ANALYSIS OF FRUITS AND VEGETABLES PROFITABILITY AND VALUE CHAIN: THE CASE STUDY ON ET FRUIT

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ANALYSIS OF FRUITS AND VEGETABLES PROFITABILITY AND VALUE CHAIN: THE CASE STUDY ON ET FRUIT

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DEDICATION

To my father Hailegiorgis Ashenafi. May his gentle and loving soul rest in peace.

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ABBREVIATIONS

Bn	Billion
CBI	Confidential Business Information
CSA	Central Statistics Authority
ETB	Ethiopian birr
F & V	Fruits and Vegetables
FAO	Food and Agriculture Organization (United Nations)
FAOSTAT	FAO statistical data base (United Nations)
GDP	Gross Domestic Product
GCC	Global Commodity Chain
Ha	Hectare
HDE	Horticulture Development Enterprise
LDC	Least Developed Countries
MOARD	Ministry of Agriculture and Rural Development
Qt	Quintal
SOADE	South Omo Agriculture Development Enterprise
UAAIE	Upper Awash Agro Industry Enterprise
UNCTAD	United Nations Conference on Trade and Development
US	United State
USAID	United State Aid for International Development

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ABSTRACT

Fruits and Vegetable as a group of crops from the horticulture category have a very wide importance both as a source of food and health care. The consumption of onion, potato, banana & oranges has high-income elasticity of demand. Thus, increased demand for these crops is anticipated with economic development, population growth and urbanization. Per capita consumption of fruits & vegetables in Ethiopia is currently very low when compared to other countries of the region and world. The study was initiated with the objectives of analyzing fruit and vegetable profitability and value chains on ET fruit. Specifically the study attempts to assess structure-integration -performance of fruit and vegetable marketing, analyze market supply chain and consumption. The study also analyzes profitability of fruit and vegetable production and marketing and identifies constraints and opportunities in fruit and vegetable production and marketing. For this study, primary data were collected from 2 state farms by conducting interview, namely HDE and UAAEI for onion, potato, banana and orange production. Besides, one fruit and vegetable wholesaler/retailer (ET fruit), 10 private retailers were also interviewed. Primary data were collected by survey method using a pre-tested questionnaire from 50 customers and secondary data were gathered from statistical bulletins. Time series panel data on market prices in ten spatial markets of Addis Ababa for the selected fruits & vegetables was used to investigate market relationships. Similarly time series data of production of these vegetables was used for production estimates.

CHAPTER ONE

INTRODUCTION

Agriculture remains by far the most important sector in the Ethiopian economy for the following reasons: (i) It directly supports about 85% of the population in terms of employment and livelihood; (ii) It contributes about 50% of the country's gross domestic product (GDP); (iii) It generates about 90% of the export earnings; and (iv) It supplies around 70% of the raw material requirement of ago-based domestic industries. Agriculture is also the major source of food for the population and hence the prime contributing sector to food security. In addition agriculture is expected to play a key role in generating surplus capital to speed up the overall socio-economic development of the country (MOARD, 2007).

Ethiopia produces mainly a variety of cereals, pulses, oilseeds, and coffee. Grains are the most important field crops and the main element in the diet of most Ethiopians followed by pulses. Vegetable and fruit production and marketing is relatively limited. Small-scale farmers, who account for 90% of the agricultural output, cultivate an estimated 96% of total cropped land (Greenhalgh and Havis, 2005). The number of small-scale producers involved in horticulture is estimated at 5.7 million farmers (Ministry of Agriculture and Rural Development /MOARD/, 2007).After the establishment of farmers association unions, like Mekibatu and Alemaya, in the rift valley and eastern part of the country respectively, approximately 600 farmers are supplying their products (tomato, onion, potatoes) to the unions under contractual agreements. The union supplies the out-growers with inputs like seed and fertilizer and sometimes pesticides (Woldsadiq, 2007).

Diversification into horticultural crops is becoming attractive for many poor farmers around the world. Worldwide production of fruit and vegetable crops has grown faster than that of cereal crops, albeit from a much lower base. There are several reasons for the global increase in production and trade of fruit and vegetable crops. Horticultural production is profitable. Farmers involved in horticultural production usually earn much higher farm incomes as compared to

cereal producers and per capita farm income has been reported up to five times higher (Lumpkin *et al.*, 2005).

This chapter provides an over view of the background of the study, statement of the problem, objectives of the study, scope of the study, significance, limitation and organization of the study.

1.1. Background of the study

Although horticultural crops are important for health and economy the production and marketing system is still weak in Ethiopia. Horticultural crops can be differentiated as fruit (permanent crops) and vegetables (short season crops). Accordingly permanent crops are long term crops that occupy the field planted for a long period of time and largely harvested every year and do not have to be replanted for several years after each harvest. These include tree crops such as Coffee, Enset, Chat, Oranges, Mangoes, Bananas, papaya, Avocados…etc. The trees that yield fruits like Orange, Mangoes, Papayas, and others are known as fruit trees (CSA, 2001/02).

Fruits and Vegetables (F&V) is not a new sector in Ethiopia as the production of these crops has been undertaken for decades. The sector comprises large state farms supplying fruits and vegetables to the local market and for exports. There are few private companies involved in the production of vegetables mainly for the European market. In addition, there are numerous small producers growing a small range of vegetables for the local and regional export market. Apart from tropical fruits and few selected vegetables like onions, cabbage and tomatoes, local demand for these horticultural produce is minimal. As a result, the horticultural exports compete only in few products (i.e. tropical fruits, tomatoes, onions and cabbage) with domestic supply. On the other hand, there is limited domestic market demand for produce that does not meet the high export quality standards (Ethiopian-Netherlands Horticulture Partnership, Mission Report, 2007).

The Ministry of Agriculture and Rural Development (MOARD), and donors United State Aid for International Development (USAID) have identified potentials for the further development of fruits and vegetable sector in Ethiopia both for the domestic and export market. Also in the Ethiopian-Netherlands horticultural Partnership Program, technical support to the development of the fruits and vegetable sector has been prioritized. A number of actors and donors have

already started activities in the area of technical production assistance, post-harvest handling and compliance to international standards (MOARD, 2007).

According to the CSA (2008), 501,599.14 hectare of land was covered under fruit and 7,990.34 hectare under vegetable. Papaya, onion and tomato covered 3,254.3ha, 15,628.44ha, and 5,341.58ha respectively. An annual production of 21,637,206.7 quintal was estimated from fruits and 18,124,613.5 quintal from vegetable by the same year. Of which papaya, onion and tomato constituted 440,034.99 Qt, 1,488,548.9Qt and 418,149.53 Qt respectively. Bananas, papaya, mangoes and orange took up 55.32%, 12.53%, 12.78% and 8.35% of the fruit production, respectively.

According to Dawit et al (2004), vegetable crops are produced in the country through commercial and small farmers. The type is limited to few crops and production was concentrated to some pocket areas. Production varied from cultivating a few plants in the backyards for home consumption up to a large-scale production for domestic and export markets. From the total 1.1 million square kilometers size of the country 10.18 million ha of land was under cultivation by the year 2005/06 from which vegetable covered 0.29 million ha. An annual production of 18.9 million quintal was estimated by the same year through employment of 9.03 million smallholder farmers for its production. Onion and tomato covered about 16.6 and 4.8 thousands ha of land.

From 2002-2006 the Ethiopian government has made a major change in agricultural policies towards the horticultural sector, reflecting efforts to redirect the economy away from centralized planning to a more liberalized economy. The Government increasingly considers the private sector as the engine of economic growth and the catalyst for employment creation and export expansion. As a result private companies were allowed and facilitated with an array of incentives to engage in the sector (Horti News, 2007).

Fruits and vegetables are produced seasonally, but the market requires products throughout the year. For fresh fruit and vegetables, there are three types of local food retailers in Addis Ababa and other big towns in the country: local groceries who buy fresh produce from wholesalers and private farms; street vendors who are the secondary market for poorer grades of produce; and

Supermarkets who procure from wholesalers and commercial farms. The wholesale market in Addis Ababa is the major source of fresh fruit and vegetables for local retailers (groceries and street vendors) and Institutions (schools, hospitals, military etc). Some larger grocery stores in Addis stock some non-traditional vegetables e.g. zucchini, Chinese cabbage, broccoli. Weekly demand for these higher valued vegetables in 2004 was estimated at about 7-10 tons (www. regoverningmarkets.org).

ET fruit where this study focused established in April, 1980 under the Horticulture development corporation (HDC) of the ministry of state farm development. ET fruit is a whole sale institution dealing with domestic and export trade of fresh fruits, vegetables, flowers, processed horticulture products and some slice crops. The marketing operation of the enterprises includes the collection of products from production sites, transportation, storage, grading and quality control, packing and distribution of these horticultural, floriculture and spice crops. In the marketing chain of fruits and vegetables the sequence of intermediaries involved are of various types and the distinction between the stages of the trade is often blurred. Generally, the following trade channels have been identified:

*Where the individual farmers produce and pack themselves and transport all by animals to the nearest market and sell to wholesalers, retailers or consumers.

*The traditional practice, where a broker, on behalf of the assembling wholesalers moves around the individual farmers and fix verbal contract, advance money, packing sacks and organize the transportation. (ET fruit profile 2002/03).

1.2. Statement of the problem

The weak performance of agricultural markets (both input and output markets) in Ethiopia has been recognized in various studies as a major impediment to growth in the agricultural sector and the overall economy (Eleni *et al.*, 2004, cited in Dawit, 2005). Wolday (1994) also explained that in Ethiopia the performance of agricultural marketing system is constrained by many factors such as: poor quality of agricultural produce, lack of market facilities, weak extension services which ignored marketing development and absence of marketing information.

Development of the horticulture sector depends to a large extent on the existence of the level or development of the value chain of the product and on the efficiency of the marketing system. While little value addition takes place in the form of sorting, grading, quality control and packaging, etc for fresh produce, the semi processed and processed products have reached the branding stage and are considered growth products.

Dawit (2005) explained that the flow of agricultural produce from the producer to the consumer involves a long chain of intermediaries that, without creating value-added, merely keep on stretching the chain. He further pointed out; the involvement of these superfluous intermediaries has constrained the development of the sector and deprived the farmers of equitable returns.

Mohammed (2007) also clearly states that the knowledge gaps in the crop sector in Ethiopia were inefficiency of the market system (which includes inefficient marketing chain, improper transmissions of price to producers and the type of product produced by farmers i.e. whether it satisfy the consumers taste and preference). Although most of Ethiopia's fruits and vegetables are marketed for local consumption, there are categories for export as well. ET fruit exports large quantities of fresh fruits and vegetables to Djibouti. ET fruit sells some processed fruits and vegetables to Yemen, Saudi Arabia and other Middle East countries. However, inadequate and irregular supply of imported packaging materials is a major problem. Most of the products are sold through the government owned Ethiopian Fruit and vegetable Marketing Enterprises (ET fruit), which collects the fruits and vegetables from several state plantations and large private farms.

The Ethiopian Fruit and Vegetable Marketing Enterprises (ET fruit) suffers from various constraints in the area of supply, processing and marketing. Locally produced fruits and vegetables lack the desired quality and are not sufficiently available. There is lack of suitable packaging materials and convenient storage facilities before the fruits and vegetables are processed. For greater access to foreign markets, there is failure to meet the required quality and standards.

Thus the basic questions are addressed in this study were:

1. How the status and pattern of growth of onion, potato, banana and orange production of state farms in Ethiopia?
2. What are the marketing facilities in fruit and vegetable production and marketing?
3. Is there a value adding mechanism for fruit and vegetables marketing? How?
4. Which channel parties of distribution network are used in delivering fruits and vegetables in domestic and international market?
5. Which channel parties generate highest profit margin from onion, potato, banana and orange marketing?
6. What are the basic constraints and opportunities for fruits and vegetables business?

The problems were addressed based on the profitability and value added characteristics of fruits and vegetable marketing.

1.3. Objectives of the study

The general objective of the study was to assess the performance, opportunities and constraints of maximum use of fruits and vegetable marketing of ET fruit. The specific objectives of this study were:

1. To assess critically the marketing channels, value chains, linkages and lines of movements of fruits and vegetables.
2. To assess major constraints and opportunities of marketing functions (packing, processing, grading, transportation, storage, etc).
3. To quantify the market margins of fruit and vegetable producers and other market intermediaries and assess ways to improve the ET fruit's share.
4. To overview the status and pattern of growth of onion, potato, banana and orange production in state farms.

1.4. Scope of the study

There are over 150 wholesalers and retailers of fruits and vegetables in Addis Ababa market who procure directly from state farms & small scale producers via their own agents or local independent traders.

The focus of this study was ET fruit in Addis Ababa, with specific attention on banana, orange, onion and potato marketing. These crops account for the major proportion of fruit and vegetable marketing in the city and pass through a number of marketing stages especially that of banana and orange. The commodity approach to market study is used to analyze value chains and profitability of fruit and vegetable, the study emphasizes different market levels, roles of market players in the marketing channel, price formulation and bargaining power of producers, traders buying and selling strategies, consumptions pattern, storage, transport, information, involved in fruit and vegetable marketing and the major suppliers of fruit and vegetable in the city is the center of the study.

ET fruit is one of the public sectors which is dominant in fruit and vegetable marketing and is still an important player. The parastatal ET fruit is the primary marketing enterprise for marketing of fruits and vegetables. In Addis Ababa, ET fruit has over 35 retail outlets and over 20 other retail outlets throughout the country.

1.5. Significance of the study

As compared to the dominant share of the agricultural sector in the Ethiopian economy, horticulture sub-sector is relatively new and its overall contribution to the economy of the country is limited. For most Ethiopian smallholders, fruit and vegetable cultivation is not the main activity. It's supplementary to the production of main crops and the cultivation is on a very small plot of land (at a subsistence level) and is managed by a household. At present, there is a declining interest on the part of state enterprises in the sub-sector, whereas the interest of private investors and cooperatives is showing an increasing trend. The role of existing public enterprises, which found their way out to export to EU-markets, is gradually declining and is being replaced by emerging private sector actors.

This study might generate important information useful to formulate fruit and vegetable marketing development programs and guidelines for interventions that would improve efficiency of the fruit and vegetable marketing system. Furthermore, this study uses to:

*Determine and define the geographic area where ET fruit market fresh fruits and vegetables.

*Identify potential customers before investigating consumer demand.

*Consider the competitive structure of the market.

*Help set international standards both at the production as well as the marketing level to ensure both consumers protection at the domestic as well as in the international market.

*Help the marketer in the overall packaging, sorting, and distribution and branding of their products to ensure smooth marketing effort and ensure quality standards.

*To get acquainted with the current and potential fruit and vegetable, both domestic and export oriented.

1.6. Limitations of the study

Due to the wide varieties of horticulture and many intermediaries, this study limits on the marketing practices of the Ethiopian Fruit and Vegetable Enterprise (ET fruit) for fruits and vegetables by identifying the potential opportunity areas for development and the constraints that must be overcome to achieve that potential. Collections of price information from private retailers were the most difficult task during the survey. Most of the time retailers are reluctant to give appropriate information as they link it with tax fees. Besides, marketing managers of state farms are busy and time specific during interview. Moreover, the time limit and budget constraint exclude consideration of other marketing areas and producers of fruits and vegetables.

1.7. Organization of the study

The first chapter provides an over view of the background of the study, statement of the problem, objectives of the study, scope of the study, significance, limitation and organization of the study. Chapter 2 presents review of literature on marketing analysis from different sources. Subsequently, description of the study area and methodologies are presented in chapter 3. In Chapter 4, both data analysis and discussion are presented in detail. The last section, chapter 5, presents the summary, conclusion and recommendation of the study.

CHAPTER TWO

2. LITERATURE REVIEW

Introduction

Horticulture production is profitable. Farmers involved in horticulture production usually earn much higher farm income as compared to cereal producers. Cultivation of fruits and vegetables allows for productive employment where the labor/land ratio is high, since horticultural production is usually labor intensive. Increasing horticulture production contributes commercialization of the rural economy and creates many off-farm jobs. However, expanding the scale of horticulture production is often hindered by lack of market access, market information, and many biological factors (Weinberger and Lumpkin, 2005).

Horticulture marketing plays an important role not only in stimulating production and consumption but also in accelerating the pace of economic development. It leads to the optimization of resource use and output management, increase in farm income, growth of agro-based industries, adoption and spread of new technologies, better living, and creation of utility. An increase in the efficiency of the marketing process, which results in lower cost of distribution and lower prices to consumers, might bring about an increase in the national income. An efficient marketing system may contribute to an increase in the marketable surplus by scaling down the losses arising out of the inefficient processing, storage, and transportation. It guarantees the farmers better prices for their products and induces them to invest their surpluses in the purchase of modern inputs so that productivity may increase (Khols & Uhl, 1998).

This chapter consists of four sub units. The first sub unit provides general information about definition and characteristics of fruits and vegetables. The second section deals with marketing of fruits and vegetables focusing on marketing margin and value chain analysis. And section three provides basic information about the status of fruits and vegetables production, marketing and value chain of Ethiopia. Finally the last section provides conclusion.

2.1. Fruits and vegetables

2.1.1. Definitions of fruits and vegetables

Hor*ticultur*e is a branch of agriculture concerned with producing fruits, vegetables, flowers and ornamental plants .The word is derived from Latin Hortus and culture ,meaning garden culture (A.T Zelenka ,1985). The fruits are mainly tropical and sub tropical ones and the major ones are banana, oranges, papayas, grapes, mandarins, avocados, strawberries and others. The major vegetables include potatoes, tomatoes, guava, onion, shallots, pumpkins, green fines, bobby beans and all sorts of leafy vegetables.

Vegetable is the designation given to that group of horticultural plants grown for human consumption either for their roots, tubers, shoots, stems, leaves, flower buds, flowers, fruit or seed (Nonnecke, 1989).

Fruits and vegetables are usually lucrative compared to staple crops. Due to its added high value and income generation potential and a relative lack of economies of scale (compared to grain production and livestock), their production could be attractive. The production of fruits and vegetables has a comparative advantage particularly under condition where arable land is scarce, labor is abundant and market is accessible .This is the prevailing situation in many countries of south and south east Asia where the size of land holding is the lowest in the world and transportation infrastructure has shown dramatic improvements (FAOSTAT,2004).

Fruits and vegetables have unique characteristics unlike that of cereals and pulses. The following section discuses these characteristics.

2.1.2. Characteristics of fruits and vegetables marketing

Being produced both by state and smallholder farmers' fruit & vegetable marketing is influenced by a number of factors that can be attributed to production, product, and market characteristics. Kohl and Uhl (1985) identified these attributes as:

Perish- ability-as fruits & vegetables are highly perishable; they start to lose their quality right after harvest and continued throughout the process until it is consumed. For this purpose elaborated and extensive marketing channels, facilities and equipments are vital. This behavior of fruits & vegetables exposed the commodity not to be held for long periods and fresh produce from one area is often sent to distant markets without a firm buyer or price.

Price /Quantity Risks- Due to perishable nature and biological nature of production process there is a difficulty of scheduling the supply of fruits & vegetables to market demand. The crops are subjected to high price and quantity risks with changing consumer demands and production conditions. Unusual production or harvesting weather or a major crop disease can influence badly the marketing system.

Seasonality-fruits & Vegetables have seasonal production directly influencing their marketing. Normally they have limited period of harvest and more or less a year round demand. In fact, in some cases the cultural and religious set up of the society also renders demand to be seasonal. This seasonality also worsened by lack of facilities to store. Storage and packaging facilities are the basic requirements in the marketing of fruits and vegetables.

Product bulkiness- Since water is the major components of the product, it makes them bulky and low value per unit that is expensive to transport in fresh form every time. This, therefore, exposed farmers to lose large amount of product in the farm unsold. It demands a regular marketing preparation process like washing, cooling, proper management from the time of harvest until the produce is put on display.

Cultivation of fruits and vegetables allows for productive employment where the labor/land ratio is high, since horticultural production is usually labor intensive. Increasing horticulture production contributes commercialization of the rural economy and creates many off-farm jobs. However, expanding the scale of horticulture production is often hindered by lack of market access, market information, and many biological factors (Weinberger and Lumpkin, 2005).

Bezabih and Hadera (2007) stated that production is seasonal and price is inversely related to supply. During the peak supply period, the prices decline. The situation is worsened by the perish ability of the products and poor storage facilities. Along the market channel, 25 percent of the product is spoiled.

The above reviewed literatures indicates severe production seasonality, seasonal price fluctuations, poor pre-and post harvest handling, transport cost, lack of storage are some of the critical problems for the market operations of fruits and vegetables. The following section analyzes the situations of fruits and vegetables marketing.

2.1.3. Marketing of fruits and vegetables

Marketing-in its simplest form is defined as the process of satisfying human needs by bringing products to people in the proper form, time and place (Branson and Norvel, 1983). Marketing has an intrinsic productive value, in that it adds time, form, place and possession utilities to products and commodities. Through the technical functions of storage, processing and transportation, and through exchange, marketing increases consumer satisfaction from any given quantity of output (Mendoza, 1995).

Marketing of agricultural products consists primarily of moving products from production sites to points of final consumption. In this regard, the market performs exchange functions as well as physical and facilitating functions. The exchange function involves buying, selling and pricing. Transportation, product transformation and storage are physical functions, while financing, risk bearing and marketing information facilitating marketing (Branson and Norvell, 1983).

Moraket (2001) indicated that households participating in the market for horticultural commodities are considered to be more commercially inclined due to the nature of the product. Horticulture crops are generally perishable and require immediate disposal. As such, farmers producing horticulture crops do so with intent to sell. Fruits and vegetables are produced seasonally, but the market requires products throughout the year. For many decades, this problem of matching product availability with consumer demand was solved in two ways: (1) selling

fresh products during harvest and shortly thereafter, and (2) processing the rest to meet demand during the rest of the year. As technology improved and consumers' income increased, it became possible to provide fresh produce year-round.

From the above what we understand is: supply and demand matters most for the marketing activities of fruits and vegetables. Producers or intermediaries engaged in the production and marketing of fruits and vegetables estimate their profitability based on the marketing channel costs as well as production costs. The next section shows the relationship between marketing margins and value chain.

2.1.4. Marketing margins of fruits and vegetables

According to Tomek and Robinson (1990), marketing margin is defined as a difference between price paid by consumers and that obtained by producers or the price of collection of marketing services. Menduoza (1995) also explained that marketing margin measures the share of the final selling price that is capturing by particular agent in the marketing chain. It includes costs and typically, though not necessarily, some additional income.

Marketing margins consist of marketing functions such as transportation, storage and processing. They are therefore, the same as returns to all factors of production (land, labor, and capital and entrepreneur-ship) involved in marketing (Adeyokumnu, 1973). Moreover, marketing margins are often estimated for different levels (wholesale, retail etc.) in the marketing system.

One way of defining costs is that they are all of the expenses incurred in organizing and carrying out marketing process. Another definition is the charge which should be made for any marketing activities. Transportation, storage, grading, processing, wholesaling and retailing, which can all be stages in the marketing chain, involves expenses. To calculate the true cost of marketing, estimates have to be made of all these implicit cost of items. We use the economist's concept of opportunity cost for this purpose. This is defined as the benefit foregone by not using a resource in its best alternative use (Smith, 1992).

The increase in margins may be due to an improvement in the services performed or the utilities created for the consumers. In the estimation and utilization of marketing margins possible problems that can arise are because of non-homogeneity of commodity with resulting variation in quality for a particular commodity and non-standardization of quantity measure, the lag in time between the different processes involved in marketing between wholesale and retail, during which effective price changes could have taken place; the price used for estimating the margins may also contain elements of trend, cycle, and seasonal and irregular variations, so that correct estimates of value (form, time, place and possession utilities) added to commodities during marketing may be difficult to estimate (Adekanye, 1982).

Therefore, it can be understood that 1. Margin measures the share of the final selling price 2. Marketing margins are often estimated for different levels (wholesale, retail etc.) in the marketing system 3. The increase in margins may be due to an improvement in the services performed or the utilities created for the consumers and etc. And the marketing margin has a direct correlation with value chains. The following section analyze about the value chain analysis of fruits and vegetables.

2.1.5. Value chain analysis of fruits and vegetables

Lundy *et al.* (2004) , clearly stated that a market chain is used to describe the numerous links that connect all the actors and transactions involved in the movement of agricultural goods from the farm to the consumer, it means agricultural goods and products flow up the chain and money flows down the chain. However, during the last decades, the underlying concept of value chain was subject to different influences and objectives.

According to Harahap (2004), undertaking a sub-sector or market chain analysis is a way of gaining insight into the (1) operations of specific market channels while focusing on their growth potential, (2) activities and efficiency of actors along the chain, (3) business support services involved, and (4) policy and regulatory frameworks. With the information from the analysis, opportunities and constraints can be identified within specific market chains, and ways can be seen to improve a defined client's capacity to compete more effectively.

In the mid 1980s, Porter developed the concept of the value chain in the context of his work on competitive advantage (Porter, 1985). He developed his concept to analyze specific activities through which companies may create value by breaking down their activities into value-added. Porter distinguished two important value-adding activities of an organization: primary activities (inbound logistics, operations, outbound logistics, marketing, and sales) and support activities (strategic planning, human resource management, technology development, and procurement). However, Porter's value chain approach is restricted to the firm level neglecting the analysis of up or downstream activities beyond the company.

In the 1990's, Gereffi and others (1994) developed the Global Commodity Chain (GCC), originally derived from Wallerstein's commodity chain (Bair, 2005). Gereffi established four core elements (Kaplinsky / Morris, 2002): (a) input-output structure, (b) territorial (international) structure, (c) institutional framework, and (d) governance structure. The focus was set on governance referring to institutional mechanisms and inter-firm relationships. The main attention was paid to balance the power embedded in the coordination of globally fragmented but interlinked production systems.

A critical analysis of the experiences and examples of value chain approaches shows that multinational corporations also benefit greatly from well-established value chains (Humphrey and Schmitz, 2002). They reduce transaction costs and secure a constant supply of high-quality products. From a pro-poor growth point of view, this fact becomes critical if international value chains are organized only in a way to increase benefits to corporations and retailers. This risk has to be kept in mind while evaluating value chains.

Value is created by procuring produce at the lowest possible price and selling it at the highest possible one. Given that the fruits and vegetables (F&V) supply chain is generally highly competitive, traditional retailers are typically price takers, i.e., the market sets maximum sales prices. If F&V retailer is good at produce storage and handling (e.g., by using effectively potentially existing cool storage facilities, managing the detrimental effects of light and/or moisture on fresh produce), he may be able to increase shelf life and to reduce produce

wastage(http://vle.worldbank.org/bnpp/en/publications/trade/using-value-chain-approaches-agribusiness-and-agriculture).

The basic aim of these forms of value-adding is to create a substantial benefit to the next user or end user of a product, saving time and / or cost, or providing some sort of additional benefit from the product such as health advantage, taste, versatility or storage life.

In general, fruit and vegetables have special characteristics: perish-ability, seasonality, high economic value, standardisation requirements, the importance that consumers confer to fresh produce in their diets and the great competition between producing regions. These particular features mean that the marketing of these products evolves rapidly and is especially complex. At present the progressive globalisation of markets and its repercussion on the organisation of different marketing channels supposes a new and decisive challenge for the growers who must accelerate the integration of their operations with the rest of the food chain. Based on this the following section discuss the performance of world trade of fruits and vegetables.

2.3. Production and marketing of fruit and vegetable in Ethiopia

This section gives a brief account of fruits and vegetables production and marketing in Ethiopia. This is examined in terms of the production and productivity of major fruits and vegetables at the National level followed by a brief account of the present marketing practices.

2.3.1. Review of fruits and vegetable production in Ethiopia

About 75% of Ethiopia's industry is engaged in processing of farm products. According to (CSA, 2003) the area under these crops (vegetables and root crops) was estimated to be 356,338.82 hectares. From the total area of fruit plantation about 70% is cultivated by individual peasant farmers. The total annual volume of fresh fruit production of the state sector agriculture contribution is less than 20%.

The number of small-scale producers involved in horticulture is estimated at 5.7 million farmers (MOARD, 2007). Few smallholder farmers are engaged in out-growers arrangements. After the

establishment of farmers association unions, like Mekibatu and Alemaya, in the rift valley and eastern part of the country respectively, approximately 600 farmers are supplying their products (tomato, onion, potatoes) to the unions under contractual agreements. The union supplies the out-growers with inputs like seed and fertilizer and sometimes pesticides (Woldsadiq, 2007).

According to the study made by Ethiopian Export Promotion Agency (Sisay Habte, 2004), the major fruits and vegetables growing areas of the country are summarized as follows:

* East Hararghe (eastern part of the country, i.e, Alemaya and Kombolcha districts in Oromia Regional State), with vegetables dominating,

*East Shewa (Central Ethiopia in Oromia Regional State) produces both fruits and vegetables including tomato, green beans, orange, mandarin, papaya, etc,

*West Shewa (central Ethiopia in Oromia Regional State) which is good for producing tomato and mango fruits, among others.

* Arsi (central Ethiopia in Oromia Regional State), particularly in the Awash River basin which is known for its various types of fruits and vegetables,

* Gamo Goffa (Southern Nations, Nationalities and Peoples Regional State), particularly Woliata and Sidama zones, are good producers of banana, avocado, pineapple, papaya and other types of fruits and vegetables in various districts.

In the fruits and vegetable sector, production is still dominated by the two state farm operations, namely Upper Awash Agro-Industry Enterprise (UAAIE) and Horticulture Development Enterprise (HDE), both established in 1979/80 and both currently in the process of being privatized. Alongside the state companies a number of private sector companies and cooperatives are involved in relatively small-scale production, processing and export of vegetable products.

Tropical fruits growing in Ethiopia between the 'tropics' of cancer and Capricorn that is part of the earth which lies between 0 and 20 degree latitudes and North and South of equator. These include Banana, orange, onion, potato, Pineapple, Papaya, Mango and Guava, etc.

Potato *is* only a minor root crop in tropical Africa despite its potentials as indicated by its growth in terms of production. Among the root and tuber crops, it is the only one that had a

positive per capita annual rate of increase in production in Sub-Saharan Africa. Potato has a high yield potential that may be realized within a relatively short growing season and an adaptability to a wide ecological range of 0 to 2000 meters above sea level and 30° N to 30°S (Hahn ,1984). Presently, it does not find much use as food in most parts of Africa except in Burundi, Rwanda, Ethiopia and Zaire, which accounted for over 46% of African potato production in 1984.

Onion: According to Lemma and Shimeles(2003), Ethiopian onion is produced in many parts of the country by small farmers, private growers; state enterprise mainly in Awash valley and lake Region, where the bulk of dry bulbs and seed are produced. Onion is one of the most important commercial vegetables. Onion is a cool season crop. However it can be grown under a wide range of climatic conditions. It grows well under mild climatic without extreme heat or cold or excessive rain fall (Sharma, 2006).

Orange: is one of the most important fruits in the tropical and sub-tropical regions of the world. The fruits are eaten fresh and used for making canned orange juice. Large quantities of sweet orange are used to produce single strength juice, frozen concentrate, rind oil, pectin used in the production of jams and jelly pulp residue which is fed to livestock. The orange juice is also extracted and used for flavors for food items. In West Africa and Africa in general however, the great potentials derivable from sweet orange has not been harnessed (Apata, 2002).

Banana: is grown in many developing countries and is mainly distributed between 30° north and South latitude (Taye, 1975). It is the fourth most important food crop in terms of gross value of production. Total value of international banana trade ranged between USD 4.5 and 5 billion per year, of which 80% of the export comes from Latin America with African countries having a share of only 4% during 1998-2000. The majority of the global banana production (47%) comes from Cavendish sub-group (FAO, 2008).

2.3.2. Status of fruits and vegetable marketing in Ethiopia

The Ethiopian size of the domestic market for fruit and vegetables is limited as is also clear from the very low consumption data. Export of fruit and vegetables can be categorized into three

types. First, export of relatively high value perishable produce to Europe. Second, the export of low value produce cultivated predominantly in Eastern Ethiopia around Dire Dawa, to regional markets (mostly Djibouti) and, third, some processed and fresh produce to Middle East countries (Greenhalgh and Havis, 2005).

The country's top five export trade partners in the year 2008/09 were China, Germany, Netherlands, Switzerland and Saudi Arabia where as import partners were China, Saudi Arabia, India, Italy and UAE. The export from horticulture was 250 million US dollar in the 2009/2010 Ethiopian budget year which accounts for 12% of the total export from Agriculture. Before four years, the contribution was only 3%. The horticulture is nowadays a priority sector that so many privileges such as duty free importation, income tax holiday, customs warehouse facility, lease based land availability and voucher system is given. Due to the incentive schemes given, favorable agro-climatic and socio-economic conditions available in the country, the sector is remarkably booming. Ethiopia has been exporting Vegetables- to Republic Congo, Djibouti, Egypt, Gabon, Kenya, Sudan and South Africa; Fruits- to Djibouti, Sudan, Egypt, South Africa, Kenya, Gabon, Guinea and Niger where as Flowers to Djibouti, Egypt, Kenya, Sudan, Uganda, Zimbabwe, Mali, South Africa, Tanzania, Zambia, Zimbabwe, Angola, Namibia, Gabon and Republic Congo during the period under consideration. Overall, 46.9, 183.8 and 0.9 thousands of tons of fruits, vegetables and flowers have been exported from 2005_2009 (Tsegaye, *2010*).

ET fruit was the first state company to market to countries of the E.U. The Ethiopian Fruit and Vegetables Marketing Enterprise (ET fruit) was established in 1980 under the former Ministry of State Farms Development, the Horticulture Development Corporation with the aim of serving as a marketing organ for all state owned horticultural farms. With the decentralization and liberalization of the country's economic policy, ET fruit was reorganized in 1993. The scope of its services has since then been extended to include private horticultural producers striving to enter export market. ET fruit also renders other services such as market information, refrigerated semi trailer truck transport rent, and supply of quality imported seeds and various export packing materials (ET fruit profile 2009/2010).

The major suppliers of fresh fruits and processed products are the Upper Awash Agro-Industry Enterprise, Horticulture Development Enterprise and Metehara Sugar Factory (Ethiopian Fruit & Vegetable Marketing Enterprise website, as on Jan 24, 2007).

To concluded the above discussion further development of the fruit and vegetable sector in Ethiopia for export to Europe and the Middle East has good perspectives and provides interesting opportunities. In accordance with this the focus of companies should be on describing and analyzing different institutions engaged in marketing including producers, commission agents, wholesalers, shopkeepers, retailers, etc. in the marketing system and the relative importance of these facilitating agencies. The next section deals with the nature of horticulture supply chain of Ethiopia.

2.3.3. Horticulture supply chain in Ethiopia

The success of the horticulture sector is largely based on the efficiency and flexibility of the marketing system .Though grown widely for subsistence purpose, most horticultural products contribute to the generation of income at house hold and country level .A bulk share of the potential demand of horticultural products is in urban areas and in foreign markets. This underscores the importance of efficient marketing strategies for various commodities .According to Ethiopian Export Promotion Agency, the current distribution chain of horticultural commodities in Ethiopia various depending on the commodity and its level of commercialization (Habte, 2004).

Domestic supply chain of fruits and vegetables in Ethiopia can be viewed in terms of source of products .Participants in the marketing chain are both private traders and state enterprises. The significant part of some products from new state owned enterprises are disposed to the market through state marketing enterprises .Products sourced from small growers are channeled mainly via private traders in general .The involvement of middle men is significant in small holders sector. Buyers follow contact persons who identify vegetables to be purchased, negotiate the price, and purchase and deliver the products. Bezabih and Hadera (2007) categorized actors in the marketing channel as producers, intermediaries/ brokers, traders and consumers.

CHAPTER THREE

3. RESEARCH METHODOLOGY

This study was carried out by using a primary data collection from selected vegetable producers and marketing intermediaries in Addis Ababa city, and by using secondary data for analysis of production growth. The methodological framework is presented in this chapter, which consists of five main sub-sections. The first section describes background of the study area. Second section describes methods of Data Collection. The third section discusses data collection procedure. Sampling procedure is described in the fourth section. And the fifth section discuss in detail about methods of Data Analysis.

3.1. Background of the study area

The Ethiopian fruit and vegetable marketing enterprise (ET fruit), was first established as a state owned enterprise in April 1980 under the former state farm development: The Horticulture Development Corporation (HDC). The authorized capital of the enterprise at establishment was birr 828,000 of which birr 317,000 was paid in cash and in kind.ET fruit is the major domestic distributor and leading exporter of fresh fruits, vegetables, cut flowers and processed horticultural products in Ethiopia .The marketing services of ET fruit have reached a remarkable stage of development during the two decades due to its well established market net work and other related facilities (ET fruit profile, 2009/10).

Ethiopian fruits and vegetables marketing enterprise known by its brand name " ET fruit " is engaged in marketing activities both for domestic and export market .It had been engaged as local marketing agent for export to Upper Awash Agro Industry Enterprise (UAAIE), Horticulture Development Enterprise(HDE) and Ethio flora plc until 2002/2003 export season. Now all these companies are exporting their products directly by themselves .At present major operation of ET fruit is restricted to domestic market in selling and distribution of citrus and banana fruits mainly from UAAIE and banana from South Omo Agriculture Development Enterprise (SOADE) .Its involvement in export is as a hauler from farms to Bole air port and

provision of some support and advice to the above mentioned producers via its experienced staffs in export venture and having better customer knowledge .

Types of fruits delivered by ET fruit to the domestic market are: oranges, mandarin, grape fruits, lemon, lime, avocado, guava, mango and banana and vegetables like onion, cabbage, potato, chills and carrot. In addition to these, ET fruit distributes processed horticultural products such as tomato & orange squash, grape fruit squash, and guava nectar to the local market. It is also the sole importers and distributors of high quality seeds (ET fruit profile, 2008).

In Addis Ababa ET fruit has three main branches, twenty one retail handling shops and thirty mobile shops to render distribution service .The Company has developed distribution centers and branches in major towns of the country.

Generally, the study areas covered the main office of ET fruit, ten retail shops of ET fruit with fifty customers, two state farms of fruits and vegetables (HDE and UAAIE) and ten private retailers.

3.2. Methods of Data Collection

Data were collected from both primary and secondary sources. Primary data sources incorporated questionnaires, semi-structured interview and observation. Selected respondents were interviewed personally with the help of pre-tested questionnaires. Observations and perceptions also made about the marketing systems in the study area. The most important data types collected consist of production, buying and selling, pricing, profitability, value chain, marketing constraints and opportunities. Besides, secondary data on product types, production trend, total sales value, market size, cost and profit analysis and other data relevant to the study were collected and rapid market appraisal was under taken. For the purpose, the collection of the wholesale and retail prices and cost of banana, orange, onion and potato of ET fruit and ten big private retailers shop was taken in to consideration. Data used in this study for market relationships were monthly retail price of potato, onion, banana and orange.

3.3. Data collection procedure

The data collection process had been accomplished by the researcher in collaboration with assistant researcher. The assistant researcher had been given orientation about the research project and how to proceed with the data collection processes. After the respondents have been informed about the purpose of the study, they have been asked their willingness to fill the questionnaires and to be interviewed. The questions distributed to customers were translated and prepared in Amharic to make communication effective between the researcher and the respondents.

3.4. Sampling technique and sample size

The investigator wishes to avoid bias in the sample selection process to achieve accuracy in the estimates, which is to have a small standard error (Kinnear and Taylor, 1987). The best way to avoid bias in the sample selection process is use of simple random sampling in which each unit of the population has an equal chance for selection (Scheaffer, 1979). More over the researcher was employed convenient sampling technique for the selection of one retailer from each market.

The sampling covered retailers and consumers to probability proportional to sample size. The major state farms and wholesaler/retailer was taken as it is.

Based on this, the researcher employed sixty three samples of which two are state farms of F & V (UAAIE & HDE), one public wholesaler/retailer (ET fruit), ten private retailers and fifty customers of ET fruit.

The samples were selected purposefully. The relation of choosing the settings and samples were:

1. The setting of the study was selected to be Addis Ababa because it is the major market center for all regions.
2. Addis Ababa is the right place where the main office of state farms is found.
3. It was the appropriate place where the major wholesalers & retailers are found.

3.4.1. Producers sampling

The producers sampled for the survey were those that produce and are experienced in banana, onion, tomato and orange production. The sources of supply for ET fruit from the domestic channels are: Upper Awash Agro Industry (UAAI), Horticulture development enterprise (HDE), Methara suger factory, small private horticulture growers, and North Omo Agricultural Development Enterprise. The main representative for this survey was: UAAI and HDE as major suppliers of fruits and vegetables for ET fruit (90 % of the products comes from these producers).

3.4.2. Wholesalers sampling

There are over 150 private and one big public (ET fruit) wholesalers in Addis Ababa fruit and vegetable market who procure directly from state farms and small-scale producers via their own agents or local independent traders. The wholesalers own their own small trucks for transport from farm gate to the Addis market. They tend to purchase on a cash basis when buying directly from individual farmers but will operate on consignment or even contract basis when buying from commercial sized operations, cooperatives or unions. There are also wholesale agents who travel with transport owned or arranged by wholesalers and buy directly from producers. They deliver produce to wholesalers and may often sell directly from truck to retailers and other buyers. The number of agents is not known but each wholesaler would have at least one or possibly more. The public sector ET fruit is dominant in fruit and vegetable marketing and is still an important player.ET fruit is the major wholesaler and retailer for fruits and vegetables and serves as a representative of wholesaler/ retailer for this study (ET fruit profile, 2008).

3.4.3. Retailers sampling

For fresh fruit and vegetables, there are three types of local food retailers in Addis Ababa and other big towns in the country: local groceries who buy fresh produce from wholesalers and private farms; street vendors who are the secondary market for poorer grades of produce; and supermarkets who procure from wholesalers and commercial farms. In addition, there are food service buyers who supply schools, hospitals, churches, military, etc. The estimated number of major retail markets of fruits and vegetables in Addis Ababa are 23 (CSA, 2010) out of which 10

retail market and one retailer from each randomly selected for comparisons of cost, price and profit.

3.4.4. Consumers' sampling

The consumers' survey was meant to understand the demand for the products. The survey was taken from the customers of ten major retail shop of ET fruit namely: Kazanchis , Addisu Gebeya , Saris , Kera , Tor Hayloch , Mexico, Piazza , Bole, Merccato and Gerji by distributing questionnaires'. These retail shops were selected due to the location convenience to the customers and they are major market areas for the customers. Fifty respondents five from each retail shop were selected randomly at the time of purchase.

3.5. Methods of Data Analysis

The data collected from primary sources was coded and entered into computer. The data was checked for consistence and completeness and analyzed. Frequencies, cross tabulation, percentage & mean are computed to assess the performance of the enterprise. Moreover, factors like fruit and vegetable market price, product cost and profit, etc are computed.

3.5.1. Analysis of descriptive statistics

To describe the characteristics of market players and to identify key constraints and opportunities in banana, orange, onion and potato production and marketing descriptive statistics was used.

3.5.1.1. Production trend analysis

To investigate the production efficiency, it was required to take time series data from publications and statistical bulletins. Data used for production analysis of onion, potato, banana and orange production in Ethiopia was annual production of onion , potato , banana and orange in Ethiopia by state farms and small farms from 2000 to 2008 published in Fruits and Vegetables production Statistics of FAO, (2007) and the production of fruits and vegetables by small scale farmers (Joosten et al, 2010).

3.5.1.2. Analysis of market structure

Abbott and Makeham (1979) define market structure as the market behavior of the firms. In what way they compute? Are they looking for new techniques and do they apply them as early as practicable? Are they looking for new investment opportunity or they disinvesting and transforming funds elsewhere?

Examining the nature of horizontal relationships between similar enterprises is analogous to analyzing the structure of the market as defined by the industrial organizational school. Analyzing market structure entails understanding of those characteristics of the organization of the market influencing the nature of competition and pricing (Scarborough and Kydd, 1992). The structure of the market refers to characteristics of the organization of the markets that seem to exercise strategic influence on the nature of competition and pricing within the market (Pomeroy and Trinidad, 1995).

In food marketing, very large number of producers and consumers at each end of the marketing chain is suggestive of competitive conditions and, therefore, the focus in analyzing market structure is on the numbers and sizes of enterprises within the system, and the potential access of additional participants to it. A high number of buyers and sellers along the marketing chain, ease of entry into all functions, and widely available market information, together carry a strong presumption of competitive conditions (Timmer *et al.,* 1983).

3.5.1.3. Analysis of market integration

Market integration is an important indicator of overall market performance. If price changes in one market are fully reflected in alternative market, these markets are said to be spatially integrated (Goodwin and Schroeder, 1991). Information of spatial market integration, thus, provides indication of competitiveness, the effectiveness of arbitrage, and the efficiency of pricing (Sexton *et al.*, 1991). Prices in spatially integrated markets are determined

simultaneously in various locations, and information of any change in price in one market is transmitted to other markets (Gonzalez-Rivera and Helfand, 2001).

To investigate the market efficiency, it was required to test the market integration and price relationship between the big markets of Addis Ababa for the reliability of prices. For the purpose, the collection of the retail prices of selected fruits and vegetables for selected big markets was considered.

Data used in this study for market relationships were monthly retail price of onion, potato, banana and orange for two months November 2010 and December 2010. But The Ethiopian government has imposed price controls on 20 domestic commodities in an effort to curb runaway inflation which has affected a majority of its citizens. The first round of the imposition affected 20 food items as of January 6th, 2011.

The price reduction affects food items such as edible oil, bread, pasta and macaroni, meat, sugar, tea leaf, bananas, oranges, soft drinks, wheat flour, soap, construction steel, steel sheets, paintings, clothes, textiles, shoes, bottled water and beer. The new prices vary from between 5 to 45 % downwards from the previous market prices. Commodities such as edible oil, pasta and macaroni, powder milk, rice and sugar have been included in the list of imported items to be controlled. In addition, soap (of any kind), pens and textbooks, textiles, shoes, steel sheets, medicine and medical supplies, and tiers are slated for price fixing.

The Ethiopian government also announced businesses found meddling with market competition would be punished with a fine of 15 per cent of his/her annual income or where it is impossible to determine the amount of his annual income, with a fine from 500,000 to one million birr and with rigorous imprisonment from 5 to 15 years(http://ethiopiaforums.com/the-futility-and-damaging-effects-of-ethiopian-government-price-control).

3.5.1.4. Analysis of market performance

The two approaches to measure marketing performance are: marketing margin and the analysis of market channel efficiency. A large number of studies have analyzed the marketing margins for

different types of commodities to examine the performance of agricultural products marketing (e.g, Wohlengenant and Mullen, 1987; Schroeter and Azlam,, 1995; Holt, 1993) and (Sexton, Zharg and Chalfant, 2005 as cited in Jema, 2008) argued that even though variations in the margin over time might be attributable to marginal marketing costs under perfect competition, additional factors such as seasonality, technological changes, and sales volume may also explain the variations in the margin.

Marketing margins are the difference between prices at two market levels. Marketing margins are being examined on the basis of data obtained on prices at different stages of the marketing chain. Marketing margins are calculated through computing the absolute margin or price spread, which is essentially the same as the difference between the prices paid and received by each specific marketing agency. The following formula is used to compute percentage-marketing margins as earned by each market intermediary in the marketing of farm products:

$$Mm = (Ps \times 100) / Sp$$

Where, 'Mm' indicates the marketing margin earned by a specific agency, 'Ps' stands for price spread availed by that agency and 'Sp' represents sale price of the same agency for the same commodity.

Net margins

The net margin of a specific agency is the net earnings, which it earns after paying all marketing costs. Net earnings of various market agencies involved in the marketing of agricultural vegetable are computed with the following formula.

$$Nm = Ps - Mc$$

Where, 'Nm' stands for net margin, 'Ps' indicates the price spread availed by the specific agency and 'Mc' represents marketing costs incurred by the same agency.

3.5. 1.5. Banana, orange, onion and potato supply chain analysis

A value chain consists of all stages of a technical production process as well as of the interaction between these stages. The production process starts at the stage of input supply, than covers production, processing and marketing and ends with the consumption of a certain product. It can be seen as the hard skill of a value chain. According to Gereffi, (1994), besides the technical structure, also the actors of a value chain as well as the input-output, and the territorial structure define a value chain.

In value chain literature upgrading is understood "as the process that enables a firm or any other actor of the chain to take on more value intensive functions in the chain, make itself harder to replace, and thus appropriate a larger share of the generated profits" (STAMM, 2004).Given this definition, upgrading means that individuals, firms or even a whole country improves its original situation through "changes in the nature and mix of activities, both within each linkage in the chain, and in the distribution of intra-chain activities" (Kaplinski and Morris, 2001).

3.5.1.6. Consumption analysis of Banana, orange, onion and potato

Different kinds of models are used to analyze demand or consumption. These include both single and systems of demand equations (FAO, 2003). The single equation models specify uncompensated demand equations. The prices of the goods omitted from the specification may then cause problems because any change in either of them causes changes in demand for the commodity in question through changes in expenditure (Asche *et al.*, 2005).

The general demand functions can be generalized for a consumer buying goods as:

Qi= Qi (P1, P2 .....Pn, I)

Where Qi is quantity demanded;

P is price;

i denotes commodities, and I income.

Extending the demand function for individual consumers to that for a group of consumers in most empirical applications requires the inclusion of demographic variables besides prices and income (FAO, 2003).

It is generally acknowledged that income and price are by no means the sole determinants of food consumption, although they are normally the easiest to measure (Saxon, 1975). The following variables also included in the analysis:

Family size – This is the total number of family members under a household. It is a continuous variable expected to take positive coefficient. The higher number of family a household had the more quantity they would consume.

Income – This is an average monthly income of a household. It is continuous variable expected to influence consumption level positively.

Purchase frequency - This is a categorical dummy, expected with positive coefficients. The more frequent a household purchased, the more quantity would consume.

Purchasing experience – This is the experience of a household in purchasing F & V. It is a continuous variable measured in years. The expected sign was positive assuming that more a purchase experience, the higher quantity he would purchase.

3.5.1.7. Analysis of constraints and opportunities

The production and marketing of horticultural products is complex, capital and labor intensive, time sensitive and dynamic. The stages in the chain include market evaluation, operation planning, production, harvesting, assembly and sorting, quality control, packing, transport, storage, and export and distribution. *Constant supply of quality fruit and vegetables is the problem, not the demand.* Practically all stakeholders agree that supply of fruit and vegetables is holding back further exports, not its demand (Parkin, 2007). There are so many factors that hamper and facilitate the marketing activities of fruits and vegetables. Based on the response of the respondents production and marketing problems and opportunities have been discussed.

CHAPTER FOUR

4. Data Analysis and Discussion

This chapter presents the results and discussions of onion, potato, banana and orange production and marketing analysis. These results are obtained by applying number of analytical techniques using primary as well as secondary data for defining the production and marketing environment of selected vegetables and fruits. The chapter is organized in the following four sections. The first section includes broader description of vegetables and fruits production in Ethiopia including two major public farms and their production costs. Detail analysis was employed to describe the marketing of fruits and vegetables, marketing channels of fruits and vegetables, Structure, integration, performance and profitability of onion, potato, banana and orange producers, ET fruit and private retailers in section two. Section three discusses about consumption of fruits and vegetables and socioeconomic characteristics of selected consumers. And finally analysis of production and Marketing Constraints and opportunities was made in section four.

4.1. Production

In the fruit and vegetable sector current production is dominated by two state farms, namely the Upper Awash Agro-Industry Enterprise (UAAIE) and the Horticulture Development Enterprise (HDE), both are currently in the process of being privatized. Alongside the state companies a number of private sector companies are involved in production, processing and export of vegetable products. Small-scale farmers produce 2.1 million tons of vegetables from 260 thousand ha while the State Farms produce 18 thousand tons from 880 ha during the period 2000-2009. Total fruit production is almost 500 thousand tons, of which the State Farms account for approximately 10% of production (FAOSTAT, 2009).

4.1.1. Status of fruits and Vegetables Production and Pattern of Growth in Ethiopia

Two major state enterprises (UAAIE & HDE) are engaged in the production of fruits and vegetables. These two state farms operating on total farm area of 11,000 hectare. The State

Farms produce much of the fresh fruits supply for the domestic market, including the volume for export. In addition they also produce maize and pulses; processed products including tomato paste, juice, ketchup, orange marmalade, etc., for supply to the domestic market, and partly for export to Djibouti market.

The survey result indicates Upper Awash Agro Industry Enterprise (UAAIE) is the largest producer of fresh and processed fruits and vegetables. The total area of Upper Awash Agro Industry Enterprise is 7,187 ha. Out of this fruits cover 214.75ha and vegetables 674.24 ha by the year 2000-2006. About 6,173 ha of the area can be cultivated through irrigation and 420 ha through rain fed farming. The enterprise consists of four farms, namely Aware Melka (876 ha), Tibila (1,334 ha), Nura Era (3,277 ha), Merti Jeju (1,700 ha) farms. The main crops cultivated are fruits (oranges, mandarins, tomatoes, guavas, grape vine), vegetables (okra, onion, green chilies, cabbage, carrot and beetroot), and other crops include cotton, tobacco, maize, popcorn, and beans.

Horticulture Development Enterprise (HDE) is the second largest producer of horticultural products and operate four farms (Zwai ,Tseday , Ghibe and Erer Gota) located at different parts of the country majority of them are in oromia region. Other than horticultural products, it also produces maize, wheat, popcorn, sesame, beans seed and others. HDE has stable area coverage over the given period 348.86 ha for fruits and 141.56 ha for vegetables during 2000-2006, which implies that expansion activities were not under taken.

Table 1 shows the production trends of fruit and vegetables. Major vegetables were tomatoes, onions, potatoes and cabbage, mainly produced by smallholder farmers and the state farms. Fruit production in terms of volume has lower than vegetables. Within the group of fruits, banana is the most common fruit being produced. In the period 2000 – 2009 total production of banana, potatoes, papayas, broad beans, cabbage and onion dry shows a growing trend.

Table 1:

Fruit and Vegetable production trend 2000-2009

Fruits and vegetables	Quantity produced (1000 tons)									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Avocado	78	79	80	81	82	83	83	79	95	95
Bananas	82	82	82	175	182	211	211	251	251	256
Beans dry	147	211	101	117	175	176	176	165	198	198
Beans green	4	3	3	3	3	3	3	3	3	3
Horse beans	120	235	453	430	552	516	599	601	652	652
Cabbages	120	130	150	152	164	174	174	174	182	182
Carrots	1	1	15	10	18	7	7	19	19	19
Chicken peas	165	176	187	136	163	217	125	196	196	202
Chilies	2	2	78	67	72	79	79	79	85	85
Other Fruits	137	143	145	160	160	160	160	189	189	189
Garlic	40	50	70	71	86	86	86	90	90	98
Grapes	6	7	7	7	8	8	8	8	8	8
Guavas, mangoes	153	157	160	163	174	182	182	158	158	206
leguminous vegetables	2	2	3	3	3	3	3	3	3	3
Lentils	59	65	38	35	55	63	65	65	65	65
Green onion	6	6	19	20	20	20	20	18	21	21
onion dry	93	120	140	217	230	176	176	155	176	182
Oranges	14	15	15	13	17	16	16	16	18	18
Papayas	197	223	226	231	247	259	259	259	263	263
peas dry	118	147	200	170	230	197	209	218	218	218
Potatoes	315	385	385	510	510	450	450	585	590	601
sweet potatoes	118	118	339	497	452	409	409	562	562	562
Mandarins	15	8	8	9	9	9	9	16	16	16
Tomatoes	54	55	55	55	36	35	35	65	65	65
Other vegetables	420	420	420	430	430	440	440	550	550	585

Source: FAOSTAT Statistics Division, 2010

The results in Table-1 indicated that there were a positive growth in production for all vegetables and fruits except mandarins, oranges, leguminous vegetables, grapes, carrots and beans green in the year 2000 – 2009. During these periods dry Beans, Bananas, horse beans, Cabbages and

mangoes have showed a positive growth. During the same period the production of dry onion, papayas, dry peas, potatoes and sweet potato also increased.

The production of fruits and vegetables by small scale farmers was also high during the period 2007/08__2008/09.

Table 2:

Small – Scale Farmers Production of Fruits and Vegetables 2007/08 and 08/09

Crops	Production (qt)	2008/09		
	2007/08	Area (ha)	Production (qt)	Yield (qt/ha)
1.Vegetables(total)	4,719,664.46	162.125	5,988,571	-----
Lettuce	*	*	*	*
Head cabbage	117,650.12	3,400	241,335	70.99
Eth.cabbage	2,383,602.95	33,901	2,815,668	83.06
Tomatoes	338,380,.91	5,341	418,150	78.28
Green peppers	623,209.04	8,581	658,725	76.77
Red peppers	1,223,996.86	110,406	1,834,026	16.61
Swiss chard	4,272.88	243	6,809	28.01
2.RootCrops (Total)	15,909,489.12	145,742	12,136,043	----
Beet root	169,479.87	2,119	200,927	94.82
Carrot	*	*	134,666	*
Onion	1,751,061.71	15,628	1,488,549	95.25
Potatoes	4,025,080.08	48,113	3,840,457	79.82
Garlic	1,035,416.76	14,137	1,560,477	110.38
Taro/godere	2,882,637.27	30,251	2,282,428	75.45
Sweet potatoes	5,264,870.43	33,070	2,628,539	79.48
3.fruit crops (total)	4,621,475.33	47,990	3,512,593	----
Avocados	428,492.20	5,068	324,519	*
Bananas	2,610,592.27	29,064	1,943,331	64.04
Guavas	27,023.70	1,320	19,474	66.86
Lemons	69,739.66	754	48,713	14.76
Mangoes	484,360.97	6,051	441,582	64.62
Oranges	428,072.76	2,440	293,410	72.97
Papayas	572,744.73	3,254	440,035	120.27
Pineapples	448.95	40	*	135.22
Grand total (1+2+3)	24,650,628	355,857	21,637,207	*

Source: Joosten et al, (2010)

As the above table indicates the production of fruit and vegetables, including root crops, was 46,643,692 quintals (9.2%) of total national peasant crop production of the season constituting of

about 8,134,068.33 quintals of fruits (16%), 10,708,235.46 quintals of vegetables (28%), and 28,045,532.12 quintals of root crops (56%) in 2007/08 and 2008/09. This volume was produced on 356 thousand hectares (2.4% of total cultivated land in 2008/09) of peasant holdings. The result further indicates in the period 2008/09 cabbage and tomato from vegetable, garlic and onion from roots, pineapples, papaya and orange from fruits have given the highest yield per hectare. In the production season 2007/08 and 2008/09 (2001 E.C.) number of small-scale producers engaged in horticulture production is estimated around 6.0 million as per CSA statistics.

4.1.2. Status and Pattern of Growth of Onion, potato, banana and orange by state and small farms

The main fruit and vegetable used for consumption in Addis Ababa are banana, orange, onion and potato. Onion crops are the most important cultivated crops in the country. The maximum yield of onion was observed in 2004. In 2004 the production of all the vegetable crops was estimated to be 131,962 ha planted to about 2.8 million tons per year, from a total area of major vegetable crops production excluding tuber crops in the country. Out of this volume, onion takes the share of 230,000 tons from 16,578 hectares in 2004 and decreased by 54,000 tons in 2005. The world average yield at present is about 17.3 tons/ha .Ethiopia has a great potential to produce onion every year for both local consumption and export with an average yield of 13.3 tons/ha (CSA, 2006).

Banana production by small farms shows an increasing trend from 2000 -2008. In 2007 more than 47 thousand hectares of land is under fruit crops in Ethiopia. Bananas contributed about 60.56% of the fruit crop area followed by Mangoes that contributed 12.61% of the area. Nearly 3.5 million quintals of fruits was produced in the country. Bananas, papaya, mangoes and orange took up 55.32%, 12.53%, 12.78% and 8.35% of the fruit production, respectively. Papaya, onion and tomato covered 3,254.3 ha, 15,628.44 ha and 5,341.58 ha, respectively. An annual production of 21,637,206.7 quintal was estimated from fruit (3,512,593.2Qt) and vegetable (18,124,613.5Qt) by the same year. The state farms produced on average 150,000 quintals of

oranges every year that was the lowest from fruits category. The average yield of oranges is 340 qt/ha, in the UAAIE.

The total area under potato production was 36,736 ha with an annual average production of 385,258 metric tons in 2002. The production of potato increased and the maximum yield was observed in 2003 and 2004 (i.e. 510,000 tons each year). The national average yield is approximately 10.5 tons/ha, which is very low compared to the world average of 16.4 tons/ha.

4.1.3. Production and transaction costs

The cost of production is classified into fixed cost including land input and variable costs including labor and capital inputs. The fixed costs of production of these vegetables including onion, potato, banana and orange, classified as land preparation, the labor input cost includes all those cost incurred on field operations and production practices starting from sowing up to harvesting and performed by human, animal and machinery. The main labor costs identified were the cost of land preparation, sowing, inter-culturing, irrigation and pesticides applications and harvesting. The capital cost accounts the cost of seed, nurseries, fertilizers, pesticides and herbicides etc. The followings are the identified mechanics of the calculation of major cost items of fruits and vegetables production and transaction costs on average basis:

1. The operating cost for fruits and vegetables is amounting to birr 35,000-40,000 per ha by using local seeds .If the seeds is imported the operating cost will increase seasonally.
2. The number of laborers in 1ha per day is in between 32-34 for land preparation and then for grading needs birr 15-20/person/day.
3. Production cost is between US $0.36- $0.38 per kg. The highest cost is for electric installation, which will cost around birr 400,000.
4. Transaction costs includes:

a. Commission cost
b. Air port fee
c. Customs
d. Loading and unloading
e. Handling cost. These all accounts 7% of the gross sales.

Table 3:

Average cost per hectare of potato, onion, banana and orange production

Types	average cost/ha	average cost/quintal
Potato	8700birr	108- 194 birr
Onion	54,000birr	315- 348 birr
Banana	8250birr	115-165 birr
Orange	17,000birr	356-481birr

Source: interview result, 2010

As table 3 shows the cost of producing fruits and vegetables were demonstrated taking four sample products of two state farms i.e. UAAIE and HDE for the production of onion, potato, banana and orange. The calculations are based on typical case studies, representing average costs, for the two farms where the parameter estimates were made in a participatory manner with the production and marketing managers who are concerned in the production and marketing of these products. A hectare of land and a quintal were used as a survey study for the production of potato ,onion, banana and orange .The average cost of producing potato and banana was Birr 8700 and 8250 per ha and birr 194 and birr 165 per quintal respectively while orange and onion production costs Birr 17,000 and 54,000 per ha and birr 481 and birr 348 per quintal respectively by HDE/UAAIE .

4.2. Market

4.2.1. Analysis of Market structure

In food marketing, very large number of producers and consumers at each end of the marketing chain is suggestive of competitive conditions and, therefore, the focus in analyzing market structure is on the numbers and sizes of enterprises within the system, and the potential access of additional participants to it. A high number of buyers and sellers along the marketing chain, ease of entry into all functions, and widely available market information, together carry a strong presumption of competitive conditions. The following tools were employed to study the market structure.

4.2.1.1. Marketing actors

The institutional relationship across the market actors in supply chain of vegetables and fruits have been investigated following the principles and procedures laid down in the New Institutional Economics (NIEs). The relationship across these actors in fruit and vegetable marketing was guided by the basic motive of profit but involved financial transaction as well; like every functionary extended advances to the immediate supplier of the product for getting supplies. This type of arrangement is defined as interlocking system of transactions in the literature of New Institutional Economics (Stevens, 1989).

In this survey the major marketing actors identified in the fruit and vegetable marketing systems were categorized into four levels, namely the producers, wholesalers, retailers and consumers. These different actors have different and complementary marketing functions. These include production, facilitation, buying and selling, transporting, packing, sorting and, processing, etc. It is interesting to note that some key functions such as packaging, sorting and processing are poorly developed and the sense of value adding is practically not observable. The changes in the value of products as they move away from production along the marketing channel to the consumers is the increased utility by making the goods available rather than adding value in terms of increased shelf life or increased safety. This section discusses the major market actors.

Producers-These are the primary or first link actors of the market channel who cultivate and supply surplus onion, potato, banana and orange and other products to the market. The small-scale farmers, the State Farms and the private commercial farms are producers of horticulture crops in Ethiopia. 95% of the fresh vegetable supplies to the domestic urban and regional export markets are sourced from the peasant sector. Smallholders in the rift valley area of Ziway and Meki have also engaged in production of Bobby beans for export as out growers to a commercial farm (Joosten et al, 2010).

The two state farms operate on total farm area of 11,000 hectare. The State Farms produce much of the fresh fruits supply for the domestic market, including the volume for export. During the

survey period respondents were asked what and how much they produce. The survey reveals that both state farms (HDE & UAAIE) produces tomatoes, orange, mango, carrot, cabbage, onions, potato , banana ,pulses and cereals for supply to the domestic market, and partly for export to Holland, Italy, Sudan, Djibouti and Middle East market. The small scale farmer largely produces banana and potato. In addition pulses, cotton and maize are produced in large quantities.

Survey data indicated that both state farms keep their production and selling records accurately. The average amount of production per hectare was: onion 13.3 tones /ha, potato 10.5 tones /ha, orange 34.82 tones /ha and banana 9.89 tones /ha. According to the data collected on some selected fruits and vegetables, state farms are in a better position to produce more tones of fruits and vegetables compared with small private farms using one hectare of land. The following table shows the average productivity of state farms and small private farms.

Table 4:
Average productivity of onion, potato, banana and orange tons per hectare

Items	State farms weighted average productivity	Small farms weighted average productivity
orange	34.82	11.24
banana	9.89	21.62
onion	13.3	6.48
potato	10.5	7.37

Source: interview result, 2010

Based on this survey in terms of productivity state farms were able to produce more orange , onion and potato than small farms per one hectare .But the productivity of banana was high by small farms than state farms .The difference in productivity implies the difference in the efficient use of resources . State farms were a relatively in a better position to exploit the resources. They were aided with skilled man power, credit service, better technology and fertilizers. Since the products are very perishable in nature right after harvest they are sold either at regional, urban and foreign *market*. The study revealed that, 90 percent of fruits & vegetables from HDE and UAAIE were supplied to ET fruit. Moreover, both farms used distributors, wholesalers and retailers in the domestic market to distribute their products to consumers. For

the international market agents, wholesalers, retailers and importers auction were used. According to the interview result, very high risks were observed in the production of fruits and vegetables due to bad weather and theft.

Wholesalers: These are known for purchase of bulky products with better financial and information capacity. The main source of supply for ET fruit was HDE & UAAIE (i.e. 90%) and commercial / small farms 10%. As a whole seller ET fruit buy all types of fruits and vegetables at a farm gate using bidding system with a larger volume than any other marketing actors does. ET fruit relatively spend their full time in wholesale buying throughout the year. The interview made revealed that ET fruit as a whole seller and retailer supply fruits and vegetables to the domestic market for households, hotels, groceries and supermarkets using distributors, other wholesalers and retailers at a cheapest price. Moreover, it exports to Djibouti and Sudan through agents .ET fruit render services using its distribution centers and retail shops in 11 major Ethiopian towns, three whole sale branches, twenty one retail shops and thirty mobile shops in Addis Ababa. From the total product at least 10% will become defective and immediately disposed.

Table 5:

Market out let of ET fruit

No.	Branches	Location	Distance from A.A (Km)
1	Debre zeit	Debre zeit town	45
2	Nazerth	Nazerth town	100
3	Metehara	Metehara town	225
4	Shashamene	Shashamene town	250
5	Dire dawa	Dire dawa town	515
6	Harar	Harar town	535
7	Bahir dar	Bahir dar town	580
8	Mekele	Mekele town	783
9	Awasa	Awasa town	275
10	Combolcha	Combolcha town	375
11	Dessie	Dessie town	400

Source: ET fruit profile, 2009/10

On the basis of the survey result orange is distributed to the domestic market from June to February, banana throughout the year and potato and onion from November to April. The company owns its own stores, 28 refrigerated trucks and a capacity of 1000 ton refrigerated cold

4.2.2. Analysis of Market facilities/ infrastructure

4.2.2.1. Standard and grades

The standard and grades of fruits and vegetables is one key term of reference for enabling business transaction between trading parties in markets without the traders being personally present. The commodity speaks for itself, so the seller may not necessarily be present to convince buyers to buy the product. Color, size, shape, smell, taste, shelf life, level of cleanliness, and maturity level are determinant of grades.

Standard and grading is advantageous for both buyers and sellers. Firstly, it builds confidence and trust in the marketing system and secondly it avoids unnecessary risk of losses. There are no clearly set standards at ET fruit. Almost they measure quality of potato and onion based primarily on compact dryness followed by size and color. Banana and orange were also the same. Buyers mostly need mature, yellow and ripe banana and orange of large size with good flesh content. Due to lack of standard and grades buyers decided price of commodities through eye ball pricing (Branson, R., and D.G.Novell, 1983).

4.2.2.2. Packaging

Based on the observation made packaging material for the four crops were different as their properties differed. Onion and potato are collected and packed with sack, and freely arrange on car. In case of banana and orange, commonly the wooden boxes and some times' different sizes of baskets (*kirchat*) were used in the domestic market.

Most of the available packing material in Ethiopia currently does not meet the required standards. ET fruit import its packing material from the Netherlands or Israel. There were no appropriate packaging materials prepared for the buyers. ET fruit uses plastic package for the customers with additional payment.

4.2.2.3. Transportation

Ethiopian airlines had a good cargo facility with a cooling facility for cargo pallets. In Ethiopia the prices of air freight to Europe are more or less comparable to Kenya, ranging from $1.75 to

$2.05 per kg.Air freight rates to the Middle East is on average $0.65 to $0.75 per kg. Prices for to the Middle East are considered attractive, mainly due to overcapacity.

For export from Ethiopia by sea only the port of Djibouti is a realistic option. Distance from Addis Ababa to Djibouti is more than 900 kilometer through transport by road. The transportation cost from Addis Ababa to Djibouti is birr 19,000 for 200 quintal, i.e. $ 2100 per container. From Djibouti to Jeddah, the sea freight cost is $ 600 per container.

Onion, potato, banana and orange were transported from production area to warehouses, wholesale branches and to different ET fruits retail selling containers with its own refrigerated trucks. And banana and orange were exported to Djibouti market by ships.

4.2.2.4. Storage

The interview result shows that in the fruits and vegetables sector, there are two privately owned cold stores in Ethiopia, namely the Ethio-Flora and Tippu Valley cold stores in Ziway. And in the public sector, Et-Fruit and the two state farms have cold store operations. The stores are not designed to rapidly reduce field heat and are not of a sufficiently high standard. Other retailers hadn't appropriate storage facilities. Due to lack of improved storage facilities, retailers keep fruits and vegetables only for a limited number of days. There is one private cold store at Bole airport.

4.2.2.5. Market information

Market information is information on prices, quantities, but can also include conditions available in the market like quality of produce, volumes of commodities coming in and going out of the market, weather conditions from areas where commodities are coming from, new crop varieties in the market, seasonal tendencies like harvest or planting time and so on. Access to timely market information on prices and quantities plays a crucial role in reducing the risk of losing money on a market transaction. Market information specifically included information on product demand, product supply, market place and buyers and competitors. According to the interview result, ET fruit gather information about the source of the product using telephone and news papers .The enterprise sometime uses TV advertisement to provide information for their clients.

Mostly the sources of information for the consumers were personal observation and word of mouth communication.

4.2.2.6. Processing

Fruit and vegetable processing increases the shelf life of fruit and vegetables. The preservation of fruit and vegetables is achieved by canning, drying, or freezing, and by the preparation of juices, jams and jellies.

In Ethiopia, the number of fruits and vegetables processing industries is limited. Currently, there are only 5 fruit and vegetable processing plants in the country. The interview result shows that ET fruit does not have processing industries, it was engaged in marketing of processed fruits and vegetables like tomato juice , orange marmalade ,orange squash and grape fruit squash in a limited quantity by taking from the main supplier (i.e. The Merti Fruits and Vegetable Processing plant).

4.2.3. Analysis of market integration

Method for estimating the extent of market integration depends on the time series properties of commodity price and cost in each market location. This section examines the two month sales and costs of selected vegetables and fruits in the selected markets. The seasonality in the arrival/sale of the selected fruits and vegetables were examined with the help of monthly seasonal index. This index is arrived by expressing monthly sale/arrival of a given month expressed in percentage terms.

The extent of market integration was examined using onion, potato , banana and oranges two month retail real price from ET fruit and ten Addis Ababa retail markets including : Mercato , Kera , Gerji , Saris , Kazanchis , Piazza , Tor hayloch , Bole , Mexico and Addisu Gebeya. Tabular representation is given in table 6. The survey was conducted from November, 2010 to December, 2010.

Starting from January 2011, the government of Ethiopia had made price control on some basic domestic commodities in an effort to curb runaway inflation which has affected a majority of its citizens. Revised prices for some products are sugar (ETB 14), meat (ETB 52birr), banana (ETB 5), orange (ETB 7.50), beer (ETB 7), soft drinks (ETB 4.20) and on other many products the government impose a price control in order to control unhealthy competition. Before the price control the retail price of onion, potato, banana and orange were indicated in the following table:

Table 6:

The average retail price of onion, potato, banana and oranges at ET fruit and ten retail market of Addis Ababa

Price per kg in birr

Market	Piazza	Mercato	Kera	Gerji	Saris	Kazanchis	Tor hayloch	Bole	Mexico	Addisu Gebeya	Etfruitt retail price	Average
Onion	7.50	10.00	7.50	13.00	9.00	9.50	8.00	10.00	9.50	9.00	5.50	8.95
Potato	6.50	8.00	8.00	7.25	10.00	6.00	7.00	9.50	5.00	8.50	3.50	7.20
Banana	6.00	7.00	6.00	7.50	7.00	7.00	3.50	10.00	7.00	4.75	5.00	6.43
Orange	10.00	10.00	8.00	10.00	11.00	10.00	10.00	9.00	11.00	10.50	6.00	9.59

Source: interview result, November and December, 2010

The survey results shows that the average retail price of onion, potato, banana and orange per kilogram was birr 8.95, 7.20, 6.43 and 9.59 in ten major private retail markets of Addis Ababa including the retail price of ET fruit during the month of November and December, 2010. Results reveal that the price of onion, potato, banana and oranges at private retail markets are highly integrated as indicated by strong spatial price linkages among markets where most of the trade occurs, but at ET fruit retail shops least price were observed when we compare with private retail shops. The percentage share of marketing price of the selected vegetables ranged from maximum 70.3% and 74.1% at private retail shops and minimum 29.7% and 25.9% at ET fruit for onion and potato respectively. For fruits it ranged from maximum 74.1% and 63.5% at

private retail shops and minimum 25.9 % and 37.5% at ET fruit retail shops for banana and oranges respectively. Among the selected vegetables and fruits, those with comparatively high share of marketing price were onion and oranges.

The result indicated that the price change in one private retail shop was fully reflected in other retail shop. The price difference across these markets is mainly due to transportation and transaction costs. The result shows that the price of orange was high across time due to supply shocks, perishable nature of the product, and storage costs. The results also indicated that the private retail shops charges high price compared with public retail shops i.e. ET fruit in Addis Ababa.

The next stage of the analysis was the average transaction costs of ET fruit retail shops and private retail shops for fruits and vegetables. Marketing costs are the expenditure incurred by various market intermediaries from the time when commodity leaves the farm until it reaches the consumers. The major cost components included production, grading, packing, loading, unloading, transportation, commission charges and market taxes.

Table 7:

The average retail cost of onion, potato, banana and orange at ET fruit and ten retail market of Addis Ababa.

Cost per kg in birr

market	Piazza	Mercato	Kera	Gerji	Saris	Kazanchis	Tor hayloch	Bole	Mexico	Addisu Gebeya	Etfruit retail cost	Average cost
Onion	6.60	6.50	6.50	9.50	7.21	6.50	7.00	7.50	8.00	6.00	4.25	6.87
Potato	6.20	6.00	6.00	6.50	5.29	4.50	5.00	7.80	4.00	6.00	3.00	5.48
Banana	2.90	5.00	4.50	6.00	4.29	5.75	3.00	6.00	6.00	4.00	2.75	4.56
Orange	7.50	7.00	6.00	8.35	8.20	8.00	8.00	7.00	9.00	8.00	5.28	7.48

Source: interview result, November and December, 2010

The survey result indicated that the average costs of onion , potato ,banana and oranges were birr 6.87 , 5.48 , 4.56 , and 7.48 respectively at ten retail shops of fruits and vegetables including ET fruit's retail shops during the month of November and December , 2010.

The cost incurred by the selected vegetable retailers varied from maximum 69.1% and 71.37% by private retail shops and minimum 30.9% and 28.63% by ET fruit for onion and potato respectively. The marketing costs of fruits ranges from a maximum of 68.57% and 63.03 % by private fruits retailers and a minimum of 31.43% and 36.97% by ET fruit for banana and oranges respectively during the same period. Thus, the analysis of ET fruit's marketing costs indicates that the share is quite low in general compared with private retailers for the selected fruits and vegetables.

4.2.4. Analysis of Market performance

The techniques employed for analysis of performance were marketing margin and channel comparison. The marketing performance was examined in terms of the price difference, marketing cost, and margin for fruits and vegetables of producers and marketing intermediaries. Variation in price difference and margin in absolute terms for the same commodity in different markets could be partly attributed to the varieties chosen for the study. Therefore, the marketing cost and margin have been expressed as percentage to the price difference.

4.2.4.1. Profit margin analysis of onion producers and other marketing intermediaries

The data on onion prices and costs were obtained to market margins at different stages in the marketing chain. It was very difficult to come up with a unique solution for the price to be used. The price of onion was collected on a per quintal (100 kg) basis. Onion prices and costs were collected for two months (i.e. November and December -2010) from state farms and ET fruit as wholesale/retailer. The two months were selected by the researcher due to high inflation observed in the markets of Addis Ababa in November and December .The retail price and cost of onion were collected from ten major Addis Ababa retail markets including ET fruit retail shops. Simple averages for the onion price and cost per quintal (100kg) for different market

intermediaries were calculated. The percentage profit margins of each marketing intermediary were presented in (Table 8).

Table 8:

Onion's average sales price/cost/net profit and percentage of profit margin for producers and others market intermediaries.

(Birr/quintal)

Marketing agencies	Average selling price	Average cost	Net profit margin	Percentage profit margin
Producers	522	348	174	34.32
ET fruit as a whole seller and retailer	550	425	125	24.65
Private retailers	895	687	208	41.03

Source: interview result, 2010

The survey result showed that onion producer (i.e. HDE and UAAIE) received minimum price of birr 522 per quintal. ET fruit's price was birr 550 per quintal and birr 895 /quintal was private retailer price. From the analysis what we conclude is that all private retailers of onion received highest prices.

The cost of onion production and other market intermediaries was also presented in Table-8. The results revealed that the average cost of onion production was calculated as birr 348 per quintal by HDE and UAAIE , which included land preparation, development of nursery, transplanting, inter-culturing, farm yard manure , fertilizer, pesticides , irrigation application, over head costs and other marketing costs . Hence, the average cost paid by ET fruit was birr 425 per quintal. Private retailers had costs of birr 687 per quintal that included transportation of produce from market to sale area and rent of shop or borrow etc.

The net profit margin of market intermediaries was the net earning gained after paying all marketing costs. The results indicated that onion producers of state farms obtained average net profit of birr 174 per quintal, while ET fruit received lowest net return of birr 125. Interestingly, the net margins of private retailer were higher as birr 208 per quintal.

Results revealed in Table _8 that highest percentage (41.03%) profit margin is received by the private retailers followed by 34.32 % received by the producers. The results further indicated that ET fruit obtained a relatively low margin. The main risks for ET fruit were delay delivery and the failure to sell perishable produce on time. Also ET fruit generally did not grade and re-pack their stock therefore; they did not extend assurance to retailers and consumers.

4.2.4.2. Profit margin analysis of potato producers and other marketing intermediaries

The price of potato was collected on a birr per quintal basis. The prices were collected from the potato producers and ET fruit. At the same time information on the retail price of potato was collected from the major markets of Addis Ababa retailers. The percentage profit margin of each intermediary indicated in table 9.

Table 9:
Potatoes' average sales price/cost/net profit and percentage of profit margin for producers and others market intermediaries.

(Birr/quintal)

Marketing agencies	Average selling price	Average cost	Net profit margin	Percentage profit margin
Producers	257	194	63	22.11
ET fruit as a whole seller and retailers	350	300	50	17.54
Private retailers	720	548	172	60.35

Source: interview result, 2010

The results shows that potato producers received minimum price of birr 257 per quintal, ET fruit received birr 350 per quintal and a maximum of birr 720 per quintal for private retailers. This indicated that retailers received highest prices.

The average per quintal cost of potato production and marketing by producers and other market agencies is also presented Table-9. The production costs of potato producers were estimated to be birr 194 per quintal which included plowing, fertilizer and pesticides. ET fruit bore costs of birr 300 per quintal. This is due to the cost of transportation from auction floor to its store, storage and tax. Finally, retailers incurred cost of birr 548 quintal. This includes Transportation of produce, loading and unloading costs from market to sale area and rent of shop or borrows.

The survey result reveals that the net profit margin realized by producer, ET fruit and private retailer was birr 63, birr 50 and birr 172 per quintal, respectively. The highest percentage profit margin of 60.35 % was received by private retailers followed by 22.11% by producers and 17.54% by ET fruit.

4.2.4.3. Profit margin analysis of banana producers and other marketing intermediaries

The price and cost of banana was collected on a per 100 kg/ quintal basis. The prices were collected monthly from the banana producers and other market agencies. At the same time information on the retail price of banana was collected from the same city from the retailers and shopkeepers. The net profit margin of each intermediary was presented in the following table.

Table 10:

Bananas' average sales price/cost/net profit and percentage of profit margin for producers and others market intermediaries.

(Birr/quintal)

Marketing agencies	Average selling price	Average cost	Net profit margin	Percentage profit margin
Producers	250	165	85	17.10
ET fruit as a Whole seller and retailers	500	275	225	45.27
Private retailers	643	456	187	37.63

Source: interview result, 2010

The result reveals that the sales price of banana producers, ET fruit and retailers were birr 250, 500 and 643 per quintal respectively. And the cost of banana production was calculated at birr 165 per quintal which includes land inputs, labor inputs and capital inputs for example land preparation, raising of nursery, transplanting, fertilizer, pesticides application and picking. ET fruit had costs of birr 225 per quintal which included transportation of produce from the auction floor to store. Private retailers had costs of birr 456 per quintal for transportation of produce from market to sale area and rent of shop or borrow.

The average per quintal net margins of banana were birr 85, birr 225 and birr 187 for producers, ET fruit and retailers respectively. The percentage profit margins revealed that 45.27% of profit

margin was realized by ET fruit followed by 37.63% and 17.10 % of banana retailers and producers respectively.

4.2.4.4. Profit margin analysis of orange producers and other marketing intermediaries

In the analysis of orange prices it is difficult to compare various orange varieties and to come up with a unique solution for the price to be used. There are many complications in formulating the standard prices of orange which can be summarized as: (a) day to day variation of prices, (b) grade differences, (c) price differences in consumption and production areas and (d) supply and demand. Such problems have been resolved by collecting prices that may cover most of the above conditions. The price of orange was collected on a per 100kg/ quintal basis. The prices were collected monthly from the orange producers and other market agencies. At the same time information on the retail price of orange was collected from the same city from the retailers and shopkeepers.

Table 11:

Orange's average sales price/cost/net profit and percentage of profit margin for producers and others market intermediaries.

(Birr/quintal)

Marketing agencies	Average selling price	Average cost	Net profit margin	Percentage profit margin
Producers	528	481	47	15.06
ET fruit as a whole seller and retailer	600	546	54	17.31
Private retailers	959	748	211	67.63

Source: interview result, 2010

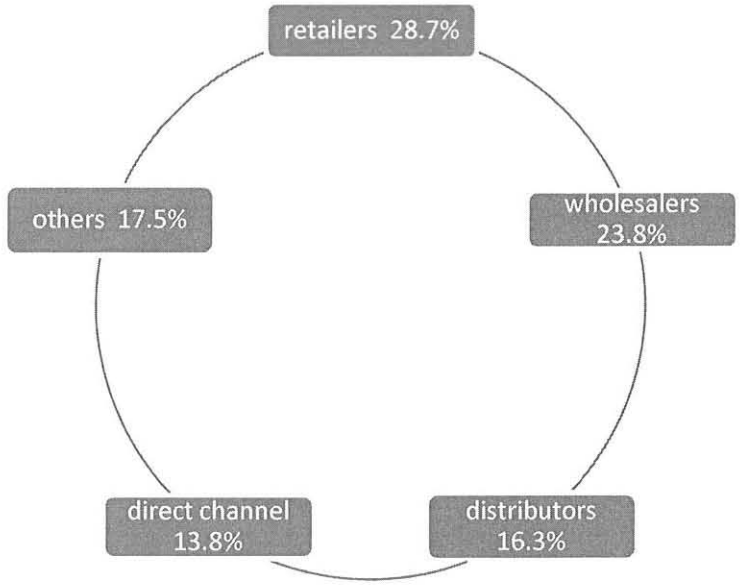
The survey results showed that orange retailers received maximum price of birr 959 per quintal. The results further reveal that the average sale prices of orange producers and ET fruit were birr 528 and birr 600 for a quintal respectively. And the average cost of orange production was calculated at birr 481 per quintal which includes land inputs, labor inputs and capital inputs for example land preparation, raising of nursery, transplanting, fertilizer, pesticides application and picking. ET fruit had average costs of birr 546 per quintal which included transportation of

produce from the auction floor to store. Retailers had costs of birr 748 per quintal for transportation of produce from market to sale area and rent of shop or borrow.

The average per quintal net margins were birr 47, birr 54 and birr 211 for producers, ET fruit and private retailers respectively. The percentage profit margins revealed that 67.63% of profit margin was realized by the orange retailers followed by 17.31% and 15.06 % of ET fruit and orange producers respectively.

4.2.4.5. Market channel analysis of Onion, potato, banana and orange

Agricultural marketing channels are concerned to the concept of "marketable" or "marketed" surplus of farm commodities that enter the process of circulation and exchange. The purpose of exchange of commodities for money and vice-versa is to have access to a variety of products. Here agricultural marketing channels refer to the outlets or routes through which commodities pass to reach to final consumers. The horticulture enterprises respond that they apply different distribution channels in serving domestic and foreign market. According to fig.1 F & V producers distribute largely using of retailers (28.7%) and wholesalers (23.8%) in the local market.

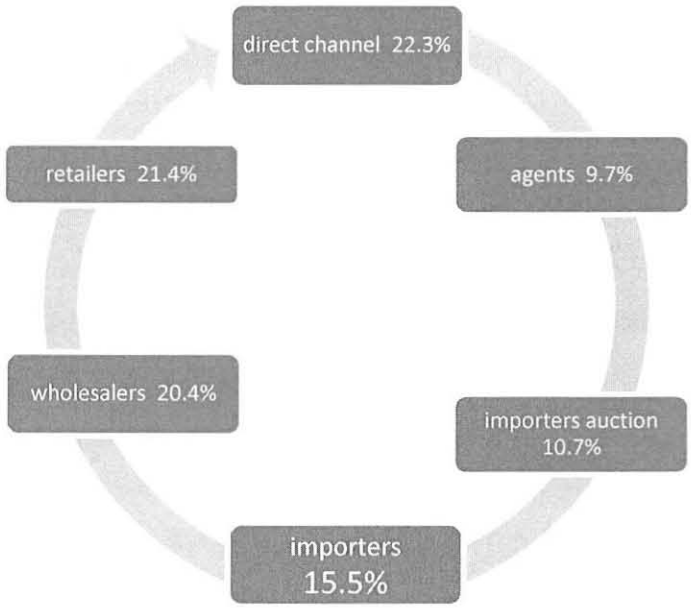


Source: CSA, 2010

Fig.1. Domestic horticulture distribution channel

Figure 1 shows the various local marketing channels for onion, potato, banana & orange in Ethiopia, emphasizing the actors involved in the process. Wholesalers buy from producers and collectors and delivered to retailers who then sell to consumers in kiosks, other retail markets, green groceries and roadside markets.

Concerning foreign markets, companies distribute their product largely though agents or directly deliver to importers. Only high quality fruits of exotic varieties are sold in the export markets. Countries that import substantial quantities of oranges and banana were Djibouti, Yemen, Saudi Arabia, etc. In Ethiopia producers export by themselves, they export using of agents. Moreover ET fruit as a wholesaler and retailer buy large quantities of F & V from producers and export to the international market. The export market offers better prices than the local market. In cases where the exporting companies buy directly from the small farms; farmers sell at better prices than when they sell their products to middlemen.



Source: CSA, 2010

Fig.2. Horticulture product foreign channel

Onion, potato, banana and orange are a very common agricultural product that, compared to other products, is used disproportional often in nearly all everyday dishes of Addis Ababa people. Consumption of these items is expected to rise even higher due to increasing population

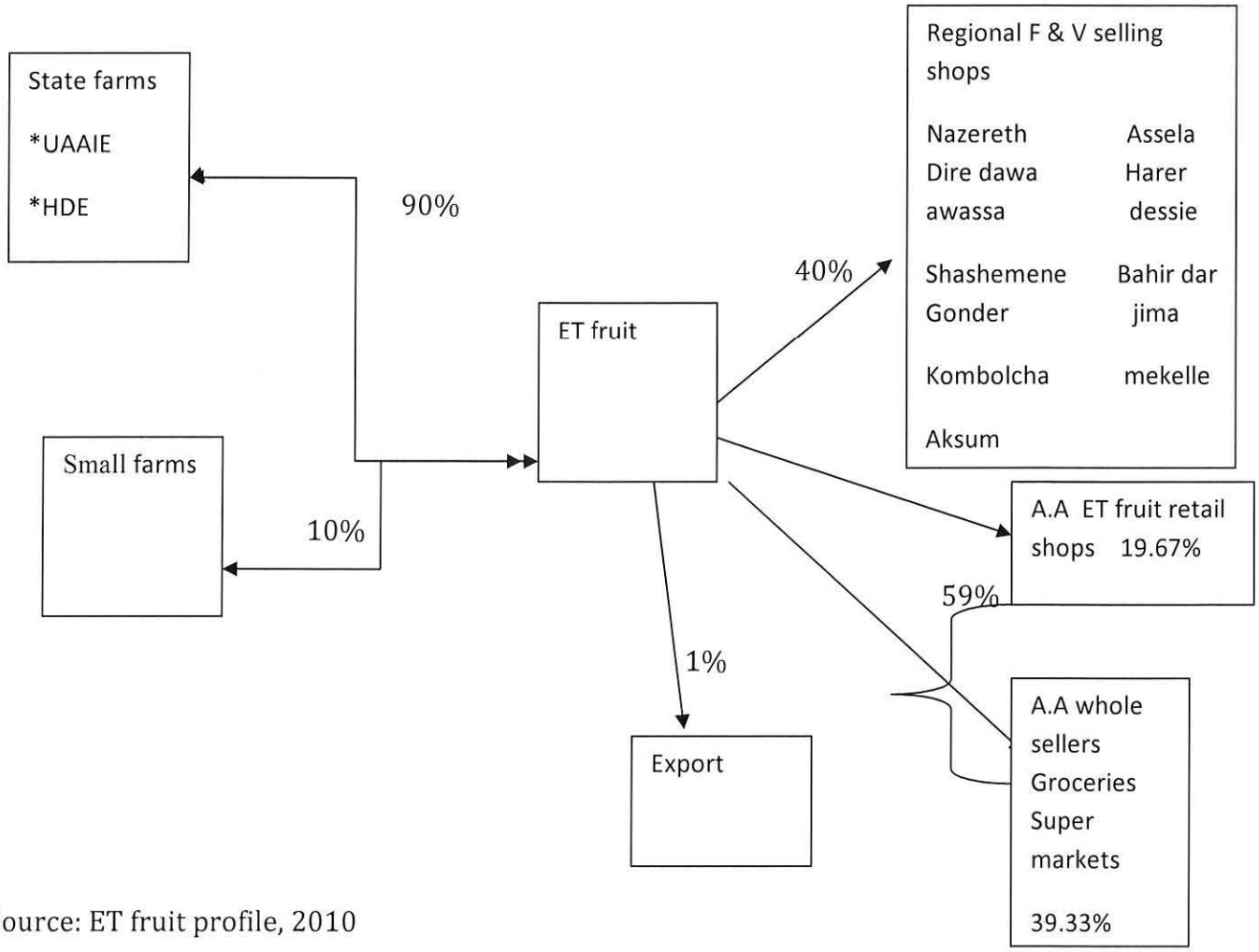
and income. The analysis of marketing channels was intended to provide a systematic knowledge of the flow of goods and services from its origin, producer, to final destination, consumers.

Onion, potato, banana and orange market channels – six lines of market channel identified for Onion, potato, banana and orange marketing by ET fruit. One level of supply chain identified to export products to Djibouti market and Middle East, one channel applied to regional market, two channels for Addis Ababa wholesale and retail market and the rest two with producers ran inside. As can be understood from figure 3 the main receivers from state farms and small farms were ET fruit in bulk with an estimated of 90 % from state farm and 10% from small farms. The volume that can be sold through a given channel has a large impact on profitability. The more perishable the crop, the more important it is to have a channel that can absorb the volume harvested as quickly as possible. Optimizing sales of perishable crops requires the flexibility of combining different channels capable of absorbing unpredictable volumes. The general tradeoff between relatively high- and low-volume marketing channels is price. However, despite lower prices, high volume channels offer the benefit of increased efficiency in the harvest and production process. Based on this, the percentage volume that passed through producer – ET fruit whole sale shop / retail shop_ consumer and export were as follows:

Channel 1 Producer (state farms) ….. ET fruit =90%
Channel 2 producers (small farms).....ET fruit =10%
Channel 3 ET fruit ….. A.A Wholesaler….. Retailer …..Consumer =39.33%
Channel 4 ET fruit ….. A.A Retail shops of ET fruit…..Consumer =19.67%
Channel 5 ET fruit …..Regional selling shops….. Consumer = 40%
Channel 6 ET fruit …..Export = 1%

The following channel clearly shows that ET fruit's involvement in the export market is insignificant. As the same time small farms supply less amount of fruits and vegetables to ET fruit. Based on the observation made ET fruit takes a product as a raw form and sales as it is without adding value for it.

Figure 3 depicts the marketing channel/chain identified for onion, potato, banana & orange market in the study area_ ET fruit. The bulk of onion, potato, banana & orange sold by ET fruit are supplied by state farms (UAAIE & HDE). These states farms are neighboring to small farms. ET fruit store onion, potato, banana & oranges in the company's warehouse before delivered to markets. At times the wholesaler may transport his commodity straight to ready buyers in the city markets for other wholesalers, retailers and consumers. This is usually the case because of the perishable nature of the commodity. Popular markets identified for these commodities in the study area were the retail shops of ET fruit, regional selling shops and other wholesale markets.



Source: ET fruit profile, 2010

Fig 3: ET fruit supply chain

The survey indicates with this supply chain 6.71%, 38.24%. 20.53% and 7.20 % total gross marketing margin was added to onion, potato, banana and orange price respectively when it reached the final consumers at domestic markets. Comparing with other marketing intermediaries the shares of ET fruit from this supply chain were only -9.67%, -4.57, 28.17 and 2.25% from onion, potato, banana and orange respectively. This situation implies that there is good performance of the banana and orange market chain and ET fruit faces a declining market conditions for onion and potato market.

4.3. Consumer analysis

Consumers for this specific study mean those households who bought and consume onion, potato, banana and orange. They bought for their own consumption. They are individual household consumers. Fifty consumer sample respondents were seen from their demographic perspective.

4.3.1. Properties of consumers

This section discusses the demographic characteristics of fruit and vegetable products buyers of ET fruit. These demographic variables include gender, age group, education level, marital status, employment status, family size, purchasing experience and salary. Based on the survey result, 54% of the respondents were female and 46% of male that were engaged in the purchase of fruits & vegetables. In terms of the marital status of the respondents, 44% of the sample respondents were married while 56% of them were unmarried. These shows there are no as such much significant differences among the sample respondents in terms of gender and marital status for the purchase of fruits and vegetables.

The age of respondents ranged from 18 to 54 years with a minimum of 14-18 (2%) and a maximum of 19-35 (70%). This indicates that the majority of ET fruit's customers lie under the age of 19-35. Table 12 depicts that about 34% of the sample respondent were diploma holder, 30% were degree holder, 28% grade 1-12, and the remaining 4% were illiterate and MA/MSC holder each. Concerning the employment status 52%, 26% & 18% of the respondents were permanent workers, businessmen and contractual workers respectively.

Table 12:

Respondents' demographic characteristics

No	Statements		Frequency	percentage	Cumulative Percentage
1.	Gender	Male	27	46	46
		Female	23	54	100
		Total	50	100	
2.	Marital Status	Married	22	44	44
		Unmarried	28	56	100
		Divorced	0	0	100
		Total	50	100	
3.	Age group	14-18	1	2	2
		19-25	13	26	28
		26-35	22	44	72
		36-45	10	20	92
		46-55	4	8	100
		above 55	0	0	100
		Total	50	100	
4.	Educational Level	Illiterate	2	4	4
		Grade 1-12	14	28	32
		Diploma	17	34	66
		First degree	15	30	96
		MA or MSc	2	4	100
		Others	0	0	100
		Total	50	100	
5.	Employment status	Permanent	26	52	52
		Contractual	9	18	70
		Businessmen	13	26	96
		Other	2	4	100
		Total	50	100	
6.	Family size	1 up to 3	21	42	42
		4 up to 6	21	42	84
		7 up to 10	8	16	100
		above10	0	0	100
		Total	50	100	
7.	Purchasing experience of fruits and vegetables from ET fruit	below 1 year	2	4	4
		1-3 year	7	14	18
		4-6 year	14	28	46
		7-10 year	14	28	74
		above 10 year	13	26	100
		Total	50	100	
8.	Current salary	Below 500	7	14	14
		Up to 1000 birr	7	14	28
		1001-2000 birr	17	34	72
		2001-3000 birr	14	28	90
		3001and above	5	10	100
		Total	50	100	

Source: Survey questionnaires

The family sizes range a minimum of 1up to 3 and a maximum of more than 10. The majority of respondents (82%) lie between the family size of 1-3 and 4-6.This indicated that family size matters most for the purchase of fruits and vegetables. Consumers earn their income from different sources and the purchasing power of the consumer depends on his/her income level. The survey result shows the largest proportion of the respondents (34%) earns income birr 1001-2000 while the next largest proportion earns birr 2001 _3000 (28%). About 14% of the sample respondents earns less than birr 500.

Table 13:

Respondents' response on the overall marketing strategies of ET fruit

No		SAG.(5)		AG.(4)		IND.(3)		DAG.(2)		SDAG.(1)		
I	**Statements**	F	%	F	%	F	%	F	%	F	%	Mean
1.1	Customers prefer marketing strategies of ET fruit.	20	40	19	38	1	2	9	18	1	2	3.96
1.2	Freshness, taste, and price are my basic criteria that drive me to buy ET fruit's F & V.	17	34	22	44	4	8	6	12	1	2	3.96
1.3	ET fruit supply superior F & V.	2	4	15	30	9	18	18	36	6	12	2.78
1.4	ET fruit offer range of F & V varieties.	4	8	8	16	6	12	26	52	6	12	2.56
1.5	ET fruit uses different Promotional tools for its products.	1	2	3	6	5	10	29	58	12	24	2.44
1.6	The price of ET fruit is reasonable and fair.	26	52	12	24	5	10	6	12	1	2	4.12
1.7	There is Supply problem at ET fruit.	12	24	23	46	8	16	6	12	1	2	3.96
1.8	ET fruit has well established distributional channel for its F & V.	7	14	20	40	7	14	10	20	6	12	3.24

Strongly agree (SAG)= 5 Agree (AG) =4 Indifferent (IND)=3 Disagree (DAG)=2 Strongly disagree (SDAG)=1

Source: Customers survey questionnaire

As it is indicated on table -13 of item 1 majority of the respondents (78%) favor F & V that are produced locally, but 20% of the respondents disagreed on the same statement. similarly 78% of the same respondent said freshness, taste and price are their basic criteria to buy fruits and vegetables from ET fruit. As indicated on table_13 item – 3 out of 50 respondents which were

served by ET fruit, 36% disagree and 12% strongly disagree about ET fruit's products superiority but 30% of them agree on the same issue and 18% says nothing. In responding to the variety only 8% strongly agree and 16% agree that varieties play a biggest role to satisfy customers. However , 74% of the respondents were against of the range of varieties because they said it is not vital to domestic market .They argue that local customers keep on buying only a limited varieties. The majority of the respondents (82%) suggest that ET fruit didn't consider different promotion tools for its products, but 10% of the respondents say nothing about this statement.

However, 52% of the respondents strongly agree and 24% agrees on the fairness of ET fruit's price, 14% rejects the statement. This result shows price of F & V products is a detrimental factor to attract ET fruit's customers. For the availability of F & V products, 70% of the respondents confirm there is supply problem at ET fruit. According to the respondents response supply and volume are crucial to lure customers, but 14% of them agree on the availability of F & V at any time and 16% of the respondents were neutral.

Respondents also confirm that distribution networks are important to market efficiency and customers' convenience. Almost 54% of the respondent reveals their agreement on ET fruit distributes its products through as many distributional channel as possible to cover all key locations where customers feels convenience to buy while 32% of them not agree on this issue.

The conclusion from the mean indicates that ET fruit were good at providing fresh products with fair price using different distribution channels. But the majority of the respondents agree on the problem they observe at ET fruit like: lack of supplying varieties of products, absence of using promotion tools for information & a problem of supplying variety of products.

Table 14:

Respondents' response on the degree of importance of marketing facilities for fruits and vegetables marketing

II	Importance of marketing facilities for fruits and vegetables marketing.	SAG. (5)		AG. (4)		IND. (3)		DAG. (2)		SDAG.(1)		
		F	%	F	%	F	%	F	%	F	%	mean
2.1	ET fruit has accurate measurement for its products.	2	4	13	26	13	26	19	38	3	6	2.84
2.2	ET fruit's products are packed well.	4	8	5	10	5	10	18	36	18	36	2.18
2.3	ET fruit's products are certified for its quality.	5	10	10	20	10	20	14	28	11	22	2.8
2.4	There is a credit facility at ET fruit.	0	0	4	8	9	18	15	30	22	44	1.9
2.5	ET fruit's products are graded according to the quality.	4	8	16	32	8	16	13	26	9	18	2.86
2.6	There are a lot of storage possibilities at ET fruit.	3	6	17	34	15	30	10	20	5	10	3.06
2.7	I have full trust on ET fruits products in all aspects.	1	2	17	34	9	18	17	34	6	12	2.8
2.8	The service provided by ET fruit's sales personnel is good and attractive.	4	8	10	20	4	8	18	36	14	28	2.44

Strongly agree (SAG)= 5 Agree (AG) =4 Indifferent (IND)=3 Disagree (DAG)=2 Strongly disagree (SDAG)=1

Source: Customers survey questionnaire

Table -14 suggests that 21 (44%) of the respondents disagree on the existence of accurate measurements of F & V products at ET fruit, while 15 (40%) of the same respondents agreed on the same case but the remaining 26% give no comment. Regarding the packaging system of ET fruit, 36(72%) of the respondents claimed that there is no appropriate package of F & V after the products being purchased from ET fruit. However, 18% of the same respondents agreed on the availability of plastic package with payment. On the other hand, in item 2.3 of table-14 about 25(50%) of the respondents admitted ET fruit's products were not certified for its quality , rather it was sold without being used quality certification laboratories and processes, but only 30% of the respondents expressed their agreement on the same issue, while the remaining 20% are neutral.

According to the same respondents 37(74%) of them confirmed their disagreement on the presence of credit facilities at ET fruit. However, 18% of the respondents were neutral. As pointed out by 22(44%) of sampled respondents, ET fruit products were not fulfilled the right levels of quality and preference (grades), rather fruits and vegetables were sold using traditional methods. On the other hand, 20 (40%) of them agreed on the same statement.

Similarly, as can be seen on table 14 of item 2.6, the majority of the respondents 40% agreed that ET fruit used enough storage for its fruits and vegetables to increase the shelf life, but 30 % of the same respondents complained that there is a problem of storage; the remaining 15% give no comment.

Further the survey result indicates that about 48% of the respondents haven't any trust on ET fruit in all aspects. Moreover, 64 % of the same respondents reach at disagreement on the attractiveness of the services provided by ET fruit's sales personnel, while 28% of the same respondents agreed, and 8% commented nothing.

Generally the mean of the responses indicates that the major problems of ET fruit were: absence of credit facilities (1.9), lack of accurate measurements (2.84), absence of packaging materials (2.18), poor service (2.44) and absence of quality certification laboratories (2.8) / grading (2.86). These factors have a direct or indirect impact on the purchasing decisions of customers.

Table 15:

Response on purchasing habits of customers

No	Parameters	frequency	percentage
1.	Is F & V consumed in your family regularly?		
	Yes	29	58
	No	21	42
	total	50	100
2.	What types of vegetables you purchase for consumption?		
	Cabbage	21	17.95
	Beetroots	7	5.98
	Carrots	23	19.66
	Kale	2	1.71
	Onion	32	27.35
	Irish potato	17	14.53
	Sweet potato	10	8.55
	Others	5	4.27
	total	117	100
3.	What types of fruits you purchase for consumption?		
	Orange	44	25.73
	Mandarin	16	9.36
	Lemon	10	5.85
	Avocado	21	12.28
	Banana	39	22.81
	Mango	25	14.62
	Papaya	16	9.36
	Others	0	0
	total	171	100
4.	Do you prefer packed or fresh F & V?		
	Packed	6	12
	Fresh	44	88
	total	50	100

Source: Customers survey questionnaire

The result from the above table indicates that, from those who are using F & V 58% of them consume regularly. But 42% of the respondents were not purchase the products at all times for their families. Regarding the types of vegetables they purchase respondents listed onion (23.35%) ,carrots (19.66%) , cabbages (17.95%) and Irish potatoes (14.53%).Besides the respondents preference of fruits for purchase includes : orange (25.73%) , banana (22.81%) , mango (14.62%) and avocado (12.28%). With respect to freshness, the majority of the respondents (88%) prefer fresh F & V rather than the packed once.

From this what we conclude that there is high demand for F & V. Especially orange, banana, onion, cabbage, potato and mangoes. This is a good opportunity for ET fruits to supply the above mentioned products as a fresh form.

Table 16:

Response on respondents' income distribution, purchasing frequency, constraints and requirements for consumption of F & V.

No	Parameters	frequency	percentage
1.	How much is the proportion of income used for F & V?		
	1% of your income	13	26
	2% of your income	13	26
	5% of your income	20	40
	10% of your income	4	8
	Others	0	0
	total	50	100
2.	What are your constraints hindering consumption of F & v?		
	Shortage of supply	20	36.36
	Shortage of income	13	23.64
	High price of products	4	7.27
	Lack of storage at home	8	14.55
	Poor product quality	6	10.90
	Lack of information	4	7.27
	total	55	100
3.	How frequently you purchase F & V from ET fruit?		
	Once in a week	22	44
	Once in 15 days	14	28
	Once in 10 days	4	8
	Once in a month	10	20
	Others	0	0
	total	50	100
4.	Do you have special requirements from ET fruit?		
	Variety	16	29.09
	Frequent supply	7	12.73
	Quality	13	23.64
	Price reduction	19	34.55
	Other	0	0
	total	55	100

Source: Customers survey questionnaire

According to the above table, the respondents' income proportion allotted for F & V purchase shows, 52% of the respondents' uses 1up to 2% of their income, 40% of them uses 5% of their income and 8% of them uses 10% of their income for the purchase of F & V products. Similarly as displayed in table-16 of item 2, shortage of supply (36.36%) is the most common constraints of using F & V by respondents. Shortage of income is encountered by 23.64% of the users. The

remaining 14.55 % said lack of storage at home and 10.9% of them revealed the poor product quality. Respondents were also asked how frequently they purchase F & V products from ET fruit .Accordingly ,from all respondents 22(44%) were visited ET fruit once in a week , 14(28%) once in 15 days , 10(20%) once in a month and 4(8%) once in 10days.

The result of the consumers' survey also indicates that about 34.55% of the respondents need a price reduction, 29.09% of them variety, 23.64 % of them quality and 12.73% of them frequent supply from ET fruit. Generally, from the above what we observe is that there is a high demand of F & V in the market, but the enterprise (ET fruit) was not effective and not providing satisfying service to the customers.

Table 17:

Attitude of respondents towards price and service delivery of ET fruit

No	Parameters	frequency	Percentage
1.	How variable is the price of ET fruit?		
	Very invariable	2	4
	Invariable	12	24
	Moderately variable	25	50
	Highly variable	11	22
	Very highly variable	0	0
	total	50	100
2.	How satisfied are you with the service of ET fruit?		
	Very dissatisfied	0	0
	Dissatisfied	19	38
	Neither satisfied nor dissatisfied	18	36
	Satisfied	13	26
	total	50	100

Source: Customers survey questionnaire

From the above table it is observed that the respondents measures the price variability of ET fruit as very invariable (4%), invariable (24%), moderately variable (50%) and highly variable (22%). Regarding the service of ET fruit, they respond dissatisfied (38%), neither satisfied nor dissatisfied (36%), satisfied (24%) and very satisfied (2%).

From the above what we conclude the majority of the respondent rated the enterprise's price from moderately variable to very invariable .So, the price of ET fruit is reasonable for customers. On the other hand the majority of the respondents rated ET fruit's service from neither satisfied

nor dissatisfied to dissatisfy. This clearly shows the enterprise is not in a better position in providing attractive service than the competitors.

Table 18:

Strength and weaknesses identified by ET fruit customers

Strengths	Weakness
Well established distribution net work	Packaging problem
Fair price	Lack of providing information
Supplying fresh products	Limited variety
Location accessibility	Improper measurement
They do throughout the week	Low quality
Storage facilities	Inconsistent supply
A lot of retail shops	Poor customer handling
	Luck of supplying standardized/ graded products

Source: Customers survey questionnaire

4.3.2. Marketing of fruits and vegetables

Marketing of fruits and vegetables plays an important role not only in stimulating production and consumption but also in accelerating the pace of economic development. It leads to the optimization of resource use and output management, increase in farm income, growth of agro-based industries, adoption and spread of new technologies, better living, and creation of utility. An increase in the efficiency of the marketing process, which results in lower cost of distribution and lower prices to consumers, might bring about an increase in the national income. An efficient marketing system may contribute to an increase in the marketable surplus by scaling down the losses arising out of the inefficient processing, storage, and transportation. It guarantees the farmers better prices for their products and induces them to invest their surpluses in the purchase of modern inputs so that productivity may increase (Jema, 2008).

4.3.2.1. Local market analysis

The observation made shows that the size of the domestic market for fruit and vegetables is limited and not very diverse. Fruits in the markets of Addis Ababa are restricted to bananas, papaya, mango, avocado and oranges. Within the group of vegetables mostly potatoes, onions, peppers and tomatoes are sold. Other fruit and vegetables are not common in the Ethiopian diet. Main fruit and vegetable markets in Addis Ababa are Piazza (atakilt tera), Merkato and Mesalemia. These markets have a variety of clients: wholesalers, retailers and consumers are sourcing their fruit and vegetables from these markets.

Piazza and Mercato sell mostly vegetables and wide range of fruits (like banana, orange, avocado, pineapple and papaya). Some traders have their own shop and storage place. A lot of traders are selling their produce at the messy pathways of the market. Fruit and vegetables are also sold at some supermarkets in Addis Ababa but to a very limited extent.ET fruit is the leader by having a lot of selling shops. Fruits and vegetables are not sold in any processed manner. Fruit and vegetables are not common items in the Ethiopian diet. In particular the fruit consumption, compared to other African countries, is low.

Quantity of fruits and vegetables consumed per person in Ethiopia is still one of the lowest compared to other African countries. On average the Ethiopian diet consists of 1.3 kg of fruit & 21.4kg of vegetables per person per year while that was maximum 39 and 88.2kg in other African countries. Once the price per kg of fruit and vegetable in Ethiopia is the highest compared with other African country, the percentage of the food budget spent on fruits is the lowest (Workafes, 2007).

4.3.2.2. International market analysis

The interview conducted with marketing managers of ET fruit, HDE and UAAIE shows Djibouti is the largest F&V regional export market for Ethiopia. The markets with the highest potential for F&V exports in the Middle East are the United Arab Emirates (Dubai and Abu Dhabi), Qatar, Saudi Arabia and Yemen. Three big importers dominate the Saudi trade. The present vegetable

imports are onions, tomatoes and potatoes. In the EU there is a growing demand for vegetables as well. A range of vegetable products from Ethiopia have a potential in EU markets but need to be timed to fit specific marketing windows to ensure economic returns. This range includes avocado, strawberry, grapes, mango, sugar snaps, asparagus, baby corn, sugar snap, okra and other Asian vegetables.

In the period 2004-2008 local sales of ET fruit grow from 68 million to 77 million birr and at the same time the international markets of ET fruit decline from 31 million to 28,456,000 birr because of channel conflict with UAAIE. At this time UAAIE domestic sales value grow from 129.7 million birr to 152.2 million. Its export market also grows from 42.22million to 48.99 million birr for the year 2004-2006.This shows the profit of ET fruit was insignificant compared with UAAIE.

4.4. Analysis of production and Marketing Constraints and opportunities

Production constraints

There are factors that hamper the production F & V products. According to the interview made with both HDE & UAAIE marketing and production managers, input price, poor value chain & marketing system, theft, insufficient product handling, outbreak of disease and pest, limited supply of improved seed and shortage of human labor from the production side are some of the most important problems of onion, potato, banana and orange producers.

Marketing constraints

The major marketing constraints identified by the respondents were:

A. shortage of supplying varieties of products

Limited and unavailability of the proper varieties with respect to consumer demand.

B. Packaging

Absence and Low quality of locally produced packaging material.

C. Domestic market

Low consumption rates of fruits and vegetables, which give limited options for selling non-export grades.

D. Market Information

Information about export markets, especially Middle East, is limited

E. Lack of standards and grading

There were no clear and well known quality and grade in the F & V marketing.

F. Unorganized and less effective local markets

The local market for fruits and vegetables is not organized that it restricts the expansion of the regional trade.

G. Poor linkage between marketing intermediaries and producers

Because of the traditional way of marketing, the net work is not strong between the producers and marketing intermediaries which ultimately would affect the expansion of the local as well as foreign trade.

H. Supply chain

Lack of know how in activities throughout the supply chain, including knowledge of processing practices, low level technology, knowledge of specifications and codes of practice, knowledge of markets and marketing and lack of promotion activities.

Production opportunities

The interview result shows there are a lot of opportunities for the state farms to produce different F & V products. Some of these opportunities were:

1. Favorable government policy

The attractive government policy in general and special attention to the state farms in particular.

2. Climate

Good climate for the production of wide range of fruits and vegetables throughout the year. The good soil and water conditions are enabling the agricultural potential further

3. The high productivity of fruit& vegetable crops compared to cereals.

4. Growing demand for F & V in the foreign market

5. Costs of production

Labor is cheap.

6. *Transport*

Although it is landlocked, major road network exists between the main F&V production centers and Addis; airfreight is available and capacity constantly increasing.

Marketing opportunities

Some of the marketing opportunities identified by the respondents were:

1. Market expansion and population growth
2. High productivity of fruits and vegetables
3. Tax exemption for exportable F & V
4. Government support
5. The existence of cooperative suppliers
6. Demand in Europe and Middle East

In general the status of fruit and vegetable production in the country yet needs further improvement. Despite an enormous potential and a favorable environmental advantage in the country, fruit and vegetable are relatively under developed. The state farms and small farms are using traditional practices to grow the crops and need much benefit from the research results. Moreover, drawbacks related to produce marketing and preservation such as heavy losses that are caused mainly due to price fluctuations, lack of guaranteed prices and unplanned planting patterns. Such constraints are aggravated by underdeveloped infrastructure. These causes heavy post- harvest losses.

CHAPTER FIVE

5. Summary, Conclusion and Recommendation

This chapter includes summery, conclusion and recommendation based on the results of the analysis.

5.1. Summary of the findings

This section presents the findings of the research by running through the following research questions:

1. How the status and pattern of growth of onion, potato, banana and orange production of state farms in Ethiopia?
2. What are the supportive services / marketing facilities/ in fruit and vegetable production and marketing?
3. Is there a value adding mechanism to fruit and vegetables marketing? How?
4. Which channel parties of distribution network are used in delivering fruits and vegetables in domestic and international market?
5. Which channel parties generate highest profit margin from onion, potato, banana and orange marketing?
6. What are the basic constraints and opportunities for fruits and vegetables marketing?

Based on the analysis and interpretation of the data, the researcher has pointed out the following findings:

1. Status and Pattern of Growth

The State Farms produce much of the fresh fruits supply for the domestic market, including the volume for export. In addition they also produce cereals and pulses. Upper Awash Agro Industry Enterprise (UAAIE) is the largest producer of fresh and processed fruits and vegetables. The total area of Upper Awash Agro Industry Enterprise is 7,187 ha. Out of this fruits cover 214.75ha and vegetables 674.24 ha by the year 2000-2009. About 6,173 ha of the area can be cultivated through irrigation and 420 ha through rain fed farming. HDE has stable area coverage over the given period 348.86 ha for fruits and 141.56 ha for vegetables during 2000-2009, which implies that expansion activities were not under taken.

Productivity and productions of horticultural crops like banana, onion, orange and potato had been increased over the last six years from 2000__2009 due to the increase attention of the government for this sector. Analysis of the collected data showed that there is positive growth in area terms for all fruits & vegetables in state farms with higher growth of fruits & vegetables area in UAAIE.

Within the group of fruits, banana is the most common fruit being produced. In the period 2000 – 2009 total production of banana, potatoes, papayas, broad beans, cabbage and onion dry shows a growing trend.

The production of fruit and vegetables, including root crops, was 46,643,692 quintals (9.2%) of total national peasant crop production of the season) constituting of about 8,134,068.33 quintals of fruits (16%), 10,708,235.46 quintals of vegetables (28%), and 28,045,532.12 quintals of root crops (56%) in 2007/08 and 2008/09. This volume was produced on 356 thousand hectares (2.4% of total cultivated land in 2008/09) of peasant holdings. The result further indicates in the period 2008/09 cabbage and tomato from vegetable, garlic and onion from roots, pineapples, papaya and orange from fruits have given the highest yield per hectare. In the production season 2007/08 and 2008/09 (2001 E.C.) number of small-scale producers engaged in horticulture production is estimated around 6.0 million as per CSA statistics.

2. Average productivity and cost of production

The average amount of production per hectare was: onion 13.3 tones /ha, potato 10.5 tones /ha, orange 34.82 tones /ha and banana 9.89 tones /ha. According to the data collected on some selected fruits and vegetables, state farms are in a better position to produce more tones of fruits and vegetables compared with small private farms using one hectare of land. The estimated average cost of producing potato and banana was Birr 8700 & 8250 per ha while orange and onion production costs Birr 17,000 & 54,000 per ha.

Survey result indicated that ET fruit's estimated volume of fruits and vegetables handled locally increased from 19,374 metric tons in 2004 to 49,526 metric tons in 2009/10 .And in terms of value it increased from 12.8 million birr to 191 million birr in the same year. Export sales likewise shown an increase from 454 metric tons to 32,904 metric tons and in value from $ 0.9 million to $ 22.2 million.

3. Market integration

The results reveal that there is high degree of competition among producers, wholesalers and retailers, which suggest that their market margins are not excessive except private retailers as the profit margins and returns to investment of retailers were significantly higher when compared with other actors. The results further revealed that the market of onion, potato , banana and orange across location in Addis Ababa were efficient as the market price information in one markets were transferred to other markets. The results further revealed that markets were integrated and there were spatial price linkages across all markets.

4. Market facilities and value chain

Analysis of ET fruit's market facilities showed that totally there were no appropriate market infrastructures. There is no clearly set standard at ET fruit. Due to lack of standard and grades buyers decided price of commodities through eye ball pricing. Moreover, there were no appropriate packaging materials prepared for the buyers. ET fruit uses plastic package for the customers with additional payment.

The interview result shows that in the fruits and vegetables sector, there are two privately owned cold stores in Ethiopia, namely the Ethio-Flora and Tippu Valley cold stores in Ziway. And in the public sector, Et-Fruit and the two state farms have cold store operations. Concerning processing industries, ET fruit does not have processing industries, the enterprise is engaged in marketing of processed fruits and vegetables like tomato juice , orange marmalade ,orange squash and grape fruit squash in a limited quantity by taking from the main supplier (i.e. The Merti Fruits and Vegetable Processing plant).

5. Marketing margins of onion, potato, banana and orange

At the month of November and December 2010 average net profit margin received by producers for each crop per quintal were 174 ETB, 63 ETB, 85 ETB and 47 ETB from onion, potato, banana and orange per quintal, respectively. Similarly ET fruit acquired a net profit of 125ETB, 50ETB, 225ETB and 54ETB from onion, potato, banana and orange per quintal in that order. Private Retailers also obtained a net profit margin of 208 ETB, 172ETB, 187ETB and 211 ETB from onion, potato, banana and orange per quintal, respectively. These shows ET fruit's growth margin was very low for the sale of onion, potato and oranges comparing with other intermediaries. But ET fruit had a good performance on banana marketing.

6. Market channels

From the identified market channels the channel that stretched as state farms and small farms—ET fruit (as a wholesaler and retailer)_other wholesaler and retailer __Consumers for onion , potato , banana and orange locally and ET fruit—export market internationally for orange and banana were the major ones.

The interview result shows there were a channel conflict between state farms and ET fruit for exporting the products to the foreign market but ET fruit had a well established marketing net work domestically.

7. Consumer analysis

The level of demand was assessed with some properties of consumers. Based on the 50 sampled consumers from 10 major retail shops of ET fruit, there were no as such much significant differences among the sample respondents in terms of gender and marital status for the purchase of fruits and vegetables. And the majority of ET fruit's customers lie under the age of 19-35. Moreover, the majority of respondents (82%) lie between the family sizes of 1-6. The survey result shows the largest proportion of the respondents (34%) earns income birr 1001-2000 while

the next largest proportion earns birr 2001 -3000 (28%).From this we conclude income and family size have an impact on the purchasing decision of customers.

8. Analysis of ET fruit marketing strategies

Analyses of marketing strategies of ET fruit also revealed that ET fruit were good at providing fresh products with fair price using different distribution channels. But the majority of the respondents agree on the problem they observe at ET fruit like: lack of supplying varieties of products, absence of using promotion tools for information & supply problems. On top of this the analysis of consumers attitude towards marketing facilities of ET fruit shows that the major problems of ET fruit were: absence of credit facilities , lack of accurate measurements , absence of packaging materials , poor service and absence of quality certification laboratories and grading . Hence, these factors have a direct or indirect impact on the purchasing decisions of customers.

9. Market and consumption analysis

In terms of market analysis, the size of the domestic market for fruit and vegetables is limited and not very diverse. Fruits in the markets of Addis Ababa are restricted to bananas, papaya, mango, avocado and oranges. Within the group of vegetables mostly potatoes, onions, peppers and tomatoes are sold. Piazza and Mercato sell mostly vegetables and wide range of fruits (like banana, orange, avocado, pineapple and papaya). On average the Ethiopian diet consists of 1.3 kg of fruit & 21.4kg of vegetables per person per year while that was maximum 39 and 88.2kg in other African countries. Once the price per kg of fruit and vegetable in Ethiopia is the highest compared with other African country, the percentage of the food budget spent on fruits is the lowest.

Concerning the foreign market the interview result shows the markets with the highest potential for F&V exports in the Middle East are Djibouti, the United Arab Emirates (Dubai and Abu Dhabi), Qatar, Saudi Arabia and Yemen. In the period 2004-2006 local sales of ET fruit grow from 68 million to 77 million birr and at the same time the international markets of ET fruit

decline from 900,000 to 36,000 birr because of channel conflict with UAAIE. At this time UAAIE sales value grow from 129.7 million birr to 152.2 million. Its export market also grows from 42.22million to 48.99 million birr for the year 2004-2006.

10. Analysis of marketing opportunities and constraints

Though there was conducive climate, favorable government policy , high productivity ,low cost of production and growing demand in the foreign market , The marketing system for onion, potato, banana and orange was predominantly constrained by a number of troubles like shortage of variety of products , absence of proper packaging , low consumption habit locally , poor market information , lack of standard / grade for the product , unorganized market , supply chain problems and poor linkage between producers and intermediaries were some of the major once.

4.2. Conclusions

The main theme of the thesis was to analyze the marketing performance of fruits and vegetables of ET fruit with a specific focus on onion, potato, banana & orange. The choice of the crops intentionally based their relative importance and marketability. The specific objectives included assessing critically the marketing channels, organizations, linkages and lines of movements of fruits and vegetables, analyzing the major constraints of marketing functions (packing, processing, grading, buying and selling, transportation, storage, etc) and analyzing the profitability and market supply of ET fruit.

A very wide number of respondents at all stages of the market channel were interviewed. A total of 2 public fruit and vegetable products producers, ten private retailers and ET fruit as a wholesaler / retailer were interviewed using structured questionnaires and 50 customers from ten major retail shops of ET fruit in Addis Ababa were filled the questionnaires and all the questionnaires were returned. Secondary data on basic fruits and vegetables production trends was also collected.

The study made a valuable addition to the knowledge required for efficient production and marketing of onion, potato, banana and orange. The findings have revealed the yields of fruits and vegetables in state farms have grown at higher rate when compared to small farms. This growth provides an opportunity for market integration for state farms and ET fruit. Despite the existence of considerable potential and a steady growth in yields over the last decade, the development of ET fruits marketing practices appears to be hindered by a number of structural problems like poor know how about the market, lack of proper marketing facilities and absence of integrating the company with suppliers and other marketing intermediaries. This has a negative effect on the enterprise, both in terms of foregone potential income and market opportunities

In general analysis of the findings can be concluded as a corner stone to understand the onion, potato, banana and orange profitability & market chain system. Fruit and vegetable marketing is a means of income providing business opportunities for all actors in the market chain including the producers, brokers, transporters, traders, and processors. Therefore the attention of all parties is needed in improving the inefficient market chain through strengthening state farms and public marketing Enterprises like ET fruit.

5.3. Recommendations

Based on the above findings and conclusion, the following recommendations are given so as to be considered in the future intervention strategies which are aimed at the promotion of fruit & vegetable marketing of ET fruit:

1. Regarding status and growth of fruits and vegetables production:

The growth trends in relation with the past behavior on growth patterns of fruits & vegetables particularly onion, potato, banana and orange by state farms and small farms gives a clear picture about the existence of positive growth. The researcher suggests that consolidating areas of onion production in HDE and orange in UAAIE increases the production volume of the country.

Marketing of F & V crops by ET fruit particularly banana and orange seems profitable as indicated from the survey result and hence great attention should be given to the mode of production and marketing side to seek stable income. Once there is a large market for orange and banana, ET fruit should engage in producing varieties of fruits and vegetables by taking free land from the government.

2. In order to improve marketing infrastructure/ facilities high investment on packaging, grading, processing and market information would be helpful in improving the marketing efficiency. Improvement in cold chain facilities are obviously important and do not need any special mention. It is further suggested that ET fruit may formulate an appropriate policy to invest in research and development for improving marketing systems and marketing performances (i.e. Profitability and value chain) to facilitate marketing and trade of fruits and vegetables including onion, potato, banana and orange.

3. Concerning value chain, the efforts for value addition in orange and onion need to be done for enhancing returns. The promotion of export of F & V and value addition will not only contribute in national economy but add in the income of producers. Further, it has also been suggested to have drying systems for onion and packed juices from oranges for export. The proper drying system of onion would promote the chances of onion export to Europe, USA and Middle East and South Asian countries. ET fruit should optimize Value chain, leading to higher value addition, reduced market losses, and better quality of products by establishing its own processing industries.

4. The results of this study indicated that there is strong spatial price linkages across markets for onion, potato , banana and orange reflected frequent flows of price information while the difference in price at different locations were due to transportation and transaction costs. High marketing margins of private retailers in supply chain of the fruits & vegetables and different prices at different times were due to imperfections in marketing system and lack of coordination for onion, potato, banana and orange marketing among intermediaries. An important role may, therefore, be played by ET fruit as facilitator and promoter to create an efficient marketing system.

5. In order to achieve normal profit ET fruit needs to focus on fruit & vegetable exports particularly onion and orange. Banana has a competitive advantage in the local market. The strategy can be identification of new markets with diversification of existing portfolio. The study pinpointed the need for maintaining time series data for different indicators so as to create a reliable management information system for planning, appraisal, implementation, monitoring and evaluation of local markets, exports, and imports for fruits and vegetables in the long run.

6. With regard to market channels there must be voluntarily traders and producers agreements and establish trustful and strong trade agreements. Attempts to organize the traders and producers without establishing a linkage between the two have resulted in rival relationships between them. Neither the traders nor the producers succeeded. There is a strong need to organize them as business associations and build their business management capacities to operate as partners rather than rivals. ET fruit as a major wholesaler and retailer hadn't strong trade agreement with major state farms (i.e. HDE & UAAIE). The government has to play this role. There is strong need to establish research and development programs to improve management practices, particularly, the efficient use of available technology for timely and efficient production and marketing.

7. The survey result also indicated that the overall horticulture (onion, potato, banana & orange) marketing system was found to be traditional and underdeveloped, fragmented and inefficient. Thus, government actions are required to certify F and V product traders to ensure achievement of minimum standard weights, measurements, quality standards and sustainable price control in order to facilitate the production and marketing process. On top of this, Cooperatives and traders should work together to increase the efficiency of the market and to gain normal profit in the market chain.

8. In order identify consumer and consumption habits the study also suggests strengthening the fruit and vegetable marketing research centers under ET fruit and creating effective coordination and collaborations among different research centers and institutions is crucial.

Furthermore, Knowledge and skill in customers handling, product know how, arranging credit facilities, value adding practices and others should be further built on.

Finally, further studies on marketing system should be conducted in all fruit and vegetable marketing areas other than ET fruit so that a well organized regional and national fruit & vegetable marketing system can be implemented.

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APPENDICES

Appendix 1

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Department of Marketing Management Education

Interview prepared for public fruits and vegetables producers (HDE and UAAIE)

Purpose: This interview is prepared for production and marketing managers of public fruits and vegetables producers **for the analysis of profitability and value chain of fruits and vegetables: The case of ET fruit .**The result of this interview will be used to supplement the data gathered from the questionnaire in the analysis.

1. What fruit and vegetable crops do you currently grow? (List all that you produce)

A. Lettuce	E. banana	I. onion
B. Potato	F. Chiles	J. orange
C. Carrots	G . Tomato	K. Strawberry
D. Cabbage	H. Beets	L. others (specify) _____

2. Do you grow any crops other than fruits and vegetables? (Circle one)

A. Yes B. No

3. If yes (previous question), what are they?

A._____B._____C,_____D._____E._____

4. Do you keep written records of fruit and vegetable production? (Circle one)

A. Yes B. No

5. If yes, how much is the average productivity per hectare for:

A. banana_____

B. orange_____

C. onion_____

D. potato _____

6. Which channels parties of distribution network are used in delivering fruits and vegetables in domestic market?

A. Distributors B. wholesalers C. retailers D. others _____

7. Who are the major customers for your products?

A.....B.....C.....D.....

8. Which of the following market does your enterprise serve?

A. domestic B. international

9. If your business serves international market, which regions does it serve most?

A. Europe B. Middle East C. USA D. Australia E. others_____

10. Which channel parties of distribution network are used in delivering fruit and vegetable products to foreign market?

A. agent B. importer auction C. transit trade and re-export D. wholesaler

E. retailer F. others

11. How high is the risk of losing your fruit and vegetable production due to bad weather? (Circle one)

A. Very low B. Low C. Moderate D. High. E. Very high

12. Costs, price, and profit analysis.

	Birr/ quintals			
	banana	orange	onion	potato
Cost/quintal				
Price/quintal				
Profit/quintal				

13. What are the constraints and opportunities for fruits and vegetables production?

Appendix 2

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Department of Marketing Management Education

Interview prepared for Ethiopian fruits and vegetables marketing enterprises (ET fruit) as a whole seller and retailer.

Purpose: This interview is prepared for **sales and marketing managers** of ET fruit **for the analysis of profitability and value chain of fruits and vegetables: The case of ET fruit .**The result of this interview will be used to supplement the data gathered from the questionnaire in the analysis.

1. What kinds of fruits and vegetables do you supply to the domestic and international market?
2. Who are the final buyers of your products?

   A. households' B. hotels C. groceries D. super markets E. others_____
3. Which channels parties of distribution network are used in delivering fruits and vegetables in domestic market?

   A. Distributors B. other wholesalers C. retailers D. others _____
4. How do you transport fruit and vegetable products in the domestic and international markets? What does it costs?
5. How do you feel the price paid by the buyer that you sell comparing with other markets of the competitors? (Select one)

   A. Much lower B. Lower C. Equal D. Higher E. Much higher
6. Where do you get your products from?

   A. small holders of farm gate B. public farming enterprises C. commercial farming enterprises D. wholesalers F. others
7. Do you always buy from the same suppliers?

   A. yes (specify kinds of contract)

   B. no (why not)
8. Do you normally grade any of your products before selling? (Circle one) A. yes B. no
9. Do you have accurate packaging and storage for your fruits and vegetables?

   A. yes B. no

10. What is your company's policy on defective products?
11. How marketing information disseminate to the customers?
12. When is the right time for the distribution of onion, potato, orange and banana to the customers?
13. What was your total sales value of fruits and vegetables during last year in the local market (in birr)?
14. What was your company's sales value and volume in the global market during last year?
15. Can you add value to your fruit and vegetable products so that you can supply to a retail trader? How?
16. Analysis of costs, price, revenue and profit in the value chain of banana, orange, potato and onion for ET fruit.

	Birr/ quintals			
	banana	orange	onion	potato
Cost/quintal				
Price/quintal				
Profit/quintal				

17. What are the constraints and opportunities for fruits and vegetables marketing?

Appendix 3

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Department of Marketing Management Education

Interview prepared for private retail shops of fruits and vegetables

Purpose: This interview is prepared **for retailers of fruits and vegetables for the analysis of profitability and value chain of fruits and vegetables: The case of ET fruit .**The result of this interview will be used to supplement the data gathered from the questionnaire in the analysis.

1. What kinds of fruits and vegetables do you sale?
   A. Fruits (specify all)
   B. vegetables (specify all)
2. Where do you get fruits and vegetables from?
   A. public farm enterprises B. private wholesalers C. other retailers D. from small farms E. others
3. Do you buy always from the same suppliers?
   A. yes (how?) B. No (why not?)
4. Can you believe a good supply chain for fresh produce increases the profitability of the retailers?
   A. Yes B. No
5. How much you prepare and package the products?
6. How the shelf life of fruit and vegetable products increases?
7. How much trust do you have in the buyer that you sell most to?
   A. Very low B. Low C. Moderate D. High E. Very high
8. How variable are the prices that you receive in the market that you sell most to?
   A. Very invariable B. Invariable C. Moderate variable D. Highly variable E. Very highly variable
9. Can you add value to your fruit and vegetable products so that you can supply to a customer? (How?)
10. What do you consider when setting the prices for your produce?

11. Analysis of costs, price, and profit in the value chain of banana, orange, potato and onion for fruit and vegetable products retailers.

	Birr/ quintals			
	banana	orange	onion	potato
Cost/quintal				
Price/quintal				
Profit/quintal				

12. What are the constraints and opportunities for fruits and vegetables marketing?

Appendix 4

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Department of Marketing Management Education

Questionnaire to be filled by fruits and vegetables customers of ET fruit (Individual customers)

General Direction

The main purpose of this questionnaire is to collect data for a research work entitled "**Assessment on fruits and vegetables profitability and value chain: the case of ET fruit**". The information obtained will help to recommend plausible solutions for the observed problems. To obtain reliable and valid information for the research, your open and genuine response is highly appreciated. *There is no right or wrong answers* and what is required is to show the level of your personal opinion to each item.

The questionnaire has two parts: Part one is about your personal information, part two is about overall performance of the company. Each part has its own instruction. Please read each item carefully and give your response. If you overlook any item without giving response, it will invalidate the study. So, please check that you have given your response to all items.

Directions for filling out the questionnaire

- In parts where written responses are required, please provide your written response briefly in the blank space provided.
- Where the questions require ranking (from strongly agree to strongly disagree). Please rank the choices by putting a tick mark "√"
- Where the questions require selection (from different alternatives), please select and circle the best answer
- To help the researcher treat your responses confidentially and objectively, please do not write your name on the questionnaire.

Thank you in Advance for your cooperation

PART ONE

Please put a tick mark "✓" in front of the following items indicate your choice for those items that have alternative responses.

1. Gender: Male □ Female □

2. Marital Status: Married □ Unmarried □ Divorced □

3. Age group: 14-18 □ 19-25 □ 26-35 □ 36-45 □ 46-55 □
Above 55 □

4. Educational Level

Illiterate □ Grade 1-12 □ Diploma graduate □
First degree holder □ MA or MSc □ others specify_____

5. Employment status: Permanent □ Contractual □ businessmen □
other_____

6. Family size: 1 up to 3 □ 4 up to 6 □ 7 up to 10 □ above10 □

7. Purchasing experience of fruits and vegetables: below 1 year □ 1-3 year □
4-6 year □ 7-10 year □ above 10 year □

8. Current salary

Below 500 □
Up to 1000 birr □
1001-2000 birr □
2001-3000 birr □
3001and above □

PART TWO (A)

1. Please put a tick mark "✓" in front of the following items indicating the level of your agreement or disagreement regarding the following attitudinal factors.

No	**Customers feeling towards overall marketing strategies of ET fruit can be expressed by the following statements**	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
1	**Marketing mix criteria in fruits and vegetable marketing**					
1.1	Customers prefer marketing strategies of ET fruit.					
1.2	Freshness, taste, and price are my basic criteria that drive me to buy ET fruit's fruit and vegetable?					
1.3	ET fruit supply superior fruits and vegetables					
1.4	ET fruit offer range of fruit and vegetable varieties					
1.5	ET fruit uses different promotional tools for the company's product.					
1.6	The price of ET fruit is reasonable and fair.					
1.7	There is Supply problem at ET fruit.					
1.8	ET fruit has well established distributional channel for its fruit and vegetable products.					
2	**The degree of importance of marketing facilities for fruits and vegetables marketing**					
2.1	ET fruit has accurate measurement for its products					
2.2	ET fruit's products are packed accurately.					

2.3	ET fruit's products are certified for its quality.					
2.4	There is a credit facilities at ET fruit					
2.5	ET fruit's products are graded according to the quality					
2.6	There are a lot of storage possibilities at ET fruit.					
2.7	I have full trust on ET fruits products in all aspects					
2.8	The service provided by ET fruit's sales personnel is good and attractive.					

PART TWO (B)

Please select the best answer from the given alternatives

1.Is fruits and vegetables consumed in your family regularly? 1. Yes 2. No

2. If you purchase from ET fruit, what is the proportion of your income used for purchase of fruit and vegetable product? A. 1% of your income B. 2% of your income

C. 5% of your income D. 10% of your income E. other____

3. What type of fruit and vegetable products purchased for consumption? You can select more than one product.

Vegetables	**Fruits**
Cabbage	Orange
Beetroots	Mandarin
Carrot	Lemon
Kale	Avocado
Onion	Banana
Irish potato	Mango
Sweet potatoes	Papaya
Others (specify)	others

4. What are the constraints hindering consumption of fruits and vegetables?

A. Shortage of supply B. Shortage of income C. High price of product

D. Lack of storage at home E. Poor product quality F. lack of information

5. Do you prefer packed or fresh fruit and vegetable products?

A. Packed B. Fresh

6. Do you have special requirements from ET fruit?

A. variety B. frequent supply C. quality D. price reduction E. other _____

7. How variable are the prices of ET fruit? (Circle one)

A. Very invariable B. Invariable C. Moderate variable D. Highly variable E. Very highly variable

8. How satisfied are you with the service of ET fruit? (Circle one)

A. Very dissatisfied B. Dissatisfied C. Neither satisfied nor dissatisfied D. Satisfied E. Very satisfied

9. How frequently you purchase fruit and vegetable products from ET fruits?

A. once in a week B. once in 15 days C. once in 10 days D. once in a month E. other (specify)

10.Please state some of the strength of ET fruit

_____

_____

_____

_____

_____

_____

11. Pl ease state the weakness of ET fruit

_____

_____

_____

_____

_____

THANK YOU

Appendix 5

አ.አ ዩኒቨርስቲ

በድህረ ምረቃ ት/ቤት

የገበያ አመራር ጥናት ት/ት ክፍል

I. <u>በኢትፍሩት ደንበኞች የሚሞላ</u>

<u>አጠቃላይ መግለጫ</u>

- የዚህ መጠይቅ ዋና አላማ ኢትፍሩትን እና የገበያ እንቅስቃሴውን ማለትም ትርፋማነቱን እና የአቅርቦት እሴት ሰንሰለቱን መሠረት በማድረግ ተገቢውን መረጃ ለመሰብሰብ እና ለሚታዩ ችግሮች አስፈላጊውን አማራጭ የመፍትሔ ሀሳብ ለመጠቆም ታስቦ ነው።

ይህ ጥናት ስኬታማና ውጤታማ ሊሆን የሚችለው የእርሶም መልካም የሆነ ትብብር ካልተለየ ነው። ከእርሶ የሚፈለገው እርሶዎ የተሰማዎትን እና ያዩትን ጥያቄዎችን በጥሞና እና በጥንቃቄ በማንበብ አስፈላጊውን ምላሽ መስጠት ነው።

- ጥያቄዎቺ ሁለት ክፍል ሲያራቸው የመጀመሪያው ክፍል ስለርስዎ አጠቃላይ መረጃ የሚሞሉበት ሲሆን ሁለተኛው ክፍል ደግሞ ስለ አትፍሩት አጠቃላይ የገበያ እንቅስቃሴ የሚሞሉበት ነው። እያንዳንዱ ክፍል የራሱ የሆነ አጠቃላይ መመሪያ ስለአለው መመሪያውን በጥንቀቁ በማንበብ ይሙሉ። ከጥያቄዎች ውስጥ አንዱን እንደአጋጣሚ ሳይሞሉ ካለፉ ጥናቱን ሙሉ ስለማያደርገው ሁሉንም መመሉላቶን ያረጋግጡ።

<u>አጠቃላይ መመሪያ</u>

- የፅሑፉ ምላሽ ለሚፈልጉ ጥያቄዎች መልሶትን በፅሁፍ ይግለፁ
- የማወዳደሪያ ደረጃን (በጣም እስማማለሁ እስከ በጣም አልስማማም ለሚጠይቁ ጥያቄዎች በምን ያህል ደረጃ እንደሚስማሙ በተሰጠው ሳጥን ውስጥ የ(✓) ምልክትን በማስቀመጥ ያመልክቱ፣
- በምርጫ መልክ ለቀረቡ ጥያቄዎች ለጥያቄው ይበልጥ ተስማሚ የሆነውን በማክበብ ያመልክቱ፡
- ስሞን መፃፉ አያስፈልግም፣

ስለትብብርዎ ከልብ እናመሰግናለን።

ክፍል 1

I የኢትፍሩት ደንበኞች አጠቃላይ መረጃ

እባክዎን መልሶን በ (✓) ምልክት ያመልክቱ

1. ፆታ ወንድ ☐ ሴት ☐

2. የጋብቻ ሁኔታ ያገባ ☐ ያላገባ ☐ የተፋታ ☐

3. ዕድሜ 14 — 18 ☐ 19-25 ☐ 26 — 35 ☐

36-45 ☐ 46-55 ☐ ከ55 በላይ ☐

4. የት/ት ደረጃ ያልተማረ ☐ ከ1-12 ክፍል ☐ ዲፕሎማ ☐

የመጀመሪያ ድግሪ ☐ ማስትሬት ☐ ሌላ ☐

5. የቅጥር ሁኔታ ቋሚ ሠራተኛ ☐ ኮንትራ ☐ ቢዝነስማን ☐

ሌላ ካለ ☐

6. የቤተሰብ ብዛት 1-3 ☐ 4-6 ☐ 7-10 ☐ ከ10 በላይ ☐

7. አትክልት እና ፍራፍሬ የመግዛት ልምድ

ከ 1 ዓመት በታች ☐ ከ1-3 ዓመት ☐ ከ4-6 ዓመት ☐

ከ 7-10 ዓመት ☐ ከ10 ዓመት በላይ ☐

8. የደሞዝ /የገቢ/ ሁኔታ

ከ500 ብር በታች ☐ እስከ 1000 ብር ☐

ከ1001-2000 ብር ☐ ከ2001-3000 ብር ☐ ከ3001 ብር በላይ ☐

ክፍል 2

A. የጥናቱ መረጃ መሰብሰቢያ ዋና ክፍል

- እባክዎትን የሚስማሙበትን እና የማይስማሙበትን ደረጃ የ(✓) ምልክትን በመጠቀም በሳጥን ውስጥ ያመልክቱ።

ተ.ቁ	አጠቃላይ የኢትፍሩትን የገበያ ስልት በተመለከተ የደንበኞችን ስሜት የሚገልፅ	በጣም እስማማለሁ	እስማማለሁ	መወሰን አልችልም	አልስማማም	በጣም አልስማማም
I	አራቱ የገበያ ውህዶች በአትክልት እና ፍራፍሬ ገበያ ላይ።					
I.1	ደንበኞች **የኢትፍሩትን የገበያ ስልት** ይመርጣሉ።					
I.2	የኢትፍሩት አትክልት እና ፍራፍሬ በትኩስነት፣በጣፋጭነት፣እና በዋጋ ተስማሚ ነው።					
I.3	ኢትፍሩት ከሁሉም አቅራቢዎች የተሻለ ምርት ያቀርባል					
I.4	ኢትፍሩት የተለያዩ ምርቶችን ለተጠቃሚዉ ያቀርባል።					
I.5	ኢትፍሩት ምርቶቹን በተለያዩ ማስታወቂያዎች ያስተዋውቃል።					
I.6	ኢትፍሩት ምርቶቹን በተመጣጣኝ ዋጋ ይሸጣል።					
I.7	ኢትፍሩት ያቅርቦት ችግር አለበት።					
I.8	ኢትፍሩት ለምርቶቹ በጣም የተጠናከረ የገበያ ሠንሰለት/ የአቅርቦት ሠንሰለት አለው።					

	ለአትክልት እና ፍራፍሬ የገበያ መሰረት ልማቶች (አመቻቾች) አስፈላጊነት ላይ በተመለከተ	በጣም እስማማለሁ	እስማማለሁ	መወሰን አልችልም	አልስማማም	በጣም አልስማማም

2.1	ኢትፍሩት ለምርቶቹ ትክክለኛ እና አስፈላጊውን መለኪያ ይጠቀማል።					
2.2	ኢትፍሩት ትክክለኛውን ማሸጊያ ይጠቀማል።					
2.3	የኢትፍሩት ምርቶች ጥራታቸው እና እስታንዳርዳቸው በላብራቶሪ የተረጋገጠ ነው።					
2.4	በኢትፍሩት ምርቶች በብድር ይሸጣሉ።					
2.5	የኢትፍሩት ምርቶች ደረጃ የወጣላቸው ናቸው።					
2.6	የኢትፍሩት ምርቶች ለረዥም ጊዜ እንዲቆዩ የማቀዝቀዣ (የማቆያ) አገልግሎት ይሰጣል።					
2.7	በሁሉም ሁኔታ በኢትፍሩት ላይ እምነት አለኝ።					
2.8	በኢትፍሩት የሽያጭ ሠራተኞች የሚሰጠው አገልግሎት ማራኪና የሚስብ ነው።					

ክፍል ሁለት (B)

- ትክክለኛውን መልስ በመምረጥ በመክበብ አመልክት (ቺ)

1. በቤታችሁ ውስጥ ሁልጊዜ አትክልት እና ፍራፍሬ ትጠቀማላችሁ?
   A) አዎ B) አንጠቀምም

2. የኢትፍሩት ደንበኛ ከሆኑ የገቢዎን ምን ያህል ለአትክልት እና ፍራፍሬ ይመድባሉ ?
   A) 1% B) 2% C) 5% D) 10% E) ሌላ ካለ_____

3.ምን አይነት ፍራፍሬ እና አትክልት ለምግብነት ይጠቀማሉ?

አትክልት	**ፍራፍሬ**
-ጎመን	ብርቱካን

- ቀይ ሥር መንደሪን

- ካሮት ሎሚ

- ቃሪያ አቡካዶ

-ሽንኩርት ሙዝ

- ድንች ማንጎ

ፓፓያ

- ሌላ ካለ--- ሌላ ካለ -------

3. አትክልት እና ፍራፍሬ እንዳትመገብ (ቢ) የሚያግዱህ /ሽ/ ነገሮች ካሉ ምን ምን ናቸው?
   A. የአቅርቦት እጥረት B. የገቢ ማነስ C. የምርቶች መወደድ D. በቤት ውስጥ ማቆያ እጦት
   E. የጥራት ችግር F. የመረጃ እጦት

4. የትኛውን ትመርጣለህ /ሽ/ ?
   A. የታሸገ አትክልት እና ፍራፍሬ B .ትኩስ አትክልት እና ፍራፍሬ

5. ከኢትፍሩት በተለየ መልኩ ምን ትፈልጋለህ?
   A.የተለያዩ ምርቶች B).የማይቋረጥ አቅርቦት C.ጥራት D.የዋጋ ቅናሽ E.ሌላ ካለ --------

6. የኢትፍሩት ዋጋ ምን ያህል ተለዋዋጭ ነው?
   A. በጣም የማይለዋወጥ B. የማይለዋወጥ C.በመጠኑ የሚለዋወጥ D. በጣም የሚለዋወጥ E. በጣም በከፍተኛ የሚለዋወጥ

7. በኢትፍሩት ግልጋሎት ምን ያህል ረክተሃል?
   A. በጣም ተከፍቻለሁ/አልተደሰትኩም/ B. አልተደሰትኩም C. አልተደሰትኩም /አልተከፋሁም
   D.ረክቻለሁ E. በጣም ረክቻለሁ

9. ምን ያህል አዘውትረህ (ሽ) የኢትፍሩት ምርቶችን ትገዛለህ (ሽ)

   A. በሳምንት አንድ ጊዜ B. በአሥራ አምስት ቀን አንድ ጊዜ C. በአስር ቀን አንድ ጊዜ D. በወር አንድ ጊዜ E.ሌላ ካለ

10. የኢትፍሩት ጥንካሬዎች የሚሉት ካለ ቢገልፁ

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11 የኢትፍሩት ደካማ ጎኖች የሚሉት ካለ ቢገልፁ

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