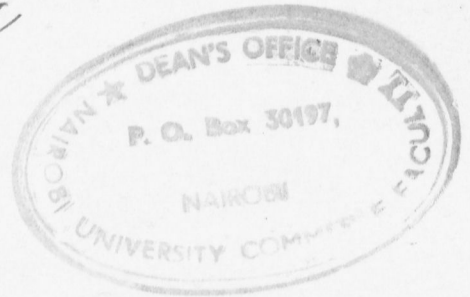


" **Horticultural Marketing Problems in Kenya:**
A case for Small-scale Farmers of Ndia
Division, Kirinyaga District "



BY: KIMANI W.S.

A Management research project submitted in partial fulfilment
of the requirements for the degree of masters of Business
Administration (MBA), Faculty of Commerce, University of
Nairobi, July 1998.

This project is my original work and has not been submitted for a degree in any other university.

Signed Sarah Wambui Kimani

Date

2/11/98

Sarah Wambui Kimani.

This project has been submitted for examination with my approval as University Supervisor.

Signed

Dr. M. M. Ogutu

Date

2/11/1998

Dr. Martin M. Ogutu.

DEDICATION.

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DEDICATION

This project is dedicated

TO: My lovely daughter, Shirleen,

My dear husband, Elias

AND: My Loving daddy Ernest Willeys Kimani

FOR: Their immense love, patience, co-operation

AND dedication to education

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ABSTRACT

The survey of the study reported here was carried out between May and July 1998.

The study sought to determine the horticultural marketing problems facing small-scale farmers of Ndia division in Kirinyaga district. The population of interest was all the small-scale farmers of Ndia division. The information sought was collected using a questionnaire, which was completed by twenty-seven farmers. The findings of the study suggested that the small-scale farmers of Ndia division suffered from many horticultural marketing problems. The major problems were; lack of market information on prices and market opportunities, low and poor prices and exploitation by brokers. Others included high transportation costs, due to poor infrastructure, high market fee charges, and perishability of the produce, among others. As a result, the farmers perception of the horticultural markets and marketing was very low and negative. In addition, the farmers had a negative attitude towards the brokers whom they felt exploited them greatly. However, this was an evil they could not do without.

The research findings also suggested what farmers perceived as possible solutions to their problems. These included monitoring market prices, proper and careful handling of the produce, conducting simple market research, engaging in personal selling and selling as a group to have a stronger bargaining power.

In conclusion, an important implication of this study is that the government and other private bodies should intervene in solving the horticultural marketing problems facing the small-scale farmers of Ndia Division. With proper support, this sub-sector of the economy may be expected to be a big source of income for farmers and would also provide employment to a host of unemployed Kenyans.

I would like to acknowledge the following, whose contributions facilitated the completion of this project.

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CHAPTER ONE

BACKGROUND

Horticultural marketing in its widest sense comprises all the operations involved in the movement of produce (fresh vegetable, fruits, cut flowers and other ornamental foliage) from the farm to the final consumer. It stops short only at processing which changes the nature and use of the product. It includes the handling of the produce at the farm, initial processing, grading and packing in order to maintain and enhance quality and avoid wastage. Arrangements to transport produce from the farm to local and central assembly points, and for subsequent distribution to consumers, are important features of marketing. Selling and Pricing Procedures, intermediary charges, and institutional fees and taxes help to determine the extent of the difference between the prices paid by the consumer and that received by the producer. Information services and forecasts of prospective supply and demand are invaluable if production and sales are to be planned to the best marketing advantages. Storage is another important feature of horticultural marketing, together with methods of packaging and presenting the product to suit the requirements of final consumers (Abbott 1993).

In providing an efficient link between the producer and the consumer, an efficient marketing system is critical, which must function to faithfully reflect back to the producer the facilities, organization and practices required to provide the incentives necessary to get the farmer to produce for the market, to undertake the physical movement of produce to the point of consumption, to transform the product so as to conform to consumer demand and finally to undertake the holding of the product from the time it is produced

until it is sold in the market. (Vincent 1967). Such an efficient marketing system however, does not exist in Kenya.

Many places are cut off from markets for their produce during certain seasons. According to the World Bank (1987) many roads have been inadequately maintained with the result that transport costs have increased. Farmers therefore encounter increasing difficulty in finding transport services.

In addition, Abbott asserts that the high costs of marketing facing farmers are due to firstly, poorly developed storage, handling, packing and processing techniques. This is added to by lack of market information, narrowness of the market, immobility of buyers and sellers and lack of credit.

Secondly, marketing channels are poorly developed. There are few market centres with adequate facilities or buying points to which produce may be moved, an absence of grades and standards to facilitate and direct the movement of produce, an absence of legal contracts, and standard weights and measures, little or no guidance from market information, little commercial outlook to co-ordinate segments in the chain in response to changes in volumes, cost, price, consumer preferences, purchasing power or supply of related products.

Further, producer incentives are poor. According to Nyoro (1993), small-scale farmers organize production without consulting buyers the result of which have left them with fewer buyers than expected. Where these farmers are organized in groups that contract with specific buyers, such supply contracts are often violated. Contract prices normally are lower than the competing prices offered by other buyers outside the contract.

In the cases where these buyers use local agents or merchants to serve as intermediaries, performing various functions on their behalf such as distribution of packaging materials, payment to farmers etc, have often left farmers dissatisfied. According to Stiven (1996), broker mark - up is considered excessive and the relative opulence of some brokers households is held - up as evidence of exploitation. However, it is recognized that they are necessary.

1.10 THE RESEARCH PROBLEM

Kenya horticultural export sector has experienced phenomenal growth since the mid 1960's. In recent years, however, export growth has declined. {See Appendix (iii)}

Data from the Ministry of Agriculture (MOA 1996) does indicate that the marketing of horticultural produce continues to be hampered by lack of well organised marketing channels and exploitation by middlemen. This is a major problem for small-scale farmers of such horticultural produce as French beans and snow peas.

Several studies have been done on horticultural produce, but they have been mainly focused on production, pests and diseases. However production alone is not enough in horticulture and one cannot ignore the state of the market with impunity.

Other studies done on horticultural problems are in other countries. Honma (1991) carried out an import demand analysis on the trade flows of horticultural products from developing countries to Japan. He noted that although Japan is a growing market for a number of horticultural produce the share of Japan's imports from the developing countries has been decreasing.

Van Oppen (1976) addressed the problem of horticultural marketing in India. He found that improvements in marketing are correlated with increased aggregate productivity.

Several other studies have looked at marketing of horticultural produce such as Cueno 1981; Sandoval 1983; Chen 1983 and Suzuki 1983. These studies have been done in other countries.

Only a few studies have been done in Kenya dealing with horticulture. Nyoro (1983) did a research on the production of horticultural crops in Kenya at three different scales namely, small, medium and large scale. Kodhek (1993) researched on exporting Kenya's horticultural production. No study was found dealing with horticultural marketing problems in Kenya.

This study will only focus on small-scale farmers who contribute about 80% of all produce (HCDA). However, due to the marketing problems they face, production is also affected. It is therefore hoped that if these, marketing problems are overcome the farmers would be able to produce more and sell more thus improving the economy in terms of foreign exchange earnings.

Subsequently the marketing of the export produce would be improved and efficiency in the whole horticultural marketing system may be achieved.

Consequently, these would raise the standard of living of the small-scale farmers and the society at large.

1.20 OBJECTIVE OF THE STUDY

This study aimed at determining the horticultural marketing problems facing small-scale farmers of Ndia Division in Kirinyaga district.

1.30 OVERVIEW OF THE REPORT

This report is divided into five chapters. The first chapter is the introduction of the study. It gives the background of horticultural marketing and the need for an efficient marketing system which lacks in Kenya. The chapter also highlights the research problem and the objective of the study.

The literature review is contained in Chapter Two. It gives some background literature on horticulture in Kenya, importance of small scale production system, and previous research in horticulture. It further provides literature on the major characteristics of horticultural commodities which provide the basis for the major problems in marketing these products. The chapter ends on horticultural marketing problems.

Chapter Three discusses the research methodology, the population, sample size and selection, data description and collection and data analysis techniques. Validity and reliability tests of the scale used in this study are also discussed.

The fourth Chapter gives a summary of the data analysis and discussions of the findings. The analysis is based on the objectives of the study.

Chapter five presents a summary of the findings, conclusions, limitation of the study and the suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

Background

Horticultural exports from Kenya began in 1930s' when passion fruit juice was exported to Europe. The first air freighted export of fresh horticultural produce occurred in 1950's when high value fresh produce was exported to the United Kingdom. Since then exports of fresh produce has expanded to other countries-Europe and the Middle East. Horticulture's share of Agricultural exports earnings and total domestic export earnings have increased steadily since 1966.

Horticulture has played a major role in expanding the export base, providing employment production, packaging, transporting, and exporting as well as providing income to many rural families.

Horticultural exports have experienced a tremendous growth since the mid 1960's providing the impetus for growth for Kenya's agricultural sector. However, in recent years export growth has declined.

Principal horticultural exports are cut flowers, French beans, Snow peas, Mangoes, Avocados, Ross, spray and standard carnations statice, alstroemelia.arabicum, solidaster, chrysanthemums, mollucella, tuberose, ornithogalum, delphinium, ami and anthuriums. Asian vegetables include more than 20 commodities such as brinjals, okra, karella, chillies, turia, tindori, dudhi varole and guwar. Snow peas is a relatively new crop introduced in 1991. Snow peas production is now expanding rapidly and is competing with French beans for land in Nyeri and Mwea. In Meru, snow peas is displacing coffee.

The European Community (EC) is the main destination for Kenya's fresh produce. The UK imports 36% of total Kenya exports volume, 16% of produce are destined for Netherlands and 13% for Germany. In terms of value, the highest proportions 50% and 34% respectively are exported to the Netherlands and Germany. These high shares reflect imports of high value cut-flowers. The narrow base of the exported fresh horticultural produce and the diversity of the produce markets indicate that horticultural exports from Kenya may be especially sensitive to changes in prices and demand.

2.00 HORTICULTURE IN KENYA

The governments' involvement in the horticultural industry is represented by the Horticultural Crops Development Authority (HCDA). The HCDA was established in 1967. Its initial objective included fixing pricing of horticultural commodities, marketing and operating horticultural processing factories. The Horticultural Crops Division of the Ministry of Agriculture is mandated to provide farmers with technical assistance in growing horticultural crops, seed certification, licensing and control of fruit tree nurseries, and quality control. The Crop Protection Division of the same ministry, issues phytosanitary certificates for fresh produce at the port of exit.

The industry is dominated by private sector in production, procurement, marketing finance and to a larger extent, research. Exporters are organized under the Fresh Produce Exporters Association of Kenya (FPEAK) which is financed through a kshs. 0.01 per kg levy, on all the fresh exports. All the exporters of fresh produce are members of FPEAK by virtue of paying the levy. One objective of FPEAK is to resolve problems affecting

Fresh Produce Exporters by providing a unified voice for airing grievances with the government.

HCDA was reorganized in 1976 and again in 1986. Currently, HCDA's functions are to license exporters, provide advisory services to the government and the industry, collect market intelligence for planning purposes, monitor international prices and foreign exchange remittance, raise loans for horticultural development, and establish, acquire and operate horticultural processing factories.

HCDA is also charged with providing market information to producers and exporters, supplying some key inputs to farmers, and assisting in grading, storage collection, transport and warehousing of produce (MOA 1991).

HCDA has been unable to disseminate market information to producers effectively although this information is available to HCDA from the International Trade Center (ITC) in Geneva.

The supply of inputs to farmers has been erratic. For example HCDA has been responsible for spraying nurseries and orchards against pests and diseases such as mango weevil in coastal province. The supply of inputs to farmers for this program was stopped in 1990 and left to farmers and exporting companies.

HCDA participates in international shows and exhibitions outside the country to popularise Kenyan produce. However, private export companies are also heavily involved in promotion and market research. HCDA is financed by an export levy on fresh produce exports of kshs 0.12 per kg of exported fresh produce and a variable levy on the processed produce.

The small scale production system

Fruits and vegetables for export are produced mostly by small-scale farmers who contributes 80% of all produce (HCDA 1997). Horticultural production requires substantial working capital for the purchase of intermediate inputs and labour.

Farm sizes in the small-scale Fresh horticultural production areas vary from as small as 1/10 of an acre in Kathiani (Machakos district). In Kirinyaga district, they lie between ½ an acre to 3 acres. Small scale producers are characterized by limited access to credit, low use of inputs due to lack of working capital, lack of access to improved high quality seeds, and little technical assistance, they also lack proper grading and weighing facilities.

Previous Research

Previous research efforts in this field have focused on production and have greatly ignored the marketing aspect. However for commercial growers, commercialization involves the marketing of the produce and the marketing opportunities are determined by the performance of the marketing system.

Nyoro (1993) did a research on the production of the horticultural crops in Kenya. He looked at production activities at different scales (small, medium and large scales) for different commodities and technologies. He sought to identify the various constraints limiting competitiveness and efficiency in horticultural export and production. His conclusion was that reduced support of small-scale horticultural producers by exporters

due to emergency of opportunistic buyers have reduced the shares of production by small-scale farmers. The quality of horticultural production has also declined.

Kodhek (1993) researched on exporting Kenya's horticulture production. He sought to identify the constraints to exports. He identified problems with competition from other countries and the cost and availability of air cargo space as contributing to the slow growth of exports. Bureaucratic hassles and corrupt officials are other disincentives that exporters complained about, thus discouraging investments in this sub-sector.

2.10 CHARACTERISTICS OF HORTICULTURAL COMMODITIES

Horticulture is defined as the "science and art of growing fruits, vegetables, flowers and ornamental plants" (Jaffee et al. 1995). Therefore, horticultural marketing can be defined as the human activity directed at satisfying human needs and wants through the exchange process of the above products. Honma (1991) contends that it comprises of all the operations involved in the movement of the above product from the farm to the final consumer. It stops short only at processing which changes the nature of the product.

There are hundreds of different horticultural crops rendering it useless to define generalized characteristics for these crops. The considerable variability among these crops with regards to their characteristics actually provides the basis for the major problems in marketing these product.

In comparison with most other agricultural crops and commodities, the broad range of horticultural crops can be characterized by:-

1. High rate of perishability.

They experience rapid quality deterioration, severely limiting their marketable life as a fresh commodity and the period of time during which they can be used as raw material for processing. Even under optimal post-harvest conditions, the marketable life of many horticultural crops is only several weeks or even several days.

The rate of perishability of horticultural crops stems not only from their own physiological properties, but also from their stage of maturity at harvest, the handling and storage procedures and the prevailing conditions (Jaffee et al).

Spoilage for all products is much greater and faster if they are stored and handled in sub-optimal conditions of temperatures, humidity and or pressures, which differ for each product (Jensen and Malter 1995).Disastrous quality losses can occur at any stage in the marketing chain from farmer to consumer, and the total value of the product may be lost.

In order to increase the post-harvest life of these products, they are harvested before they ripen. The farmer takes a calculated risk that the product will ripen satisfactorily further along in the marketing chain (ibid.). While this is convenient for wholesalers and retailers, the result is that consumers often buy products which never properly ripen and thus, never supply the intended and expected flavour, aroma, texture and overall satisfaction (World Bank 1995).

Furthermore, since the stage of ripeness and the product, quality constantly changes; tomatoes picked one day with uniform green colour may not be uniformly red a few days later. Such differential rates of ripening in perishable produce gives rise to the industry of re-sorting and re-packing the product in the middle of the marketing chain(Jaure 1995).

Because of perishability of fresh produce, wholesalers and retailers have a high percentage of "shrink" - produce which deteriorates beyond marketability and must be

discarded at a loss. Although retailers have always sought to minimize shrink, some industry professionals believe that retailers shrink should be even greater than is generally the case, in order to ensure that low quality produce does not reach the market and eventually disappoint and deter consumers from future purchases (Prevor 1991).

Produce shelf-life depends on transportation, projected sales date and intended use: produce for local sales can be harvested at a riper stage than export products because they require less transport and handling time.

Given the highly perishable nature of fresh produce, post-harvest treatment and handling become critical to maximizing the preservation of product quality (Jensen et al).

This characteristic also prohibits that large surplus stocks be accumulated from one sales period to another. The Dutch flower auction for example has a strict policy that forbids carrying over unsold flowers from one day to the next, and all unsold products are destroyed and removed from the market.

While the perishability of fresh produce helps to naturally clear the market of surpluses, it also affects the power relationship between sellers (especially farmers) and buyers. Transaction speed is critically important, even at the expense of downward price risk. Farmers are placed under a great pressure (Mokotjo 1990). They and other sellers in the marketing chain cannot afford to hold the product along and wait for higher prices, as would be the case for storable commodities such as grains.

The perishability of fresh produce also makes exporters vulnerable to erroneous quality claims by import agents. It is always conceived that fresh produce can deteriorate in quality on route from the exporter to the importers (Alvensleben, Reimer and Meier 1990).

Government authorities can also exploit the perishable nature of fresh produce for protectionist purposes. This occurs when custom officials cause unreasonable delays at ports of entry(Ritson, Christopher and Swinbank 1993).

2. High seasonality of production and demand

Seasonality, as well as perishability, plays a critical role in marketing fresh produce. Seasonality includes not only the non-storability of fresh horticultural products but also the variation in seasonal quality, seasonal demand and the seasonality of production (Jensen et al).

• Like other agricultural crops, horticultural products have a seasonal production cycle. But unlike storable commodities, fresh produce are generally available in given locations only during their natural production season. Although this production season can be extended by breeding new varieties and by using horticultural techniques such as protective covering (heated green houses) seasonality poses a big problem in marketing(LEI-CBS).

A very seasonal demand pattern continues for these crops. Consumers pay a very high premier price for the first small quantities reaching the market, after this time prices usually fall gradually as production reaches its peak. Prices usually rise again toward the end of the supply season as quantities diminish.

This seasonality nature of horticultural crops causing supply and demand imbalance also brings about the problem of inventory management, processing and marketing segments of the farm to consumer chain. It also leads to shortage of working capital available to handle the bulge in expenses (Austin 1992).

3. Quality Characteristics

Quality, as well as consumer preference, is critically important in marketing fresh vegetables and fruits, since they are intended for direct final consumption. But since these items result from a biological production process subject to variable climatic conditions and are usually handled through a long and uncoordinated marketing channel, many of their Key quality attributes may be variable and unstable. A further source of complexity is that much of the appeal of fresh produce is aesthetic and emotional and therefore, many important quality attributes of fruits and vegetables will be subjective, intangible, invisible, indescribable and immeasurable (Melamed 1993).

The concept of quality in fresh vegetables and fruits embodies a multitude of diverse aspects which are perceived differently at different stages in the marketing chain. Many produce quality characteristics are difficult and sometimes even impossible to define and agree upon (Melamed) it is inevitable that products will be initially judged by their appearance and if, no other information is offered consumers will deduce good taste and good internal quality from good visible characteristics (Deters, Alrevensleben and Meier 1985). These include the products colour, uniformity and freedom from blemishes, pests and disease as evaluated against some ideal concept of that particular product \ variety (Jensen et al).

Appearance quality also includes the product presentation in the sales unit (carton, bunch etc) and its sorting, grading and packing which are of primary importance to the wholesaler.

4. Variability.

The final but not the least distinctive characteristic of horticultural crops is the variability in the quantity and quality (Austin 1992) from one supply period to another.

This heterogeneity derives from many factors including the numerous different biological varieties which exist for most horticultural crops, variations production and post - harvest practices and the impact of climatic and other environmental factors (Jaffee et al). This heterogeneity is compounded by the fact that the quality of such produce is very complex and is typically associated with many individual attributes. For example, commercially important attributes of fruit and vegetables are color, shape, size, weight, texture etc while for cut flowers, fragrance is also a valued quality attribute.

Some of these attributes may be hidden and difficult to measure (e.g. freshness), weakening the informational value of grades and complicating the language of trade. Quality variability and complexity create uncertainty on the part of the supplies and buyers and can be a major source of conflict between them.

Diseases and pests can also cause variability much as changes in weather would (Austin). A late Monsoon might lead farmers to produce a different crop, abundant rains might permit the planting of a second or a third crop, as is the case with El Nino in Kenya, while a drought might eliminate a dry season crop.

However, even without these adverse vagaries of nature, quality varies because standardization of biological raw materials (such a seeds) remain elusive in Africa despite advances in plant genetics (Austin).

2.20 MARKETING MIX PROBLEMS OF HORTICULTURAL COMMODITIES

The marketing mix is the set of controllable variables that must be managed to satisfy the customers and achieve organizational / individual objectives of the sellers. These controllable variables are usually classified into four major decision areas of product, price, promotion, and place (or channels of distribution) .

1 Product

The nature of horticultural commodities discussed above basically describe horticultural products as a marketing mix variable, and the major problems they pose along the marketing chain due to their characteristics. In addition however, the following are also major problems related to the product.

(a) Handling packing and processing problems.

The handling of perishables calls for special care. Green vegetables and fresh fruits cannot be carried in heavy sacks and piled on to lorries in a tropical climate without any attention to pre- cooling or ventilation. Such produce quickly heats up in the center, wilts and rots and the consequent losses exaggerate the cost of that portion of the shipment which does not reach the consumer.

Cold storage facilities are still rare and extremely expensive to use in the very areas where the summer heat causes rapid deterioration. In consequence, much produce is picked long before it is ripe and thus never achieves its full natural flavour.

In other cases, the fruit is too ripe, and a large percentage is spoiled because the fruit cannot stand the treatment it undergoes on the way to the market.

Serious losses also occur due to tough and careless treatment in the picking and initial handling of fruit. Destructive practices occur, especially in the treatment of trees and handling of fruit where the fruit is sold on the tree, and responsibility for the packing is undertaken by a contractor who may let it out to a third party with no direct interest in the price obtained for the crop or in the protection of the trees from damage.

Frequently, it is observed that fruit is thrown on to vehicles, although loss could be avoided by a more careful handling.

Poor packing methods such as a deep pack carrier with a wide top narrowing, toward the bottom, may bruise and crush the lower levels of such produce as grapes and tomatoes, by the pressure of the weight above. Damage to tomatoes etc. may be caused by sharp edges of palm-stem crater for example.

(b) Size as a problem.

Size is another key external characteristics of the product, which can be measured and valued differently in different markets. Vegetable size is mostly measured by either the diameter or circumference of the fruit (Jensen et al).

Large sizes of products may mean high cost and make it uneconomic to transport and unattractive in price to consumers, for example, popular of sizes for mangoes, avocados, and papayas are 250g to 450g. Pineapples and cantaloupe melons are 800g to 1 kg but there are some markets which can sell smaller fruit (often suited to pre-packing in twos, threes or fours) or even larger individual fruit, thus giving the customer a choice of size within well-defined ranges (Pritchard, Cromwell and Barghouti,1993).

In a nutshell, the successful marketing of fresh vegetables and fruits depends to a large degree upon strict adherence to good handling and packing practices. For example,

Stoher (1971), argues that avocado buyers require that avocados arrive in a firm, free from disease, bruising or other skin disfigurements and accurately size graded.

(c) lack of cold storage and related issues.

Morgan (1995) argues that cold storage facilities not only add value to products to meet local demand but also to satisfy the requirements of new export markets especially for horticulture.

New and aspiring producers for this market should therefore recognize that cold storage installations are essential for these high-value, high perishable crops. However, especially for African farmers, these cold storage installation are quite expensive. In addition, farmers lack information on the technical aspects of the cold storage such as adequate ventilation with continuous air exchange, maintaining optimal temperatures for each individual type of horticultural product requirements to maintain appropriate temperature levels for differing type of horticultural products or in storing multicrop produce (Ibid.).

There is also a substantial risk to quality in horticultural produce if different types are held in storage together. For example, fruit and flowers must not to be held in the same storage space. Fruit is particularly at risk in a multi-crop storage system due to development of ethylene which accelerates the maturity of other types of fruit.

2. Prices

The forces of supply and demand in the market set prices for most horticultural products. Internationally, most developing countries are price takers, and leading export countries are price makers (Austin 1992).

(a) Price Information

Mendoza and Rosegrant, (1995), argue that price contain information crucial to maximizing the returns to production and marketing investments. At planting time, a farmer's planting decision depends on expected profits, which invariably hinge on the anticipated prices of the crop or mix of crops that would prevail in the market at the time of sale and on the farmers interpretation of those prices.

A trader in search of profitable arbitrage, reads and translates price signals in deciding on what crops to buy, where to buy and when to sell.

Apart from guiding production and marketing decisions, prices govern the optimal allocation of resources among competing uses. The accuracy, reliability and promptness of market information is therefore critical in attaining pricing efficiency.

In commodity markets, in developed economies, imperfect markets have been found to yield prices that are biased representations of actual supply and demand conditions and the resulting price relation-ships among markets are weak. Prices have also been established to be rigid in markets characterized as monopolistic or oligopolistic (Boyd and Brorsen 1986; Bailey and Brorsen 1989, Kinnucan and Farker 1987; and Ward 1982).

Price adjustments to newly transmitted information tend to be more sluggish in concentrated markets than in less concentrated ones (Brorsen, Charas and Grant 1984, Kardasz and Stollery 1988), perceived to exploit or take advantage of farmers, middlemen are generally distrusted (Deomampo 1983).

Erratic price fluctuations have been popularly blamed on the oligopolistic behaviour of traders and imperfect market information (Boyd et al).

Calkins and Wang 1988, found that farmers in the central region of Taiwan obtained price information not only from other farmers and marketing agents but also during market transactions from price bulletin boards and in local farmers associations. They supplemented their knowledge through mass media announcements. In contrast, Southern farmers turned to local farmers and marketing agents for their information. Distance from vegetable assembly markets restricted the price knowledge needed during market transaction. Southern farmers tended to have weaker bargaining power.

(b) Price Instability

Findings from Gardener and Brooks (1993 and 1994) provide indications that the markets are not eliminating arbitrage opportunities as competitive markets would.

(i) Prices in different cities even nearby cities do not move together over time.

(ii) Price differences between cities within fairly small regions are often much larger than can be explained by transportation costs.

(iii) Price difference are not decreasing over time for most commodities.

Calkins and Wang found that the average price mark-up depended on the number of intermediaries and also the level of perishability of the product. That is, as the number of intermediaries increase, the size of the average mark- up decreases.

Mellor (1990) suggests that price differences from place to place can be explained by differences in transportation costs and that those from season to season can be explained by storage costs.

Instability in prices a grower can expect to receive has contributed to the fluctuating production of sweet potatoes in Hawaii for example, over the past decade (Huang, 1987)

The Food Agricultural Organisation, (FAO) in its 1995 publication argue that potato markets are highly affected by price instability and uncertainty associated with supply and demand in addition to the perishability of the crop. The inelastic demand and the narrowness of the markets often created conditions of high price volatility.

Even in the international market, (Ibid.), the potato market is very fragmented and export prices are not readily available publicly. The prices are largely determined by the supply and demand situation in the European community (EC) the dominant supplier of the world market. Access to export price information for processed products is difficult and prices are largely determined by the main producers in the N. America and West Europe.

Recently, large price fluctuations have played havoc in some EC member country market. In some cases, prices have roughly halved from one season to another or moved in the opposite direction in different countries during the same year.

In some places, the auction method of selling is used which also fluctuates largely. According to Honma (1991), the Japan market prices of horticultural products are determined by auction in wholesale markets. The price determined by auction tend to fluctuate broadly and the shippers or producers cannot reject the sales of their products in auction even at a price lower than the cost. However, when the market prices fall steeply, subsidies are paid to farmers to avoid severe income losses, making up the difference between the market price and a guaranteed level for the farmers shipments. The guaranteed price level is determined by taking into account past trends in market price, production costs, and other economic factors.

In Uganda, [Munyiri, 1996] roses (cut flowers) are also sold through the auction system in Holland. Farmers are faxed the prices achieved on daily basis. It is important to note that this industry is controlled by market forces in Europe which the Uganda grower can hardly influence. Flowers are sold mainly (safely) at auctions which belong to co-operative societies which have to protect their own interest first.

Kevin and Donovan asserts that inappropriate marketing and pricing of agricultural produce have reduced the profitability of market oriented horticulture, prevented significant gains in horticultural productivity and contributed to the persistence of rural poverty.

3. Promotion

Product promotion has something of a bad name in Africa. It has been argued that sophisticated product promotion has largely benefited affiliates of multinational firms and has served to marginalise local firms (Longdon 1975, Mufson 1985 and Jouet 1994). The literature on agricultural marketing in Africa is virtually devoid of actual experiences in marketing or merchandising including marketing research and product brand name promotion. This applies to both the public and private sector enterprises (Jaffee et al).

Advertising product and brand name promotion are fairly significant in a number of African countries especially Nigeria, South Africa, Zimbabwe, Senegal and Cote d'Ivoire. In Kenya, research in the early 1980's found that advertising for food and drink products exceeded Ksh. 10 million per year, and ranked fourth behind transport, personal care and household products in advertising expenditure (Jouet 1984).

However, advertising locally for horticultural products does not exist. What exists in form of promotion, is displays on groceries, and supermarkets, retail stores and on roadsides. Advertisement through the print media, radio or television is very limited. A few flower dealers such as Kingsway Florists advertise once in a year for example during Valentine. Personal selling in form of hawking is more prominent especially with imported fruits such as South Africa's oranges, grapes and apples; plus flowers (roses and carnations) in certain parts of the city such as Westlands. Local horticultural produce are also sold through hawking in the streets.

The available evidence does suggest that in many African countries, the most aggressive product promotion efforts are undertaken by affiliate of multinational companies. This can be attribute to their experience, management and to the up market clientele whom they serve. Local firms appear more inclined to sell non- branded products to institutional buyers or to rely upon longstanding links with retail outlets and chains to distribute their products (ibid.).

In markets where competition is weak, such as in Kenya, there has been little perceived need to communicate directly to consumer or listen to them. Such passive marketing strategies are likely to result in missed opportunities for local firms and relatively weak market development.

Product promotion is even more important with regard to the export of horticultural products. Brand name recognition and promotion are prominent features of international trade in fresh horticultural produce. For the most part, African exporters sell their products under somebody else's brand. With the exception of South Africa, nearly all of

Africa's exports of fresh vegetables and fruits are marketed under the brand of a European, American or Japanese Company (Jaffee 1995).

Many African exporters of fresh horticultural produce have sought to establish a recognized brand name in European markets. These efforts have not been successful since few firms have been able to effectively promote their brand and to back it up with consistently valuable service and product quality. Thus, there are dozens of different West African brands for fresh pineapples yet there has been little effective promotion of any of these brands (Afrique Agriculture 1993).

All of Kenya's more than one hundred fresh produce exporters have their own brand name, yet few of these are recognized by European distributors and consumers. Only South Africa's Outspan and Cape Brand names (for fruits) are widely recognized in Europe (Jaffee et al).

4. Place (Channel of distribution)

A channel of distribution is the combination of institutions through which a seller markets produce to the user or ultimate consumer. Channels of distribution provide the ultimate consumer with time, place and possession utility (Peter and Donnelly 1991). Thus, an efficient channel is one that delivers the product when and where it is wanted at a minimum total cost.

The major type of horticultural marketing intermediaries include brokers, jobbers, wholesalers, retailers, merchant middlemen and agents. While the major marketing functions performed in the channels of distribution include buying, selling, sorting, assorting, storage, grading, risk taking, transportation and marketing research.

Different horticultural products have different channels of distribution. Calkins (1998) identified five marketing channels of distribution for soybeans, five for sweet potatoes, four for tomatoes and six for common cabbages.

The many different channels exists as a result of differences in organizing at both the consumer and producers ends of trade (Jones 1979).

Studies by Calkins and Wang (1988) indicated that the marketing agents ranked their major problems differently due to their different positions in the marketing channel.

From their study;

(i) local assemblers complained most about their weak bargaining power and transport accident

(ii) jobbers feared losses due to over stocking

(iii) wholesalers were apprehensive about variation in quality

(iv) wholesalers - retailers were most concerned with perishability, while

(V) retailers dreaded price fluctuations most.

However, Mellor (1990) believes that current sources of inefficiency lie in the infrastructure available rather than the kind of agent involved in marketing.

Transportation problems

Transportation is one of the marketing functions performed in channels of distribution.

It is the physical movement of produce from the farmer to the consumer.

Inadequate transport facilities are largely responsible for the slow rate of increase in marketing efficiency and for the continuance of subsistence farming in many parts of Africa. Deficient transportation limit the range of marketing, confine sales to nearby

consumers and thus prevent the growth of specialized marketing agencies and the development of more efficient procedures under the stimulus of competition. Therefore, many agricultural producers are still confined to village markets (Kweyu 1995).

The high perishable nature of fresh produce makes efficient transportation a crucial factor for long distance suppliers of fresh produce. High - value products often justify the high cost modes of transportation while timely delivery is paramount.

Many Moroccan exporters of winter tomatoes for example, ship their produce via trucks rather than by sea, even though truck shipment are four times more expensive because truck transport affords them greater flexibility and punctuality(especially in fruit and vegetable markets) in other cases, exporters ship their products by costly freight to reach the market before competitors shipping by sea (Seker Suzet 1992).

The regularity and reliability of the shipping channel is of vital importance. For example, the desiccated coconut producers normally have limited storage time permitted for the produce (it is recommended that desiccated coconut should remain within the tropics for less than 2 months). Therefore, it is vital that shipping services should be frequent (Honma).

The type of shipping is also very important. Desiccated coconut is very prone to contamination and easily picks up odour if stacked in close proximity with certain other types of cargo.

For Intra - Continental supplies, exporters need access to a modern highway network and efficient refrigeration trucking services. For intercontinental supplies, exporters requires sufficient air - freight capacity and regular, reliable and reasonable priced flights. For this reason, land locked countries such as Zimbabwe are not at a great disadvantage if

their production area is near a well-served airport. However, countries which serve as regional air transport hubs, such as Kenya do have a considerable advantage because of access to multiple flights. Farmers in countries with more inbound flights and a critical mass of high-value perishable export products have an even greater advantage in that they may be able to act co-operatively to negotiate highly favorable freight rates and regular daily flights to major markets in the northern hemisphere. This is the situation in Israel (Jensen et al).

According to Kweyu, disruption and delays of freight flights from airports is a contributory fact to the problem of damaging the product quality as well as the packaging.

Kenya is facing great competition especially from South Africa. Kweyu asserts that the full integration of the new post-apartheid South Africa into the international community, with a lot more charter and international flights combined with SA high technology and a suitable climate, is emerging as a major supplier of competitively priced fresh produce.

Kevin and Donovan found out that neglect of roads connecting town to country in many African countries, and the prevailing focus of government infrastructure investment in mega cities, had led to cutting off of the agricultural sector from urban and export market. It also cuts farmers off from the source of improved inputs and equipment, which is in the towns and cities.

It is from secondary towns that most services are provided to farming communities, and where the immediate collection markets for agricultural produce are usually found.

Many African countries have focused so much of their resources on the large mega cities that these secondary towns so important to agriculture have been neglected. The

rising air- freight costs and persistent air - freight bottlenecks have contributed to a long - term shift in Kenya's product mix away from relatively low- value commodities to those with higher unit values. Exporters facing limited freight allocations have sought to maximize sales turnover by adjusting their product mix (Jaffee et al).

In a nutshell, as Aked (1995) argues, getting ones produce to the market and on time is essential if one wants to make money from his crops. Therefore, a highway transport is a vital component in any crop marketing system. In addition Watts, (1995) asserts that a wide range of airlines providing regular services is essential especially in Africa for the expansion of horticulture.

5. Probe (Marketing Research)

There is inefficient market study in the area of horticultural marketing. Therefore, producers lack information about the marketable types of produce and optimum volumes for buyers (Morgan, 1995).

Marketing Research on the patterns in seasonal fluctuations in supplies and prices is also unidentified which is essential as there is now intense competition among products in export markets and where oversupply occurs there is an inevitable decline in producer prices.

There is also insufficient market study on the market requirement in respect to quality. Morgan emphasis that markets requirements in respect to product quality has become increasingly higher in recent year and the farmer must have the technical knowledge and facilities to meet the demands not only through cultural practices but also

through the use of efficient equipment and technology in handling systems to ensure elimination of post harvest damage.

Jaffee and Morton argues that belated and united investments in horticultural research and advisory services have greatly constrained the long- term development of competitive exports for several commodities in Africa.

2.30 ATTITUDE OF SMALL SCALE FARMERS TOWARDS MIDDLEMEN.

Middlemen are intermediaries who link suppliers and consumers but who do not take title over commodities traded. They are commonly found in agricultural markets and in all forms of international trade. They include brokers, agents, merchants, among others. As regular players in the markets, brokers are likely to be better informed about market conditions than the buyers, sellers or both (Jaffee 1995).

Most exporters rely upon these brokers, merchants who serve as intermediaries, fulfilling a number of functions which includes-:

- 1) Identifying and recruiting farmers.
- 2) Communicating short-term information to farmers regarding exporters' quantity and timing requirements regarding expected prices.
- 3) Informing the exporters about local supply and competitive conditions.
- 4) Distributing packaging materials to farmers and,
- 5) Issuing payments to farmers.

These agents typically have a shed or store to which farmers deliver their crops. The exporter's vans and trucks pass on these pick-up points on their collection rounds.

Reliance upon local agents have enabled exporters to economize on the infrastructure and transaction costs which would ordinarily be associated with procuring produce from

a large number of individual small-scale farmers. By using local agents, exporters need not establish collection stations of their own within the production areas. Rather than attempt to communicate and negotiate directly with dozens of farmers, exporters only need to deal with a limited number of agents who have superior knowledge of local conditions and people.

However, for many farmers, these kind of buying procedures is characterized by numerous abuses which includes:

- a) Exploitation on the price offered for the produce. At produce collection points, these agents or middlemen offer prices usually 15-30% lower than the pre-determined price (Nyoro 1993).
- b) Failure to provide farmers with packing cartons.
- c) In some cases the agents would return to Nairobi without having purchased any produce to mislead the exporters by claiming that farmers will not sell unless paid in cash; where the arrangements would be purchase on credit and pay after two weeks (Nyoro 1993).
- d) Lack of scales at collection points allowed some agents to buy on volume basis heaping cartons to the point that two heaped cartons weighed as much as three normally packed cartons.

In addition, these agents provide little or no information on prices and technical advice. High level of waste has also occurred as a result of poor coordination between growers and the buyers (who are basically represented by these agents).

METHODOLOGY

This section focuses on the population, sample, data collection and analysis method, validity test and reliability tests of the scales used used in the study.

3.10 POPULATION

The population of interest in this study consisted of all small-scale farmers of Ndia Division of Kirinyaga District, who grow and market horticultural produce.

According to the horticultural officer in charge of Kirinyaga District these farmers normally have between half to three acres of land.

3.20 SAMPLE

In this study, cluster sampling was done to select the farmers from whom data was collected.

The Ndia Division was conceptually divided into two parts, North and South, which formed the clusters. Two locations were selected randomly from each cluster. (Note. the population in this case was finite and the elements or locations were easily identified and numbered).

Therefore, the locations in each cluster were assigned numbers (1-3 in case of North and 1-4 in case of South. (Note: Ndia Division has 7 locations). These numbers were then written on slips of papers which were then placed on a bow-like paper sheet. Four locations were then selected using fish-pot simple random sampling.

In selecting farmers from these locations the same procedure was repeated whereby from the whole list of farmers in the location(available from the extension workers), all the farmers were assigned numbers which were then written on slips of papers and then

placed on a bow-like paper sheet and shaken). Ten farmers were selected from each location. This was done by drawing a first paper from the bow and recording the number written on it. The bow was then shaken again and the second paper drawn. The process was repeated until 10 numbers were drawn for each location. The farmers corresponding to the 10 numbers in each location constituted the required sample.

3.30 DATA COLLECTION METHOD

Primary data was collected for the purpose of the study using a questionnaire (see appendix II). It was personally administered to the farmer by the researcher, and for ease in communication, Kikuyu the local language was used.

3.40 DATA ANALYSIS METHOD

This is a simple descriptive study. Therefore data was analysed using percentages, mean scores and tables.

3.50 VALIDITY TEST

To test the validity of the scale used in the questionnaire, a validity test was carried out before going out to collect data. The data in appendix IV was subjected to three horticulture business women whom the author already knew that their attitude towards the Asians was positive. (Note: These women had been in business with the Asians for a long time and they had been deriving their livelihood from them (Asians).

The results showed that the women had a very strong positive attitude (1.375) towards the Asians.

To generate information on their attitude towards the Asians, the data in Appendix V was used.

3.60 RELIABILITY TESTS OF THE SCALE USED FINDINGS

The reliability of the scale used to test the farmers attitude towards the brokers was tested using the coefficient alpha as shown in appendix VI. Coefficient Alpha ranges between zero to one. A value of 0.6 or less is considered unsatisfactory while a value above 0.6 is considered satisfactory (Tull 1987; Churchill and Peter, 1984). The computed coefficient alpha was found to be 0.6 (see appendix VI) it was therefore considered reliable.

1. Problem analysis from the farmers' perspective.
2. Analysis of the farmers' attitude towards middlemen (Brokers).
3. An analysis of the farmers solutions to their problems.

4.10 FARMERS' MARKETING PROBLEMS

The findings on the farmers' marketing problems are presented in Table I. All the farmers interviewed voiced the following three problems in relation to marketing their produce.

- i) Lack of market information on current prices and market opportunities.
- ii) Brokers exploitation.
- iii) Low and poor prices.

The dominant perception of the farmers was that the prices they received for their produce were too low. 96% of the farmers complained about the limited access to the market due to lack of transport while 85% complained of the competition from other farmers' produce. High transport charges to the market had 81% while perishability of the produce before it reached the market had 70%.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

Introduction:

In this chapter, the data from the completed questionnaires is summarised and presented in tables, percentages and mean scores.

Out of forty (40) farmers selected randomly from the population of Interest, only 27 farmers were personally interviewed. This gave an overall response rate of 67.5 percent.

This section of the report provides analysis in three areas ;

1. Problem analysis from the farmers' perspective.
2. Analysis of the farmers' attitude towards middlemen (brokers).
3. An analysis of the farmers solutions to their problems.

4.10 FARMERS' MARKETING PROBLEMS

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Another problem cited included poor grading system and cheating on weights and measures with 15%. However, this was prevalent with French beans and tomatoes [in one location, some experienced brokers bought 5 cartons of French beans and then redistributed into 7 cartons in the presence of some farmers !]

Table 1 Percentage of farmers mentioning the marketing problems

Marketing Problem	Number of Farmers	Percentage of Farmers mentioning the problem
1. Lack of market information on prices and market opportunities.	27	100%
2. Brokers exploitation	27	100%
3. Competition from other farmers produce.	23	85%
4. Low and poor prices.	27	100%
5. Lack of money to promote the produce.	5	18%
6. High market fee charged by the county council.	16	59%
7. Inability to conduct Research.	3	11%
8. Perishability of produce before it reached the market.	19	70%
9. Lack of transport to the market.	26	96%
10. High transport charges to the market.	22	81%
11. *Other	4	15%

Source: primary data

*This includes poor grading systems and lack of market for some exotic produce (e.g. chillies and capsicum).

Ranking the marketing problems in order of perceived importance.

This part ranks the horticultural marketing problems in order of their importance.

The table below concentrates only on the marketing problems which were ranked number

1 by the farmers:

Table 2: Marketing problems ranked as number one.

Marketing problems	No. of farmers ranking the problem as no. 1	Percentage of farmers ranking the problem as no. 1
1. Lack of market information on prices and market opportunities	4	15%
2. Brokers exploitation.	7	26%
3. Low and poor prices	16	59%

Source: primary data

As Table 2 shows, low and poor prices was ranked number one by most farmers. This clearly shows that the prices farmers received did not reflect the relative contribution to the final price. Brokers exploitation was second most mentioned problem but only by 26% of the farmers. Lack of market information on prices and market opportunities was third most mentioned problem but by only 15% of the farmers.

A further analysis on ranking (see Table 3) also shows that these three marketing problems were either ranked number 1, 2, 3, or 4 by all the respondents. They can therefore be regarded as the most important problems to farmers.

Table 3 RANKING MATRIX

Factor = Marketing problems

Key F = factor R = Rank

R/F	1	2	3	4	5	6	7	8	9	10	11
1	3	7	0	0	0	0	16	0	0	0	0
2	5	14	0	0	0	0	8	0	0	0	0
3	15	5	0	0	0	0	3	0	0	2	0
4	3	1	0	17	0	0	0	2	0	2	0
5	0	0	0	5	8	0	0	4	0	9	1
6	1	0	2	4	6	0	0	8	0	6	0
7	0	0	0	1	10	0	0	6	5	3	1
8	0	0	2	0	1	1	0	5	8	3	0
9	0	0	7	0	2	7	0	0	4	0	1
10	0	0	8	0	0	8	0	0	3	0	0
11	0	0	1	0	0	1	0	0	1	0	1

Source: primary data

1. Lack of market information on prices and market opportunities.
2. Brokers exploitation.
3. Inability of conducting market research
4. Poor quality of produce before they reach the market.
5. Lack of transport and high transportation charges to the market.
6. Lack of money to promote the produce.
7. Low and poor prices.
8. Competition due to overproduction.
9. High market fee charged by the county council.
10. Buyers usually buy on credit.
11. *Others.

*These includes poor grading systems and lack of market for some exotic produce like chillies and capsicum.

4.20 FARMERS ATTITUDE TOWARDS BROKERS.

To generate information on farmers' attitude towards the brokers, the scoring procedure in Appendix V was used. The data in the below Table, was used to generate the overall mean score.

Table 4 Farmers' attitude towards brokers.

statement	Total scores	Mean scores
1. Brokers enables us to sell our produce	30	1.11
2. Brokers exploit us greatly by offering low prices	-46	-1.70
3. Brokers provide us with market information	-48	-1.78
4. Brokers demand high quality produce	37	1.37
5. Brokers mostly buy on credit	-38	-1.41
6. Brokers offer us packaging facilities	-34	-1.26
7. Brokers hide some information from us	-43	-1.59
8. Brokers are a block between us and the buyers	42	-1.56
TOTAL	-184	-6.82

Source : primary Data

n=27

$$- \frac{6.82}{8} = -0.8525$$

$$\approx -0.85$$

$$\bar{X} = -184/8$$

$$=-23$$

From the above table, the computed overall mean score was -0.85 . This shows that in general, farmers have a negative attitude towards brokers. However, it is recognised that they are necessary since they enable the farmers to sell their produce (mean score of 1.11). Further a Two-tailed tests of means using the T distribution was used. The results showed that the sample mean of -23 laid within the acceptable region at 0.05 level of significance.

4.30 WHAT FARMERS PERCEIVE AS POSSIBLE SOLUTION TO THEIR PROBLEMS: -

Farmers are not without possible solutions to their marketing problems. Table 8 below shows what they were doing to solve their problems.

Table 5 Farmers solutions

Solution to problems	No. Of problems	Percentage of farmers
1. Conducting simple market research.	13	48%
2. Proper and careful handling of the produce.	25	92%
3. Engaging in aggressive personal selling because advertising is very costly.	4	15%
4. Selling directly to the market to avoid brokers exploitation.	14	52%
5. Monitoring market prices.	26	96%
6. Selling as a group to have a stronger bargaining power.	3	11%

Source: primary data

The table above shows that 92% of the farmers were trying proper handling of their produce to avoid produce perishability, 96% were trying to monitor market prices in nearby markets, 52% were trying to sell directly to the market to avoid middlemen exploitation, and only 48% were trying to conduct simple market research (basically on prices).

CHAPTER FIVE

SUMMARY, DISCUSSIONS AND CONCLUSIONS.

This chapter summarises and discusses the findings of the study based on the objective. It also presents recommendations, conclusions, limitations of the study as well as suggestions for further research.

5.10 SUMMARY

This study sought to determine the horticultural marketing problems facing small scale farmers of Ndia Division in Kirinyaga District.

All the farmers complained of various marketing problems and then ranked them in order of their effect. The most important problems mentioned by all the farmers were:

1. Lack of market information on current prices and market opportunities.
2. Brokers exploitation.
3. Low and poor prices.

Others included lack of transport to the market, competition from other produce, high transport charges among others.

The dominant perception of the farmers was that the prices they received for their produce was too low and exploitative.

Farmers complained of lack of market information on prices and market opportunities and forecasts at the farm level and were therefore in weak bargaining position when it came to selling to farm-gate brokers.

Transport to the market was limited due to poor roads thus transportation cost was very high. Farmers encountered increasing difficulty in finding transport services to the markets. Produce losses before they reached the market was also high.

Farmers attitude towards the brokers was found to be -0.85 which is a negative attitude. These brokers were known to fix prices through informal cartels although the prices were to a large extent determined by demand and supply forces. Subsequently, the pricing trends and fixation of farmer produce from the source was not a factor of production.

These brokers were further thought to be a block between the farmers and other buyers. At the same time, these brokers hid important information from the farmers.

As a result of these problems farmers have tried to look for ways to overcome them. They were trying better ways of handling their produce so as to avoid losses. In addition, they are trying to sell directly to the market so as to avoid middlemen exploitation.

However, these farmers have little application of promotion and publicity methods. But this may be associated to the lack of information. They also lacked collective bargaining power. This may be because they produced and sold individually.

5.20 DISCUSSIONS AND RECOMMENDATIONS

All the farmers studied came out concretely with almost the same problems which generally make their perception of the horticultural markets and marketing low and negative.

The major problems emerged as: -

1) Exploitation by brokers through:-

- Dictation of prices of the farm produce.
- Offering very low prices to farmers.
- Formation-of brokers cartels blocking the farmer marketing their own produce.
- A chain of brokers which is very long leading to low producer prices.

- Delay in payment by brokers especially where farmers sold their produce on credit.

- Downgrading of produce by brokers especially the French beans and tomatoes.

Faced with all these problems, all caused by brokers, the demand for removing them from the marketing process is considerable.

However, there will always be a cost involved in collecting limited quantities of produce from small farms and this must be borne either by the buyer (thus lowering the prices offered) or by the farmer through organising collective management and delivery to a collection point.

Another feasible way of avoiding brokers exploitation is through the formation of formal groups with planned market- oriented production. Such groups should be able to sign legally binding contracts with the buyers. However, as will be discussed latter, farmers had their say against collective marketing.

- 2) Insufficient knowledge of the market trends or lack of marketing information on prices and market opportunities. For example, lack of information on which commodities are in demand, at which markets, or the period.

This to a large extent has affected the prices at which farmers sell their produce. It has also weakened their bargaining power, leading to low and distress sales.

Planned production requires knowledge about prices in the market which farmers in Kirinyaga District generally lacked. The Ministry of Agriculture by means of it's marketing officers should disseminate price information to farmers on the one hand, and should also keep in touch with the price information centre in Nairobi, on the other.

Farmers should be informed about the broadcasting of wholesale prices over the radio. Besides, there should be display of prices on notice boards in local market centres. This would help to reduce exploitation by the brokers on prices. The Ministry of Agriculture should also provide the marketing and extension officers the necessary logistical support to facilitate their functioning. For example, they should be provided with cars (transportation means) mobile and cellulos phones etc. and an update of current marketing issues.

3) Lack of accessibility to markets due to transport costs.

The limitation of transport infrastructure is obvious to all farmers and the potential to improve horticultural marketing through investment in such, is great. The state of the local and feeder roads to the production areas determine the performance of the marketing systems. The better the roads, the more traders will come to the markets and farms; transport costs and increasing competition among traders both lead to higher farm gate prices. Consumer prices are as well lowered. Therefore, improvements of the access roads is very essential. Product perishability is also propagated by poor transportation infrastructure.

4) Farmers also complain of the high market fee charged by the county council. In the local markets, this fee is often arbitrarily fixed regardless of the size and value of the load. As a consequence, similar traders are not treated equally and small traders pay on average a higher fee of percentage of the gross margin than bigger traders. The small traders/farmers should at least be charged in accordance with the weight and type of their produce.

On what the farmers perceived as possible solutions to their problems, many farmers were trying to monitor market prices and; proper and careful handling of their produce. Other perceived solutions included selling directly to the market to avoid brokers exploitation, conducting simple market research and engaging in personal selling.

It can therefore be seen that there are possible solutions to almost all the problems identified. However, many are out-with the control of the farmer. Improving roads and communication services for example, would remove a host of problems faced by the small scale farmers, but it is limited by the district council funding and capacity. Farmers also stressed that various previous attempts to solve their marketing problems had failed. Some tried contract farming and marketing but it failed. Other farmers tried group marketing but it failed as well. However, there is a need for a legally binding contract where-by in the event of breach of contract, legal measures can be taken against the defaulter. Further on solutions, although most farmers mentioned that they were trying proper and careful handling of the produce, they still need to be taught more on the advantages of proper sorting grading and packing. In a nutshell, therefore, any factor or problem which cannot be controlled by the farmer limits the opportunity of effecting change at this level. Thus the need for a quick intervention either by the government or the private sector to help solve the farmers marketing problems.

5.30 CONCLUSION

In conclusion Ndia Division has great potential as far as horticulture is concerned. The rising demand for vegetables and fruits due to population increase in this country

provides a basis for further expansion of the sub-sector, bringing prosperity to the local farmers. However, this prosperity has been hampered by various marketing problems or constraints including low and poor prices, exploitation by brokers, lack of market information or prices and market opportunities, poor infrastructure and high transport means, among others. All these marketing problems require attention by the responsible government authorities or other private bodies, either at the local, district or national level. After all, the horticultural sub-section in Kirinyaga district, as else where in Kenya, is a major supplier of income, employment and food to the people. It therefore deserves to be given a top priority.

Thus with proper support, horticulture in Kirinyaga district may be expected to further develop into a prosperous industry, supplying good quality fruits and vegetables against reasonable prices to the rising urban population of Kenya.

5.40 LIMITATION OF THE STUDY.

The major limitation of this study was that the study covered only a single division of Kirinyaga district. Thus it was limited in its setting and the results cannot be generalised to all farmers in Kenya.

5.50 SUGGESTIONS FOR FUTURE RESEARCH.

A number of areas can be identified where further research could be done. Firstly, this research was limited to only small-scale farmers who were not contracted. Research effort could be devoted to find out if contracted small-scale farmers suffered the same problems.

Secondly, a study to investigate the horticultural marketing problems facing medium scale farmers could be carried out.

A further research could be carried out to investigate how the successful horticultural buyers perceive small- scale farmers.

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APPENDICES

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INTRODUCTORY LETTER: KIMANI SARAH WAMBUI

KIMANI SARAH WAMBUI is a masters student in the Faculty of Commerce, University of Nairobi. In partial fulfillment of the requirement of the Masters in Business and Administration (MBA) she is conducting a study "HORTICULTURAL MARKETING PROBLEMS FACING SMALL-SCALE FARMERS (A CASE OF NIRA DIVISION, KIRINYAGA DISTRICT)"

Your organisation/firm has been selected to form part of this study. To this end, we kindly request your assistance in completing the questionnaire which forms an integral part of the research project. Ms Kimani will be responsible for the administration of the questionnaire. Any additional information you might feel necessary for this study is welcome.

The information and data required is needed for academic purposes and will be treated in strict confidence. A copy of the research project will be made available to your organisation/firm upon request.

Your co-operation will be highly appreciated.

Thank you

Yours sincerely,
 Mr. Kandiwo
 Dean, Faculty of commerce

L.L. LELE
 Ag. MCA Co-ordinator

APPENDICES

Appendix I

Note to the respondent

UNIVERSITY OF NAIROBI
FACULTY OF COMMERCE
MBA-PROGRAMME
LOWER KABETE CAMPUS
P.O BOX 30197
NAIROBI, KENYA.

INTRODUCTORY LETTER: KIMANI, SARAH WAMBUI

KIMANI, SARAH WAMBUI is a masters student in the Faculty of Commerce, University of

Nairobi. In partial fulfilment of the requirement of the Masters in Business and Administration (MBA) she is conducting a study "HORTICULTURAL MARKETING PROBLEMS FACING SMALL-SCALE FARMERS (A CASE OF NDIA DIVISION, KIRINYAGA DISTRICT)"

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Your co-operation will be highly appreciated.

Thank you.

Yours sincerely,
Mr. Kenduiwo
Dean, Faculty of commerce

I.K. LELEI
Ag. MBA Co-ordinator

Appendix II

The Questionnaire

1 (i) In marketing your horticultural products (fruits and vegetables), do you encounter any problem. Please tick () where appropriate.

yes

no

(ii) If your answer to the above question is 'yes' Please tick () only these statements that indicate marketing problems that you face.

(iii) If your answer is "No", please go to question three

- a) Lack of market information on prices and market opportunities ()
- b) Brokers exploitation ()
- c) Competition from other farmers' produce ()
- d) Lack of money to promote my produce ()
- e) Low and poor prices ()
- f) High market fees charged by county council ()
- g) Inability to conduct market research ()
- h) Perishability of produce before they reach the market ()
- I) Lack of transport to the market ()
- j) High transport charges to the market ()
- k) Others (please specify)..... ()

2. Rank the following horticultural marketing problems according to the extent of importance to you. The most important should be ranked number 1, the second most important problem number 2, in that order. I)

- i) Lack of market information on prices and market opportunities ()
- ii) Brokers exploitation ()
- iii) Inability of conducting market research ()
- iv) Poor quality of produce before they reach the market ()
- v) Lack of transport and high transportation charges to the market ()
- vi) Lack of the money to promote the produce ()
- vii) Low and poor prices ()
- viii) Competition due to overproduction ()
- ix) High market fees charged by county council ()
- x) Buyers usually buy in credit ()
- xi) Others (please specify)

3. For each of the following statements, please indicate how strongly you agree or disagree with the statements. Indicate by circling only the number which best represent your level of agreement.

5=strongly agree

4= agree

3= neither agree or disagree

2= disagree

1= strongly disagree

- 1) Brokers enable us to sell our produce 5 4 3 2 1
- 2) Brokers exploit us greatly by offering very low prices 5 4 3 2 1
- 3) Brokers provide us with market information 5 4 3 2 1
- 4) Brokers demand high quality produce 5 4 3 2 1

- | | | | | | |
|--|---|---|---|---|---|
| 5) Brokers mostly buy on credit | 5 | 4 | 3 | 2 | 1 |
| 6) Brokers offer us packaging facilities | 5 | 4 | 3 | 2 | 1 |
| 7) Middlemen hide some information on prices from us | 5 | 4 | 3 | 2 | 1 |
| 8) Middlemen are a block between us and the buyers | 5 | 4 | 3 | 2 | 1 |

4. If your answer to question 1 (i) was "yes" please tick (α) only those statements that indicate what you are doing to solve these problems.

- (i) Conducting simple market research ()
- (ii) Proper and careful handling of the produce. ()
- (iii) Engaging in aggressive personal selling because advertising is very costly. ()
- (iv) Selling directly to the market to avoid middlemen exploitation. ()
- (v) Monitoring market prices. ()
- (vi) Selling as a group to have a stronger bargaining power. ()
- (vii) Others (please specify).-----

PRODUCTION OF MAJOR HORTICULTURAL CROPS 1989-96.

FRUITS	PRODUCTION AREA (HECTARES)							
	1989	1990	1991	1992	1993	1994	1995	1996
BANANAS	68,932	76,998	75,927	76,917	79,591	49,575	44,434	45,269
PINEAPLES	7,300	7,947	8,322	7,738	9,886	11,002	7,686	10,142
CITRUS	18,057	19,031	19,314	15,830	16,170	16,339	14,865	14,270
MANGOES	8,413	9,617	10,330	11,839	12,357	12,028	10,862	11,143
PAWPAWS	3,147	4,289	4,505	4,786	5,007	5,796	4,658	5,708
AVOCADOS	1,377	1,524	1,517	1,672	2,442	2,852	1,978	2,585
TEMPERATE FRUIT	1,630	1,525	1,705	1,747	1,644	1,664	1,577	1,842
PASSION FRUITS	870	1,073	1,463	1,366	1,567	1,266	1,419	1,550
OTHER MINORS	710.8	-	487	722.5	818	624.5	558	492
WATER MELONS	295.2	387	392	214	330	357	243	393
TOTALS	110,722	122,391	123,962	122,831.5	129,812	101,503.5	88,280	93,394

VEGETABLES

PRODUCTION AREA (HACTARES)

	1989	1990	1991	1992	1993	1994	1995	1996
CABBAGES	20,184	24,615	23,049	20,761	16,870	19,980	17,218	16,176
KALES	16,453	16,079	18,233	17,465	17,509	22,435	17,569	18,215
TOMATOES	12,678	12,636	15,495	13,528	12,767	14,246	11,157	13,780
ONIONS	6,319	6,089	7,145	4,888	5,043	5,124	4,315	5,210
CARROTS	3,774	4,144	5,255	4,801	4,559	4,719	4,040	4,260
GARDEN PEAS	—	5,504	6,767	6,169	4,144	7,005	7,195	6,940
OTHER VEGETABLES	1,822	1,307	1,238	1,486	1,076	1,234	1,649	1,885
FRENCH BEANS	3,085	3,707	5,939	6,190	5,807	4,792	4,572	5,532
ASIAN VEGETABLES	1,603	1,214	2,227	1,227	3,039	3,637	5,351	2,027
TRADITIONAL VEGETABLES	3,712	3,739	3,948	4,450	4,112	5,609	3,479	5,344
BRINJALS	1,500	1,178	1,388	539	1,391	1,526	1,549	573
SPINACH	—	737	624	653	558	1,636	1,628	1,542
TOTAL	93,552	130,482	91,308	82,156	76,874	91,942	79,811	82,662

FRUITS	PRODUCTION IN METRIC TONS							
	1989	1990	1991	1992	1993	1994	1995	1996
BANANAS	875,209	920,513	1,019,463	985,982	817,508	892,463	445,533	500,627
PINEAPPLES	374,361	376,363	378,705	383,147	550,554	569,125	475,117	544,639
CITRUS	155,604	199,002	190,994	124,383	163,335	169,211	163,101	139,344
MANGOES	79,803	76,679	94,273	90,160	97,426	88,129	89,263	88,076
PAWPAWS	43,716	47,741	45,253	62,043	55,779	57,539	57,465	60,050
AVACADOS	23,212	23,043	19,170	21,291	39,116	41,296	—	31,351
TEMPERATE FRUITS	14,458	14,810	17,381	19,857	14,756	17,541	11,085	12,625
PASSION FRUITS	6,456	8,380	16,256	12,127	12,680	7,735	13,359	13,108
OTHER MINORS		5,848	6,510	4,558	5,013	5,291	3,795	4,573
WATER MELON	2,380	3,308	3,653	1,938	2,987	3,413	2,316	3,870
TOTALS	1,575,199	1,675,686	1,791,658	1,705,486	1,759,154	1,851,743	1,261,034	1,370,263

TRADITIONAL VEGETABLES	11,806	16,329	12,341	25,946	18,155	11,305	14,916	28,027
BRINJALS	7,232	11,947	14,125	2,577	6,375	7,074	5,730	3,230
SPINACH		2,641	4,574	5,484	5,061	2,502	23,599	23,599
TOTALS	1,194,954	377,127	1,000,988	1,000,546	873,361	1,078,610	600,000	600,000

VEGETABLES	PRODUCTION IN METRIC TONS							
	1989	1990	1991	1992	1993	1994	1995	1996
CABBAGES	433,284	302,894	363,860	322,260	246,045	324,070	252,645	258,460
KALES	330,378	183,504	220,931	249,998	230,621	317,787	281,650	245,434
TMATES	247,510	264,249	316,544	216,621	191,619	178,148	153,276	196,210
NIONS	66,474	68,623	73,234	47,174	51,597	48,726	41,640	57,501
CARROTS	39,846	59,744	63,030	62,273	58,364	55,168	5,330	53,159
GARDEN PEAS		23,850	31,643	24,612	17,643	42,234	42,697	32,957
OTHER VEGETABLES	26,051	13,172	12,251	13,889	11,887	10,252	13,672	14,902
FRENCH BEANS	17,832	13,565	24,265	22,265	19,624	18,271	15,219	11,957
ASIAN VEGETABLES	14,541	16,610	32,487	77,085	16,380	62,895	26,211	28,050
TRADITIONAL VEGETABLES	11,806	16,329	12,341	25,348	18,185	11,305	14,616	28,050
BRINJALS	7,232	11,947	14,195	3,537	6,315	7,074	5,736	3,206
SPINACH		2,641	4,877	5,484	5,081	2,683	23,558	23,904
TOTALS	1,194,954	977,127	1,169,658	1,070,546	873,361	1,078,613	876,250	953,790

Appendix IV

Validity Test Data

For each of the following statements, please indicate how strongly you agree or disagree with the statements. Indicate by circling only the number which best represent you level of agreement.

5= Strongly agree

4= Agree

3= Neither agree nor disagree

2= Disagree

1= Strongly agree

Statements	Total scores	Mean	5	4	3	2	1
1. Asians enable us to sell our produce	5	100	5	4	3	2	1
2. " exploit us greatly by buying at low prices	4	100	5	4	3	2	1
3. " demand high quality produce	5	100	5	4	3	2	1
4. " Mostly buy on credit	4	100	5	4	3	2	1
5. " normally buy on cash	5	100	5	4	3	2	1
6. " are good customers who are always ready to buy	33	11.00	5	4	3	2	1
7. " provide us with credit			5	4	3	2	1
8. " are mean people			5	4	3	2	1

Appendix V

Table 1 Scoring procedure in validity testing

Statements	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Positive	2	1	0	-1	-2
Negative	-2	-1	0	1	2

The table above shows that if a respondent ticked either strongly agree or agree for a positive statement, the score was 2 or 1 respectively. A respondent who strongly agrees with a negative statement scores negative two while the one who strongly disagrees scores two. A neutral attitude got a score of zero.

Table 2 Business women's attitude towards Asians.

Statements	Total scores	Mean scores
1. Asians enable us, to sell our produce	5	1.667
2. " exploits us greatly by buying at low prices	4	1.333
3. " demand high quality produce	3	1.00
4. " mostly buy on credit	5	1.667
5. " normally buy on cash	4	1.333
6. " are good customers who are always ready to buy	4	1.333
7. " provide us with credit	3	1.00
8. " are mean people	5	1.667
TOTAL	33	11.00

The overall mean score = $11/8$

$$= 1.375$$

This shows that in general the women had a very strong positive attitude towards the Asians.

Reliability Test Computation

Statement	score	rank
1	30	2
2	-46	7
3	-48	1
5	-38	4
6	-34	3
7	-43	6
8	-42	5

Note: In each of the sets of paired items below, slips of papers numbered the scores were placed on a bow-like paper sheet and randomly selected, in each case. This was done by drawing a first paper from the bow and recording the number on it. The process was repeated until 8 scores were drawn in each case. The ranks corresponding to the scores were then written.

i) set 1 of paired items

X	Rank	Y	Rank	d_1	d_1^2
-48	8	-46	7	1	1
30	2	37	1	1	1
-38	4	-34	3	1	1
-43	6	-42	5	1	1
				$\sum d_1^2 = 4$	

using Spearman's rank correlation co-efficient formula,

$$r_{s1} = 1 - \frac{6 \sum d_1^2}{n(n^2 - 1)}$$

$$r_{s1} = \frac{1 - 6(4)}{4(16 - 1)}$$

$$r_{s1} = 1 - 0.4$$

$$r_{s1} = 0.6$$

Therefore the mean set $r_{s1} = 0.6$

ii) Set two of paired items.

X	Rank	Y	Rank	d_1	d_1^2
-43	6	-42	5	1	1
-48	8	-46	7	1	1
37	1	30	2	-1	1
-34	3	-38	4	-1	1
					$\Sigma 4$

$$r_{s2} = \frac{1 - 6 \sum d_1^2}{n(n^2 - 1)}$$

$$r_{s2} = \frac{1 - 6(4)}{4(16 - 1)}$$

$$= \frac{1 - 24}{60}$$

$$= 1 - 0.4$$

$$= 0.6$$

thus the mean set $r_{s2} = 0.6$

iii) set three

X	Rank	Y	Rank	d_1	d_1^2
-46	7	-48	8	-1	1
37	1	30	2	-1	1
-42	5	-43	6	1	1
-34	3	-38	4	-1	1
					$\Sigma d_1^2 = 4$

$$r_{s3} = \frac{1 - 6 \sum d_1^2}{n(n^2 - 1)}$$

$$= \frac{1 - 6(4)}{60}$$

$$= 1 - 0.4$$

$$= 0.6$$

Then the mean set $r_{s3} = 0.6$

Therefore, the overall mean for the three sets is

$$\frac{R_{s1} + r_{s2} + r_{s3}}{3}$$
$$= 0.6$$

Then,

Correcting r_s with the Spearman Brown Correlation

given $r_w = \frac{n(r_s)}{1+(n-1)r_s}$

$$1+(n-1)r_s$$

where;

r_w = the internal consistency reliability

r_s = correlation co-efficient between halves

n = number of paired items

$$r_w = \frac{4(0.6)}{1+(4-1)0.6}$$

$$= \frac{2.4}{1+(1.8)}$$

$$\frac{2.4}{2.8}$$

$$= 0.85714$$

$$\approx 0.857$$

The computed coefficient Alpha r_s , which is an average of three correlation values was found to be 0.6. The scale according to Tull and Churchill can be said to be reliable.

The coefficient Alpha was corrected with the Spearman Brown prophecy formula to obtain the internal consistency reliability (r_w) which was found to be 0.857. This then further confirms that the attitude scale was internally consistent.

Appendix VII

A two - tailed tests of means using the T – distribution.

Firstly we get the population standard deviation.

$$s = \frac{\sqrt{\sum(x - \bar{x})^2}}{n-1} \quad \bar{X} = -23$$

x	(x - \bar{x})	(x - \bar{x}) ²
30	53	2809
-46	-23	529
-48	-25	625
37	60	3600
-38	-15	225
-34	-11	121
-43	-20	400
-42	-19	361
		8670
		$S = \frac{\sqrt{8670}}{26} = 18.3$

estimate of a population standard deviation

$$s = \frac{\sqrt{\sum(x - \bar{x})^2}}{n-1} = 18.3$$

to find out whether the sample mean (-23) lies within the acceptance region we have :-

μ Ho = -29-hypothesised population mean

$$n = 27$$

$$\bar{X} = -23$$

$$s = 18.3$$

$\phi = 0.05$ –level of significance.

Therefore the hypothesis is

$$H_0 : \mu = -29$$

$$H_1 : \mu \neq -29 \text{ at } \phi = 0.05$$

A two tailed test is used.

Since the sample size (n) is 27, the appropriate number of degrees of freedom is $26 = (27 - 1)$. Therefore, from the t - distribution table at 0.05 level of significance the value of t = 2.056.

Then ;

$$\mu_{Ho} \pm t \frac{\sigma}{\sqrt{n}}$$

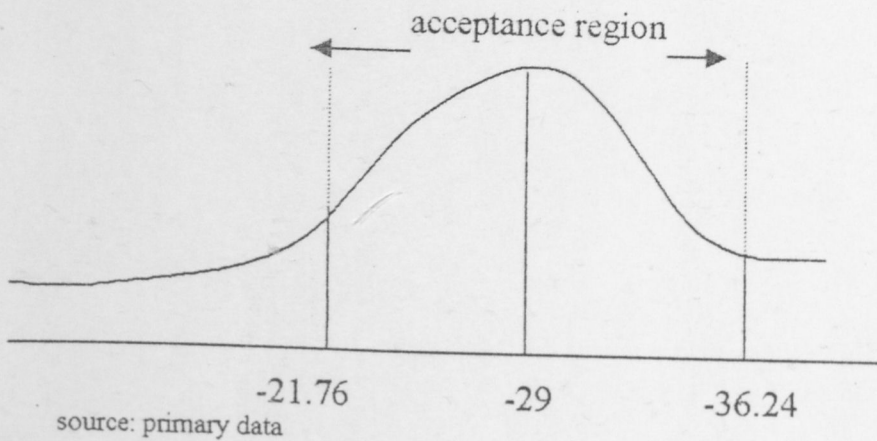
$$-29 \pm 2.056 * \frac{18.3}{\sqrt{27}}$$

$$-29 \pm 7.24$$

$$= -21.76 \longrightarrow \text{lower limit}$$

$$= -36.24 \longrightarrow \text{upper limit}$$

Figure I



From the figure, we can see that the sample mean lies within the acceptance region. Therefore the null hypothesis should be accepted, that is, the true sample mean is -29.