low availability of capital and limited access to affordable credit; Inadequate market and marketing infrastructure; High cost, adulteration and low application of key inputs; Pests and diseases; Frequent droughts and floods; Lack of storage and processing facilities; Poor infrastructure and Increasing incidence of HIV/AIDS, malaria and waterborne diseases.

These challenges have been generalized. This makes it difficult to offer solution to particular areas. In fact the umbrella horticultural body in Kenya, HCDA, has instituted some interventions such as; farmers exchange tours; building capacity on technical skills through farmers training; group formations; improved research; provision of transport and cooling facilities; market surveys and exhibitions.

However, the major issues that require investigation in marketing of mango fruits in Masongaleni ward have remained as the middlemen who buy mango fruits at farm gates, the level of education of farmers and middlemen, mango prices and road infrastructure. The middlemen have been accused of exploiting the farmers (Mututo, 2011). The level of education/training on mango fruits marketing is suspected to be low leading to poor management of the fruits marketing (Niyibigira et al., 2003). The variation in mango prices has left farmers with no clear idea on what to expect from their production. The roads are in a state that limits accessibility to many areas forcing marketing costs to be high.
2.3 Conceptual Framework

Fig. 1 shows conceptual framework on the marketing of horticultural produce in Masongaleni ward of Kibwezi constituency. It conceptualizes that marketing of horticultural produce such as mango fruits in Masongaleni ward of Kibwezi constituency is dependent on role of middlemen, farmers marketing knowledge/training, pricing of mango fruits and infrastructure.

2.0 CONCEPTUAL FRAMEWORK

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variable</th>
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<tr>
<td>Role of Middlemen</td>
<td>Marketing of Horticultural Produce</td>
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<tr>
<td>Education/training</td>
<td></td>
</tr>
<tr>
<td>Pricing</td>
<td></td>
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<tr>
<td>Infrastructure (Road network)</td>
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**Figure 1:** Conceptual framework on the marketing of horticultural produce in Masongaleni ward, Kibwezi constituency.
2.4 Summary and gaps to be filled

Some authors have argued that middlemen are important in marketing (Sandika, 2011) while others have indicated that middlemen should be avoided (Mututo, 2011). It is therefore important to establish whether middlemen are necessary in marketing of mango fruits in Masongaleni ward. The level of education on mango farmers in Masongaleni ward and how it is affecting the marketing of mango fruits has not been clearly studied.

While HCDA has initiated an intervention on training (Serem, 2010), the level of education / training of farmers and middlemen in Masongaleni still appear to be low. From the literature, it has not been clear whether Masongaleni farmers know how to price mango fruit properly, because no study has been done to establish this. The past studies have generalized the aspect of infrastructure in marketing. This has made it difficult to know clearly the effect of specific infrastructure such as roads in a particular region.
CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter will focus on the research design, target population, sampling design, data collection procedures, data analysis and presentation.

3.2 Research Design

A case study design was applied. This design is useful for testing whether or not a specific theory applies to observable fact in the real world (Yin, 2003). In the study, the role of middlemen, education/training, pricing and infrastructure particularly road network was tested to see how they affected marketing of mango fruits in Masongaleni ward, Kibwezi constituency.

3.3 Target Population

It was estimated that a population of 200 farmers (households) and 25 middlemen were involved in mango marketing in Masongaleni ward.

3.4 Sampling Design

Stratified sampling method was used to get a sample of farmers and middlemen in Masongaleni population. A stratified sample of 50 farmers, 12 middlemen, 2 exporters and 1 DAO (Table 1) was selected using the random number table.

3.5 Data Collection Procedure

Questionnaires were administered directly to individual farmers, middlemen, exporters and DAO (using two-stage stratified sampling technique as outlined by Levy & Lemeshow (1999). The first stratum included mango farmers and the second involved the
middlemen, exporters and DAO. The questionnaire was organized into personal identification questions, general questions on mango marketing, role of middlemen, education/training of mango farmers/middlemen, pricing, infrastructure (road network) and rating of these variables. It took two weeks to collect the data.

**Table 1:** Target Population and Sample size obtained

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Population</th>
<th>Sample size obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mango farmers</td>
<td>200</td>
<td>50</td>
</tr>
<tr>
<td>Middlemen</td>
<td>25</td>
<td>12</td>
</tr>
<tr>
<td>Exporters</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>DAO</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>233</strong></td>
<td><strong>65</strong></td>
</tr>
</tbody>
</table>

**3.6 Data Analysis and Presentation**

Data was analyzed using descriptive statistics which included measures of central tendency and measures of variability. The mean, the medium and the mode were determined. The measures of variability were the range, standard deviation and variance. The data was analyzed using SPSS software (Statistical Package for the Social Sciences) and presented in form of tables and charts.
CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

4.1 Introduction

Sixty five questionnaires were administered in August 2013 in Masongaleni ward of Kibwezi constituency and the response was a 100%. It was noted that 9.1% of the mango players were over 50 years while 34.4% ranged between 41-50 years. 17.2% ranged between 31-40 years. 4.7% were aged between 21-30 years while 4.7% were less than 20 years. 81.3% of the respondents were males while only 18.8% were females. 92.1% had 20 years experience in mango farming, 4.8% had between 21 - 30 years experience, 1.6% had between 21-30 years experience while 1.6% had experience of over 50 years in mango farming.

4.2 Marketing of horticultural produce

Mango was found to be the most popular horticultural produce in Masongaleni with 63.1% followed by tomato with 18.5%, watermelon with 4.6% and capsicum 1.5%. All the other produce constituted 12.3%. Respondents gave the following reasons for preferring mango; drought resistant, long lifespan, ready export and local market, fetches better income and yield more than other produce, easy to plant and to manage, requires less water and while it produces once yearly it tripled in production. Mango was termed as the only export crop in Masongaleni. In every ten homesteads, seven had mangoes to which they depended on for their income. Respondents said that mango was; the most viable income generating activity in the area, long term investment and its production cost was low compared to the other horticultural produce. Further, it did not involve a lot of supervision while in early stages. Mango was preferred as it is friendly to the environment and the
climate is favorable to mango farming. Farmers along the Athi river bank are able to do irrigation and thus increase their income. In Masongaleni, the most popular mango variety was Apple which accounted for 93% of the sales, while Ngowe was second with 5.2% followed by Kent with 1.7%. ABD, (2011), Musinga et al, (2012) had pointed out that these are among the main varieties in Kibwezi. Plate 1 shows a farmer displaying a mature apple mango fruit that was ready for harvesting.

Plate 1: A farmer holding a mature apple Mango variety.

Tomato was the second most popular crop in Masongaleni. Those who preferred tomatoes reported that the crop was easy to manage, grew throughout the year and was less costly to grow compared to mangoes. They also said that tomato had ready market locally
and was a short term crop that gave quick and better returns. The community was able to buy most of the produce without farmer having to ferry the yield far to the market. Respondents said the crop did not require middlemen or training of farmers.

Capsicum was the third most preferred horticultural crop. Those who preferred capsicum pointed such reasons as ease of management, ability to sell at farm gate, long harvesting period and ability to withstand market changes such as fluctuations in demand and prices. Watermelon was the fourth most preferred horticultural crop. Those who preferred watermelon noted that the area had good climate for the crop, it did not require a lot of water and was easier to market locally.

4.3 Factors affecting marketing of Mango fruits in Masongaleni ward

The main factors affecting marketing of mango fruits in Masongaleni ward were found to be middlemen, education/training of mango farmers/middlemen, pricing and infrastructure (road network). These factors, which were also independent variables under study, were rated with a view of finding out which among them influenced marketing of mango most. It was noted that middlemen had most effects followed by pricing, then road network and lastly education/training of farmers. Serem (2010), had already given an insight about factors such as infrastructure and prices and their effects on mango fruits marketing.

Table 2 shows the ratings of middlemen, education/training of mango farmers/middlemen, pricing and road network basing on the effects on marketing of mango fruits in Masongaleni ward. The rates were low, moderate and very high. 58.5% of the respondents reported that the effect of middlemen on marketing of mango fruits was very
high. Majority of the respondent reported education/training to only have moderate effect on marketing of mango fruits.

**Table 2:** Rating of middlemen, education/training, pricing and road network on how they affect marketing of mango fruits.

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Moderate</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middlemen</td>
<td>13.80%</td>
<td>26.20%</td>
<td>58.50%</td>
</tr>
<tr>
<td>Pricing</td>
<td>20%</td>
<td>33.80%</td>
<td>46.60%</td>
</tr>
<tr>
<td>Education/Training</td>
<td>27.70%</td>
<td>43.10%</td>
<td>27.70%</td>
</tr>
<tr>
<td>Road network</td>
<td>27.70%</td>
<td>29.20%</td>
<td>41.50%</td>
</tr>
</tbody>
</table>

4.3.1 Middlemen

Middlemen accounted for 18.5% of the respondents while 76.9% were farmers and 3.1% were exporters. Fig. 1 shows the representation of the middlemen, farmers, exporters and District Agricultural Officer (DAO) and their percentage in Masongaleni ward. Middlemen were much fewer than farmers. This was expected since middlemen population was lower than that of farmers. It is common to find fewer middlemen controlling mango fruits produced by many farmers (Mututo, 2011).
Figure 2: The percentage of the middlemen, farmers, exporters and District Agricultural Officer (DAO) in Masongaleni ward of Kibwezi constituency

It was reported that middlemen determined the mango fruits prices in 79.3% of the transactions followed by exporters with 8.6% and farmers with only 6.9% share. 3.4% of the mango prices were set through mutual agreement while 1.7% was dictated by market price. This agreed with (ADB, 2011) where it was noted that farmers were hardly involved in direct selling of their fruits. Figure 3 shows the representation of middlemen, farmers, mutual agreement and market price on their involvement in mango fruits price setting.
It was found out that 43.7% of the respondent agreed that middlemen provided the most convenient method of selling mango fruits while 45.4% disagreed with that assertion. However, 10.9% did not know which method is convenient. This finding concurred with (GOK, 2003, USAID, 2005) that middlemen guaranteed continuous mango supply to the market and may open new opportunities to particular market segments.

76.9% agreed with the assertion that middlemen are more knowledgeable on marketing than mango farmers, while 18.5% disagreed. 4.6% did not know who is more knowledgeable. This agreed with (Serem, 2010) that farmers have low level of education and therefore limited information on prevailing market situation as compared to middlemen.
When respondents were asked whether they thought middlemen exploited farmers’ unfairly, 78.5% agreed while 18.5% disagreed. 3.1% did not respond to this question. This concurred with (Mututo, 2010) that middlemen exploit mango farmers by paying very little for fruits while selling at high prices. However, it was noted that more than 90% of farmers relied on middlemen to whom they sold their mango fruits at farm gates. This agreed with Sandika, (2011), that middlemen are important in marketing. Respondents suggested that to promote good relationship between the farmers and middlemen, the following should be done; Farmers should form groups and liaise with HCDA which should source for the market and the best prices for the farmers. Farmers should be educated/trained on mango production, marketing and pricing. Government should formulate policies and procedures on pricing of mango fruits. Farmers and exporters should enter into an agreement on pricing of mango fruits whereby middlemen earn a commission paid by the exporters. A price formula should be developed to accommodate both farmers and the middlemen.
4.3.2 The effects of education/training of mango farmers and middlemen on marketing of mango fruits.

Table 3 shows that the highest population of farmers had primary education while highest population of middlemen had secondary education. Majority of exporters had secondary and college education. The low level of education on the part of farmers points out to low management skills and probably explains why Niyibigira et al, (2003) noted that there was poor management in mango fruit marketing. However, 70.7% of the respondents felt that mango sales is not affected by the level of education, while 27.7% felt the level of education affects sales. The high percentage (70.7%) of those who felt that the level of education does not affect sales contradicts the information by Steve (2010), that training of farmers on mango fruits products can maximize the prices.

Table 3: The level of education of mango market players

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Respondent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Middlemen</td>
</tr>
<tr>
<td>Primary</td>
<td>0.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>66.7</td>
</tr>
<tr>
<td>College</td>
<td>25.0</td>
</tr>
<tr>
<td>University</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Interestingly, everybody agreed that education/training could increase income from mango fruits. This probably indicated why Feder et al, (1987), Kameri, (2012), Serem
(2010), noted that training of farmers is one of the major requirements for profitable enterprise.

When respondents were asked whether the level of education could improve post-harvesting techniques, all agreed. This is consistent with what many respondents felt with regards to the importance of training in increasing the income from mango fruits. Probably most farmers felt that they lost more income during post-harvesting and therefore education/training on post harvesting handling techniques could avert such losses.

Respondents suggested that education could be raised through; training, seminars and workshops by government and non-governmental organizations on good farming skills, management and handling techniques. It was also suggested that there should be more involvement of field officers and training of all mango players on mango production.
4.3.4 The effects of Prices on marketing of mango fruits in Masongaleni Ward.

It was noted that sales start in July and runs to February of the following year. 84.5% of the respondents sold mango fruits in pieces while 15.5% sold in kg. Comparing the prices for middlemen and farmers it was found out that middlemen received an average of ks.11.7 in January while farmers received an average of ks.1.8. In February middlemen price was ks.3.3 while farmers’ was ks.1 per piece. In September middlemen sold mango fruits at ks.48.3 while farmers sold at ks.24, as shown in (Table 4). This agreed with ABD, (2011) that prices fluctuate highly per month. However, whereas ABD noted that the fluctuation ranged between ks.25 to ks.5, in Masongaleni the questionnaire revealed that the fluctuation is far much greater than this ranging from an average of ks.24.25 to ks.1.00 for farmer and ks.48.30 to ks.3.30 for the middlemen. These results also showed that middlemen got larger share than farmers as was noted by Serem, (2010). It was therefore not surprising that, 83.3 % of the middlemen were happy with the prevailing mango prices while 90% of the farmers were unhappy. Farmers who sold in kilograms made slightly higher income than those who sold in pieces as shown in Table 4.

It was further noted that the month of November had the highest quantities of mango fruits while the month of February had the lowest (Table 5). In Masongaleni the quantities were highest in November and lowest in February while farmers sold at highest prices in September and lowest in February. This contradicted Umar, (2011), that as supply increases prices fall. In this case, the months with highest supply also had highest prices for the farmers.
Table 4: Mango fruits prices in pieces and kilogram

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug.</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prices in pieces</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Middlemen</td>
<td>11.7</td>
<td>3.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>48.3</td>
<td>45</td>
<td>35.8</td>
<td>21.7</td>
</tr>
<tr>
<td>From Farmer</td>
<td>1.75</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.2</td>
<td>2.4</td>
<td>24.25</td>
<td>19.25</td>
<td>15.39</td>
<td>0.29</td>
</tr>
<tr>
<td><strong>Price in kg</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Middlemen</td>
<td>8.5</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>61</td>
<td>49</td>
<td>38</td>
<td>26</td>
</tr>
<tr>
<td>From Farmer</td>
<td>15</td>
<td>22.5</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>15</td>
<td>23.3</td>
<td>23.3</td>
<td>40</td>
<td>38.3</td>
<td>36.6</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>January</td>
<td>February</td>
<td>March</td>
<td>April</td>
<td>May</td>
<td>June</td>
<td>July</td>
<td>August</td>
<td>September</td>
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<td>November</td>
<td>December</td>
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<tr>
<td><strong>Quantities in pieces</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Middlemen</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3333</td>
<td>8333</td>
<td>15000</td>
<td>666</td>
</tr>
<tr>
<td>From Farmer</td>
<td>704</td>
<td>274</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>434</td>
<td>366</td>
<td>5242</td>
<td>10275</td>
<td>13108</td>
<td>8032</td>
</tr>
<tr>
<td><strong>Quantities in kg</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Middlemen</td>
<td>3200</td>
<td>800</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2200</td>
<td>8100</td>
<td>12900</td>
<td>7200</td>
</tr>
<tr>
<td>From Farmer</td>
<td>2,083</td>
<td>2,083.5</td>
<td>2,083</td>
<td>22.5</td>
<td>1375</td>
<td>1375</td>
<td>333.3</td>
<td>333.3</td>
<td>18,833.3</td>
<td>19,500</td>
<td>20,666.6</td>
<td>21,000</td>
</tr>
</tbody>
</table>

Table 5: Mango fruits quantities in pieces and kilogram
When respondents were asked whether they knew their profit margin when selling mango fruits, 82.9% said they knew while 14% said they did not know. This was consistent with the 81.5% of the respondents who said they knew how to calculate the cost of production.

It was found out that 69.2% of the respondents felt that group selling was more profitable than individual selling while 23.1% disagreed. In contrast only 5.2% sold as a group while 94.8% sold individually. When respondents were asked for their recommendation on the pricing of mango fruits, they said the following; farmers should be organized in groups, agree on the prices with exporters of mango produce, government through HCDA should enforce and regulate the prices, farmers should determine the prices of their mango produce since they are the ones who know the production costs. Prices should be driven by supply and demand dynamics rather than adhoc pricing by middlemen. With poor production, farmers cannot get good prices for their produce, thus farmers should be trained on production and handling techniques. Majority of the farmers suggested that groups of farmers should be formed to facilitate production and marketing of mango fruits. Their suggestions were in line with Andrea, (2012) who noted that organizing mango production through farmers groups minimizes the need for middlemen.
4.3.5 The effects of infrastructure on marketing of mango fruits.

Figure 4 shows main marketing places for mango fruits by middlemen and farmers. The main marketing place was found to be dependent on middlemen. Most farmers sold their fruits to middlemen on-farm. Middlemen then sold to supermarkets, exporters, open markets and processors in that order. This information indicated that middlemen were main distributors of mango fruits to the consumers, a trend that USAID (2005), had noted in other parts of the country.

![Figure 4: Main marketing places for mango fruits by middlemen and farmers](image)

Figure 5 shows that most common mode of transport was lorries with 55.2%, followed by pickups with 37.9% while others accounted for 6.8%. It was however, noted that 82.8% of the respondents felt that the mode of transport for mango fruits is inappropriate while 15.7% felt it was appropriate. This probably explains why 89.2% felt that poor road network determined the buying prices of mango fruits from farmers while only 9.2% felt that
it did not affect. As a result of this, 95.4% agreed that improving road network could increase income from mango fruits while 4.6% felt it cannot.

![Bar chart showing the mode of transport and the percentage of mango produce transported to the market.]

**Figure 5:** The mode of transport and the percentage of mango produce transported to the market

On the other hand, a whopping 98.5% agreed that a processing plant could minimize losses that arose from poor road network while only 1.5% disagreed. Torbjorn and Bharat, (2012); IFAD, (2001); Bhalla, (2000) and World Bank, (1996) expressed similar views regarding improvement of roads in relation to agricultural produce and their accessibility to the market.
CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter contains the summary of the results, conclusion, recommendations and available areas for further studies.

5.2 Summary

This study was conducted to investigate the challenges of marketing of mango fruits in Masongaleni ward of Kibwezi Constituency and four specific objectives were studied to achieve this purpose. These were; to determine the effects of middlemen; to investigate the effects of education/training of mango farmers and middlemen; to examine the effects of prices and to find out the effects of infrastructure in the marketing of mango fruits in Masongaleni ward. A questionnaire was developed addressing all these objectives from which sixty five copies were produced and administered to Masongaleni farmers and middlemen.

Mango was found to be the most popular horticultural produce followed by tomatoes, watermelon and capsicum in that order. The mango sector was found to be practiced by people of all ages where majority were over fifty years. Majority of the farmers had twenty years in the sector. The marketing phase for mangoes was found to be from September to February while the other horticultural produce were produced all the year round. However, mango was said to more resistant to drought than other horticultural produce which were said
to require more water. It was found out that middlemen affected the marketing of mango fruits the most followed by the prices, infrastructure and education /training respectively.

Many farmers expressed their views that middlemen exploited them and got more income from mango fruit sales than farmers. Majority of farmers sold their mango fruits at farm gate to middlemen who in turn sold highest quantities to supermarkets, exporters, open market and processors in that order. Education/training was not viewed to be a major factor in price determination but many farmers felt that it could help improve their income from mango fruits. It was interesting to find out that in the month of November when the mango quantities were highest their prices were also at their highest. Prices were found to fluctuate between ks.24.25 to ks.1 per piece for farmers and ks.45 to ks.3 for the middlemen. Only a few farmers were selling directly to exporters while many others sold to middlemen at farm gate. Those who sold directly to exporters made better income compared to those who sold to middlemen.

Infrastructure, particularly road network was found to be inappropriate. All respondents felt that the poor road network affected the buying prices for their fruits and as a result they agreed that their income could be increased by improving road network.

5.3 Conclusion

The mango sector has bloomed over the past 20 years hence the reason for the increased number of people in mango farming during this period. From the study, farmers needed middlemen for marketing of their produce. Middlemen were more educated than farmers hence had a better understanding of marketing of mango fruits and made more income from mango fruits than farmers. The fact that 83.3% of the middlemen were happy with the prevailing mango prices and 90% of the farmers are unhappy is a clear indication
that middlemen made more profit than farmers. Despite the majority of farmers having only primary education they still disagreed with the assertion that education/training affected their sales. Probably they did not wish to admit that their low education was a hindrance to the extent of sales they were making.

5.4 Recommendations

It should be investigated why many farmers do not sell as a group yet 69.2% believe group selling is more profitable than individual selling. There should be a structured and agreed price formula beneficial to both middlemen and farmers. To realize better income from mango fruits there is a need for training of all stake holders on marketing and post harvesting techniques. Road network requires to be improved to be more accessible to common modes of transport (lorries, pick-up and bicycles) in Masongaleni ward.

5.5 Suggestion for further studies

There should be further studies on viability of a mango fruits processing plant in Masongaleni ward, to minimize losses due to poor roads and also cater for the fruits that are left out while selling to on-farm buyers, supermarkets and exporters.
REFERENCES


APPEDICES

Appendix 1: Research authority letter

KENYATTA UNIVERSITY
SCHOOL OF BUSINESS
DOCTORAL & MBA COORDINATION OFFICE

P. O. Box 43844
NAIROBI
KENYA
Tel: 020 870 3724
16th August, 2013

TO WHOM IT MAY CONCERN:

RE: BERNADETTE M.NZIOKI – D133/CTY/PT/22422/2012

This is to confirm that the above named is an Executive Master of Business Administration (EMBA) student in the School of Business, Kenyatta University.

She is through with course work and has successfully defended her Masters Degree proposal (Challenges Affecting Marketing of Horticultural Produce in Kenya: Mango Fruits in Masongaleni Ward of Kibwezi Constituency). I confirm that she has done all the corrections that were pointed out by the examiners during the defense and she is now embarking on data collection.

Any assistance accorded to her will be much appreciated by this office.

Thank you,

ISAAC P. LORERIS
FOR: DOCTORAL AND MBA PROGRAMME COORDINATOR
Appendix 2: Location

Masongaleni location in relation to Kibwezi and Kenya.
Appendix 3: Questionnaire

Section A - Personal identification information

This part contains questions about personal identification information. If there are more options (answers) to one question, please mark the one that applies to you the most.

1. Age (Years)
   - □ 0-20
   - □ 21-30
   - □ 31-40
   - □ 41-50
   - □ Over 50

2. Sex
   - □ Male
   - □ Female

3. What is your role in mango fruit marketing?
   - □ Middleman
   - □ Farmer
   - □ Other (please specify):

4. Level of education
   - □ Primary school
   - □ Secondary school
   - □ College
   - □ University
   - □ Other (please specify):

5. How many years have you been a mango farmer
   - □ 0-20
   - □ 21-30
   - □ 31-40
   - □ 41-50
   - □ Over 50
Section B - General questions on mango marketing

This section focuses on questions about mango fruits and their marketing.

6. At what price do you sell mango fruits during the following months where applicable? Please indicate the unit (for example price/kg OR price/piece OR specify any other)

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

7. Indicate the quantities of mango sold in each of the following months.

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

8. Who usually decides the mango fruit selling prices?

- Middleman
- Farmer
- Other (please specify): 

9. Where do you sell mangoes?

- On farm buyer
- Open market
- Supermarket
- Processor
- Other (please specify): 

10. Which variety of mango sells most?

- Van dyke
- Kent
- Tommy
- Ngowe
- Apple
- Other (please specify): 

11. What is the mode of transport for your mango fruits to the market?

- Bicycle
- Wheelbarrow
- Cart
- Pick up
- Other (please specify): 

43
12. Do you sell fruits individually or as a group?

☐ Individually  ☐ Group

**Section C - Role of Middlemen**

This part of the questionnaire deals the role of middlemen in marketing mango fruits. The section deals with motives that might apply when you sell through middlemen.

13. Middlemen provide most convenience method of selling mango fruits.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

14. Middlemen have better access to mango fruit market than farmers.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

15. Middlemen are more knowledgeable on marketing than mango farmers.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

16. Do you think middlemen exploit mango farmers unfairly?

☐ Yes  ☐ No

17. If yes, suggest what can be done to promote good relationship between the farmers and the middlemen.

**Section D - Education/training of mango farmers/middlemen**

This part of the questionnaire deals with level of education of mango farmers and middlemen. The level of education is important when it comes to decision making and ability to manage the marketing process. This section deals with this aspect.

18. Calculating the cost of producing mangoes is difficult for me because of my education level.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

19. Mango fruits sales are not affected by the level of my education.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

20. Education/training can increase the income from marketing of mango fruits.
   Completely disagree ☐  Disagree ☐  Don’t know ☐  Agree ☐  Completely agree ☐

21. Do you think the level of education can improve mango post-harvest handling techniques?

☐ Yes  ☐ No
22. Suggest how the education level can be raised in Masongaleni ward.

Section E - Pricing

A mango price can be higher or low, but whether there is profit or not is what is most important. The next propositions are about this experience.

23. I do not usually know my profit margin when selling my mango fruits.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

24. My mango fruit sales differ with varieties.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

25. Selling mango fruits individually is less profitable than selling when am in a group.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

26. Are you happy with the current mango prices?
    □ Yes  □ No

27. What is your recommendation on the pricing of mango fruits?

Section F – Infrastructure (Road network)

This section deals with road network that may directly affect mango fruits.

28. The mode of transport for mango fruits to the market is inappropriate.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

29. Poor road network do not determine the buying prices of mango fruits from farmers.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

30. Income from mango can be increased by improving the road network in Masongaleni.
    Completely disagree □  Disagree □  Don’t know □  Agree □  Completely agree □

31. Do you think mango processing plant in Masongaleni can minimize losses that may arise from poor road network?
    □ Yes  □ No
Section G - Rating

This section deals with the rating of the effects of role of middlemen, education/training of mango farmers/middlemen, pricing and road network on marketing of mango fruits in Masongaleni ward. The section also seeks to find the most popular horticultural produce.

32. Using the scale below, rate how each of the following factors affects marketing of Mango fruits.

Low □ Moderate □ Very high □

Middlemen ............................
Pricing .................................
Education/training ......................
Road network .........................

33. Which horticultural produce is the most popular in Masongaleni ward?

34. Give reasons for your answer in 33 above.
## Appendix 4: Budget

<table>
<thead>
<tr>
<th>Detailed activity Component</th>
<th>Total (Ks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication costs (Telephone, airtime, internet)</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Travelling costs</td>
<td>15,000.00</td>
</tr>
<tr>
<td>Stationery (note book, Pen, printing papers, Monitoring and, binding)</td>
<td>45,000.00</td>
</tr>
<tr>
<td>Meals</td>
<td>4,000.00</td>
</tr>
<tr>
<td>Accommodation</td>
<td>21,000.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5,000.00</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>100,000.00</strong></td>
</tr>
</tbody>
</table>