

BACKGROUND REPORT:

OPPORTUNITIES AND CHALLENGES FOR DEVELOPING HIGH-VALUE AGRICULTURAL EXPORTS IN ETHIOPIA

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II. INTRODUCTION

In recent decades, rapid growth in the international trade of high-value commodities has resulted in significant agricultural growth in many countries. Trade in high-value products, such as fruits and vegetables, dairy products, poultry, and fish, are increasingly displacing exports of traditional commodities, such as cereals, sugar, coffee, tea, and tobacco. Thus, during the 1980s, the aggregate value of world trade in cereals, sugar and tropical beverages declined, while high-value exports grew by 8 percent annually (Watts and Goodman, 1997).

Fruits and vegetables are the largest component of high-value exports, with world-wide exports of US\$ 21 billion in 2001. Fruit and vegetable exports have grown 4.4 percent annually over the 1990s, and developing countries accounted for almost two-thirds of this growth (FAO, 2003). Imports of fruits and vegetable products by the European Union surpass imports of all other categories of agricultural products (Watts, 1994).

A number of developing countries have become successful exporters of high-value and high-quality food commodities and achieved double-digit growth for a decade or more. In 1990, 24 low and middle-income countries, mainly in Latin America and Asia, exported more than US\$500 million in high-value agriculture. Of these, four countries accounted for some 40 percent of the total value of high-value trade (Watts, 1994). Eight of the ten countries worldwide with the highest growth rates of agricultural exports over the period 1980 to 1998 had fruits and vegetables as their largest export earner.

In the case of Ethiopia, given the declining export earnings from traditional exports of coffee in particular, floriculture and other non-traditional, high-value, agricultural export expansion represent an important area of potential income growth. The agriculture-development-led-industrialization strategy of the country envisages significant scope for achieving greater commercialization of smallholder agriculture. Ethiopia is considered to have the potential to achieve trade gains in these sub-sectors because of agro-climatic advantages and, in the case of livestock, a large indigenous stock. This study takes a more holistic view to achieving competitive advantage, as a function of physical, institutional, infrastructural, and policy factors. The study thus explores the existing market opportunities for Ethiopia and the challenges it faces in benefiting from these market opportunities. Despite the potential, the contribution of high-value agricultural exports to the Ethiopian economy is still weak. This study aims to address the challenges and constraints facing the development of high-value supply chains for Ethiopia's exports of high value fresh produce, defined as flowers and fresh fruits and vegetables

Thus, the specific objectives of the study are:

- to characterize Ethiopia's high value agricultural sectors;
- to analyze the performance of Ethiopian value chains for floriculture and horticulture
- to assess the policy and institutional environment facing high-value exports from Ethiopia; and
- to evaluate the key challenges and constraints to achieving competitiveness in these sub-sectors.

The study starts with an overview of production and trade patterns in these sub-sectors in Ethiopia over the past decade in Section 2, followed by an overview of global market trends and the changing global agro-food system in Section 3. This is followed by the elaboration of a conceptual framework for evaluating value chain competitiveness in Section 4 and the application of this framework to the nascent value chains for flowers, fruits and vegetables.

The study is based on a World Bank mission to Ethiopia undertaken in February 2004 during which the study team conducted field visits and obtained qualitative and quantitative data through informal interviews with key actors and informants. This was supplemented by available secondary data. Given the very early stages of value chain development in these sub-sectors and the nearly absolute lack of available studies in this area, this study should be considered a first step in achieving a full understanding of the issues and constraints facing high-value export promotion in Ethiopia.

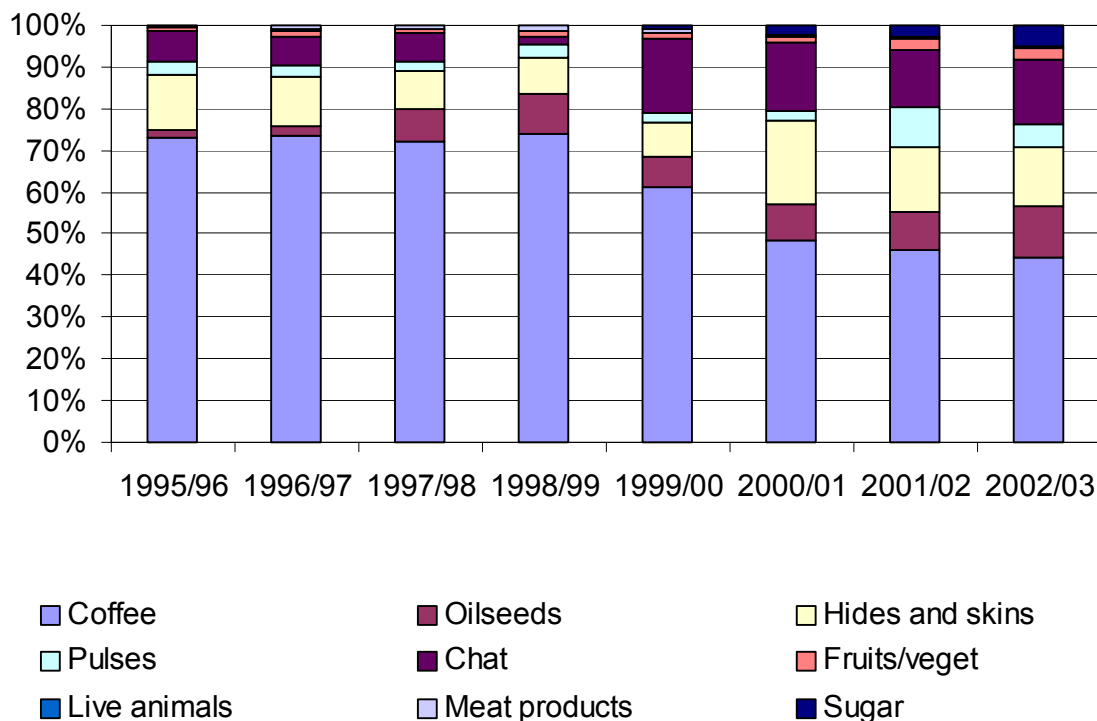
III. OVERVIEW OF EXPORT PERFORMANCE IN ETHIOPIA

2.1 General Export Trends

As shown in Figure 1, the relative importance of coffee in total export revenues has declined since the mid-1990s has declined significantly from above 70 percent of export earnings to roughly 45 percent in 2003. This is largely due to the deteriorating terms of trade of coffee on the world market since 1998. At the same time, the relative shares of chat, pulses/oilseeds, and of hides and skins have increased considerably from below 10 percent in 1995 to roughly 20 percent each in 2003. However, trade in fruits and vegetables and meat products have grown only very modestly in the same period. These trends confirm that non-traditional, high-value exports are significantly under-developed in the current export portfolio.

Figure 1.

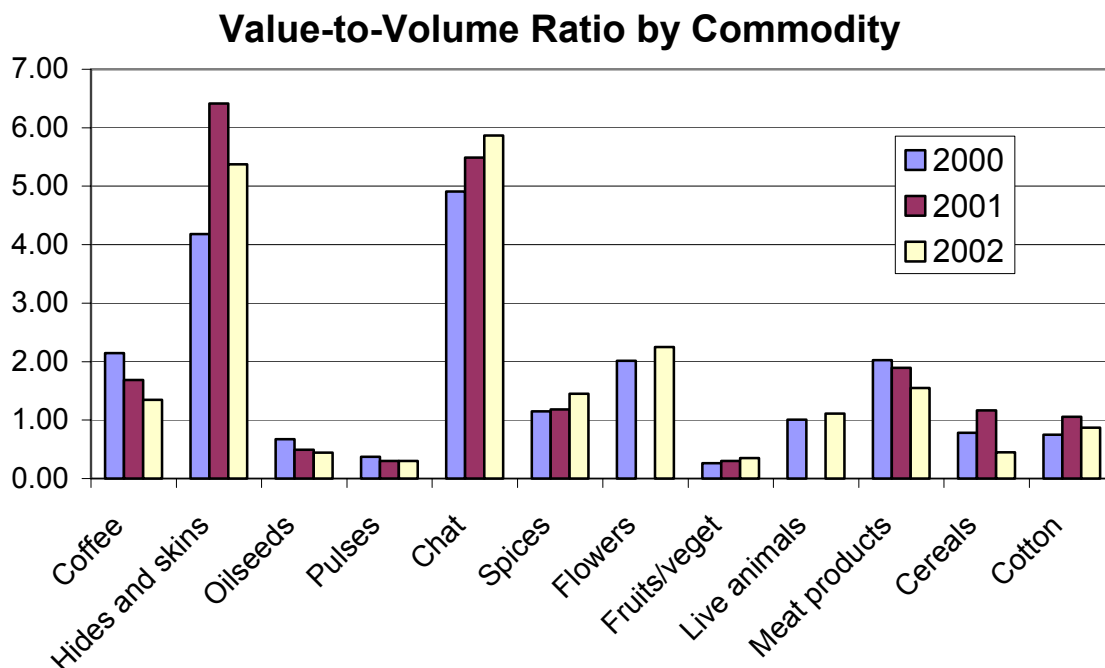
Trends in Commodity Shares of Export Values



Looking further at the relationship between the volume and the value of exports provides an indication of the extent to which the product can be considered relatively high value (Figure 2). Similarly, the evolution of the export value-to-volume ratio (V-V) indicates whether the product is gaining or losing in value through either movements in the world prices or through changes to the nature of the product itself that increase its value, such as the movement to specialized coffee or higher value meat products. In observing the evolution of this ratio for Ethiopia's major exports, several issues emerge.

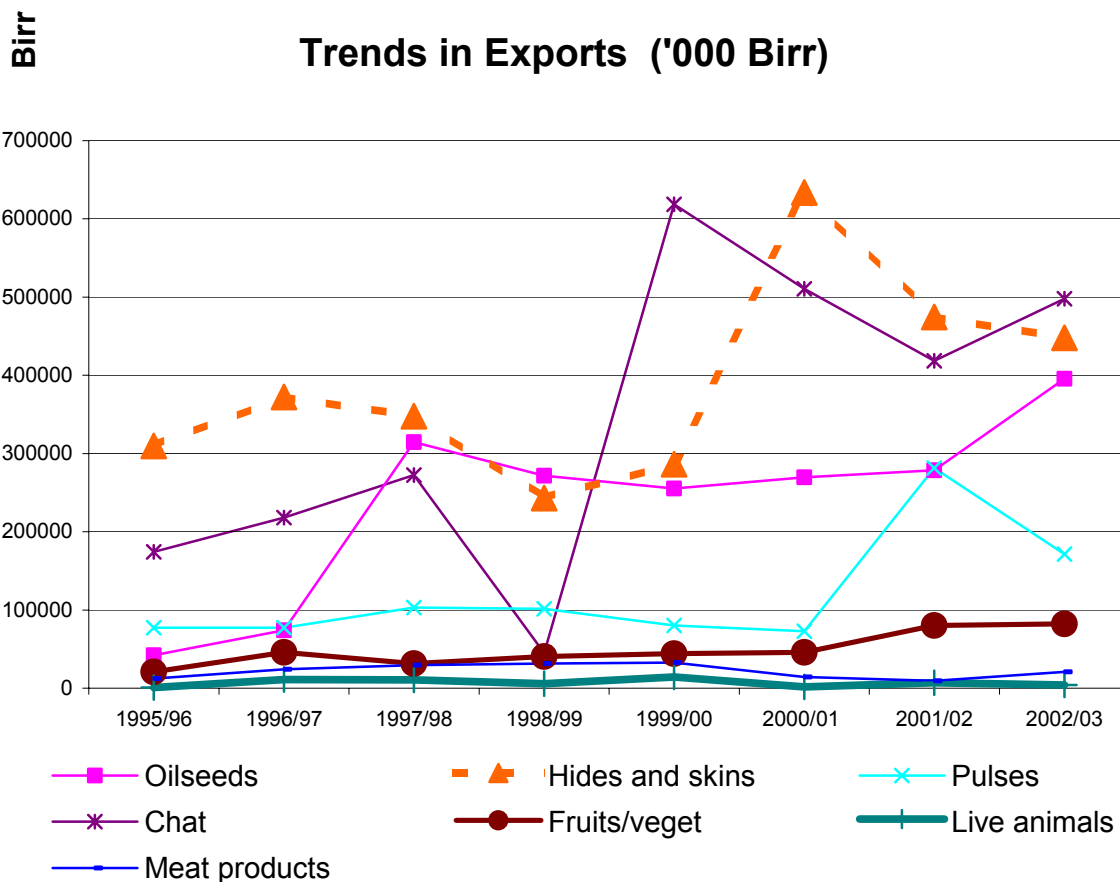
First, rather than increasing in value through initiatives to add value, coffee exports have experienced a downward trend in relative value. Second, it is somewhat surprising that fruits and vegetables have a much lower V-V ratio than the traditional exports such as coffee and lower than that which would be expected given that they are considered a "high value" product. This suggests that, *within* the broad category of fruits and vegetables, significant differences in value exist and that, thus far, Ethiopia's fruits and vegetable exports have likely been the higher volume, bulky, lower-value end of the spectrum. Third, as expected, flowers and meat products have a relatively strong VV ratio, although the ratio has declined somewhat for meat products, which signals a concern in the export sector. Finally, the V-V ratio for both hides and skins as well as chat far surpasses that of the other high-value products and both of these products have experienced increased ratios in recent years. This suggests that the price premium in the case of chat may have gone up but should be further investigated.

Figure 2.



Among non-coffee exports, a closer look at trends since 1993 reveals that, in response to the increase in relative value noted above, export values of hides and skins and chat rose dramatically in 1998/99 and 1999/00, attaining levels above Birr 600 million in annual export revenue. Exports of fruits and vegetables increased only modestly, reaching a high of only Birr 100 million in 2002/03, while exports of both live animals and meat products have stagnated at best in this period (Figure 3).

Figure 3.



Source: Customs Revenue Authority, 2003

2.2 Fresh Fruits

Production and exports of fresh fruits have shown modest growth. The principal types of fruits for which significant volumes are recorded are bananas, oranges and other citrus fruits (tangerines, clementines, satsuma, lemons, limes), mangoes, avocado, and papaya. In volume terms, domestic production is dominated by papayas (31% in 2003), mangoes (22%), followed by avocado and banana (11 % each). Overall, production growth has experienced only 1 percent growth per annum over the last decade, with a decline in per capita terms (Table 1).

Fresh fruit exports represent overall a very small share of domestic production. Thus, in 2002, exports of the 5 major products represented only 1.24% of domestic production (Table 2a). Viewed by product, however, the extent of commercialization varies considerably with 26 percent and 12 percent of tangerine/clementine and orange production going to export, respectively, compared to only 1 percent of bananas. Thus, in contrast to domestic production, the relative importance of different products in total fresh fruit exports changes significantly, with citrus exports dominating in both quantity and value terms. In terms of export values in 2001, orange export earnings represented 63 percent of total earnings (Table 2b).

Given that the European market for citrus fruits is very competitive and dominated by Israel, Morocco, and South Africa, these results suggest that Ethiopia's opportunities for fruit exports may lie in finding alternative niche products which is best suited to its agro-climatic potential. Second, from a cost consideration, as will be explored in subsequent sections, citrus fruits would not be a strategic priority for a landlocked and large country such as Ethiopia given their bulk. That is, the transport of citrus is largely the transport of water and, as such, erodes Ethiopia's competitive advantage in comparison with the market leaders identified above who are competing on sea rather than inland freight, given their geographic location.

Table 1. Fresh Fruits Production Trends, 1993-2003

Area Harv (Ha)	Fruits, Total	Bananas	Oranges	Tang. Mand. Clement.	Lemons and Limes	Grapes	Mangoes	Avocados	Papayas
1993	18,050	5,000	1,900	1,650	1,000	1,000			
1994	18,050	5,000	1,900	1,650	1,000	1,000			
1995	18,150	5,000	1,900	1,650	1,000	1,000			
1996	18,250	5,000	1,900	1,650	1,000	1,000			
1997	18,250	5,000	1,900	1,650	1,000	1,000			
1998	18,550	5,100	2,000	1,650	1,000	1,000			
1999	18,750	5,100	2,000	1,650	1,000	1,200			
2000	48,919	5,100	2,000	1,650	1,000	1,550	10,200	9,754	9,865
2001	51,010	5,100	2,100	1,650	1,000	1,700	10,450	9,860	11,150
2002	51,550	5,100	2,100	1,700	1,000	1,750	10,600	10,000	11,300
2003	51,824	5,100	2,100	1,700	1,000	1,750	10,887	10,160	11,127
Yield (Hg/Ha)									
1993	127,202	160,000	71,053	52,121	66,000	42,000			
1994	125,485	160,000	68,421	48,485	65,000	40,000			
1995	125,344	160,000	68,421	48,485	65,000	40,000			
1996	125,205	160,000	68,421	48,485	65,000	40,000			
1997	125,205	160,000	68,421	48,485	65,000	40,000			
1998	124,528	158,824	67,500	48,485	65,000	40,000			
1999	123,600	158,824	67,500	48,485	65,000	39,583			
2000	139,466	160,784	70,000	49,091	65,000	40,000	150,000	80,000	200,000
2001	141,106	160,784	71,429	50,303	65,000	38,824	150,000	80,000	200,000
2002	141,358	160,784	71,429	48,824	65,000	38,857	150,566	80,000	200,000
2003	142,584	160,784	71,429	48,824	65,000	38,857	150,000	80,000	207,190
Production (Mt)									
1993	229,600	80,000	13,500	8,600	6,600	4,200			
1994	226,500	80,000	13,000	8,000	6,500	4,000			
1995	227,500	80,000	13,000	8,000	6,500	4,000			
1996	228,500	80,000	13,000	8,000	6,500	4,000			
1997	228,500	80,000	13,000	8,000	6,500	4,000			
1998	231,000	81,000	13,500	8,000	6,500	4,000			
1999	231,750	81,000	13,500	8,000	6,500	4,750			
2000	682,252	82,000	14,000	8,100	6,500	6,200	153,000	78,032	197,300
2001	719,780	82,000	15,000	8,300	6,500	6,600	156,750	78,880	223,000
2002	728,700	82,000	15,000	8,300	6,500	6,800	159,600	80,000	226,000
2003	738,925	82,000	15,000	8,300	6,500	6,800	163,305	81,280	230,540
% of 2003 Total		11.10	2.03	1.12	0.88	0.92	22.10	11.00	31.20
Average annual growth (%)	1.14								

Source: FAO, 2004

Table 2a. Fresh Fruit Export Trends by Volume, 1993-2002

Exports – Qty (MT)	Bananas	Oranges	Tangerines Mandarines Clementines Satsuma	Lemons and Limes	Grapefruit and Pomelos	Mangoes
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	0	0	0	5	0	0
1996	0	0	0	5	0	0
1997	6	12	7	4	0	0
1998	477	828	251	152	0	186
1999	788	1,813	275	343	12	920
2000	497	1,214	73	283	1	438
2001	295	700	42	150	1	151
2002	866	1,756	2,162	411	1	811
% of 2002 Production	1.06	11.71	26.05	6.32		0.51

Source: FAO, 2004

Table 2b. Fresh Fruit Export Trends by Value, 1993-2001

Exports - Value (1000\$)	Bananas	Oranges	Tangerines Mandarines Clementines Satsuma	Lemons Limes	Grapefruit Pomelos	Mangoes
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	0	0	0	3	0	0
1996	0	0	0	3	0	0
1997	1	4	2	1	0	0
1998	124	288	61	25	0	39
1999	155	640	69	61	3	262
2000	100	408	18	50	0	102
2001	57	239	11	31	0	37
% of 2001 export values	15.20	63.73	2.93	8.27	0.00	9.87

Source: FAO, 2004

2.3 Fresh Vegetables

In the case of vegetables, while remaining modest, production growth is slightly better than for fruits with average per annum growth of 3.4 percent over the period since 1993. The major vegetables produced for domestic consumption are cabbages, tomatoes, onions, and garlic, while green beans and peas have recently emerged for export purposes. Over the past ten year period, production gains have largely come about with increased area rather than yield increases (Table 3).

Overall, the quantity of fresh vegetable exports represents some 1 percent of annual total vegetable production over this period. Exports are in a dynamic state with varying patterns from year to year. Thus, the total quantity of vegetable exports reached a record high in 2002 of 14,666 tons, largely due to a significant increase in the exports of green broad beans. In terms of the product composition of exports, in 2001, onions were one quarter of total export quantities, followed by tomatoes (19%), green peas (18%), and green beans (15%). In value terms, green beans contributed 23 percent, followed by green peas (21%), onions (20 %) and tomatoes (19%). These findings suggest that green beans and green peas contributed more in value terms than in volume, implying a favorable value-to-volume relationship.

Thus, strategically, these products, because of they are less bulky and are generally air transported, fall into the high-value product category in contrast to onions. At the same time, they face much more stringent market requirements related to their food safety and production processes, as will be explored in greater detail below.

While there has been growth in fresh vegetable exports in the past decade, the trend is somewhat erratic, with significant variability from year to year. This type of pattern suggests that the industry is still young in Ethiopia and the supply chain has yet to be sufficiently developed to deliver the significant quality and quantity for market. This erratic pattern also does not send appropriate signals to the market, where competition against other new players is stiff, that Ethiopia has seriously entered this market. An important challenge is to understand what underlies this export performance variability and to address the constraints, whether they be in finance, investment policy, access to water and production inputs, access to cargo, or other factors.

A second issue is to determine how strategic priorities in terms of product development are developed for the Ethiopian horticulture sub-sector. That is, is the current export portfolio of horticulture products the appropriate one to respond to global market opportunities? Which markets? These are questions that have serious implications for the research and technology dissemination and provision of public services for particular products and will be explored subsequently.

Table 3. Vegetable Production Trends, 1993-2003

Area Harv (Ha)	Vegetables, Total	Cabbages	Tomatoes	Onions+ Shallots, Green	Onions, Dry	Garlic
1993	172,800	6,000	4,100	1,700	8,000	0
1994	175,600	8,000	4,000	1,600	8,000	2,000
1995	178,200	9,000	4,100	1,700	8,400	2,000
1996	180,100	9,000	4,200	1,800	8,600	2,500
1997	181,600	10,000	4,200	1,800	8,600	3,000
1998	184,000	11,000	4,300	1,900	8,800	3,000
1999	185,500	12,000	4,300	1,900	8,800	3,500
2000	185,200	12,000	4,300	1,900	9,000	4,000
2001	187,300	13,500	4,400	1,900	9,000	4,500
2002	190,591	15,000	4,400	1,900	10,489	4,802
2003	190,591	15,000	4,400	1,900	10,489	4,802
Yield (Hg/Ha)						
1993	36,921	116,667	124,390	100,000	101,250	0
1994	38,383	112,500	125,000	100,000	102,500	20,000
1995	38,412	100,000	124,390	100,000	97,619	115,000
1996	38,740	100,000	123,810	100,000	97,674	108,000
1997	38,849	95,000	123,810	100,000	100,000	95,000
1998	39,158	90,909	123,256	100,000	100,000	106,667
1999	40,189	100,000	125,581	100,000	101,136	100,000
2000	40,578	100,000	125,581	100,000	103,333	100,000
2001	42,686	96,296	125,000	100,000	133,333	111,111
2002	45,159	100,173	125,000	100,000	133,909	146,753
2003	45,159	100,173	125,000	100,000	133,909	146,753
Production (Mt)						
1993	638,000	70,000	51,000	17,000	81,000	0
1994	674,000	90,000	50,000	16,000	82,000	18,000
1995	684,500	90,000	51,000	17,000	82,000	23,000
1996	697,700	90,000	52,000	18,000	84,000	27,000
1997	705,500	95,000	52,000	18,000	86,000	28,500
1998	720,500	100,000	53,000	19,000	88,000	32,000
1999	745,500	120,000	54,000	19,000	89,000	35,000
2000	751,500	120,000	54,000	19,000	93,000	40,000
2001	799,500	130,000	55,000	19,000	120,000	50,000
2002	860,688	150,260	55,000	19,000	140,457	70,471
Average annual growth (%)	3.4%					

Source: FAO, 2004

Table 4a. Fresh Vegetables Export Trends by Volume, 1993-2002

Export Qty (Mt)	Cabbage	Lettuce	Tomato	Cucumbers and Gherkins	Onions, Dry	Garlic	Beans, Green	Peas, Green	Broad Beans, Green	Carrots	TOTAL
1993	0	3,663	721	0	1,986	0	0	0	0	0	6,370
1994	0	5,809	1,045	0	2,948	11	0	0	8	0	9,821
1995	0	3,969	1,215	0	2,737	0	0	0	0	0	7,921
1996	0	3,969	1,215	0	213	0	0	0	0	0	5,397
1997	0	3,969	67	3	22	16	0	0	0	4	4,081
1998	0	0	877	237	1,324	178	34	0	0	0	2,650
1999	0	0	2,056	300	2,514	343	2,726	0	0	2	7,941
2000	0	1	1,457	242	2,234	221	3,067	798	0	0	8,020
2001	172	366	808	115	1,086	125	652	798	102	128	4,352
2002	499	745	2,795	521	3,930	113	1,645	633	3,412	373	14,666
2001 %	3.95	8.41	18.57	2.64	24.95	2.87	14.98	18.34	2.34	2.94	100.00
2002 %	3.40	5.08	19.06	3.55	26.80	0.77	11.22	4.32	23.26	2.54	100.00

Source: FAO, 2004

Table 4b. Fresh Vegetables Export Trends by Value, 1993-2001

Exports - Val (1000\$)	Cabbage	Lettuce	Tomato	Cucumbers and Gherkins	Onions, Dry	Garlic	Beans, Green	Peas, Green	Broad Beans, Green	Carrots	TOTAL
1993	0	210	79	0	178	0	0	0	0	0	467
1994	0	1,068	107	0	239	2	0	0	5	0	1,421
1995	0	191	120	0	207	0	0	0	0	0	518
1996	0	191	120	0	28	0	0	0	0	0	339
1997	0	191	25	0	5	5	0	0	0	1	227
1998	0	0	249	34	304	78	28	0	0	0	693
1999	0	0	580	40	586	100	1,237	0	0	0	2,543
2000	0	0	419	34	492	67	1,132	261	0	0	2,405
2001	29	67	234	13	244	42	291	261	34	24	1,239
2001%	2.34	5.41	18.89	1.05	19.69	3.39	23.49	21.07	2.74	1.94	100.00

Source: FAO, 2004

IV. GLOBAL MARKET TRENDS

The rapid growth in high-value exports has been part of a fundamental and broad-reaching trend toward the globalization of the agro-food system. Dietary changes, trade reform, and technical changes in the food industry have contributed to the growth of high-value agriculture and trade (Friedland, 1994). High-value foods are different from bulk commodities, being characterized by greater perishability, heterogeneity, seasonality, and specific marketing externalities. As a result, the production and marketing of high-value foods face major challenges of risk, logistical bottlenecks, and high transaction costs (Jaffee, 1994).

3.1 Globalization and Market Trends

In the past decade, there have been enormous changes in the global economy. The globalization of the agro-food system is manifested in several important trends. First, in recent decades, the world has witnessed the increased integration of firms into geographically dispersed networks or “global commodity chains,” linking suppliers in one country with customers in another (Dolan, Humphrey, and Harris-Pascal, 1999). For farmers in developing countries, this often takes the form of increased linkages with international markets. Contract farming, in which agricultural production is contracted by processors or exporters, is one way in which these linkages have been strengthened, particularly for perishable, high-value commodities such as horticultural crops (Little and Watts, 1994).

Second, within these chains, there has been a shift from homogeneous commodities to increasingly differentiated products (off-season vegetables, exotics) in which the role of grades and standards, particularly private ones, has increased. Some argue that grades and standards have shifted from a technical instrument to reduce transaction costs in homogenous commodity markets to a strategic instrument of competition in differentiated product markets (Reardon et al., 1991).

Third, in these global commodity chains, transnational firms are becoming increasingly important actors in coordinating production and marketing. In the case of fresh fruits and vegetables trade, supermarkets chains play a major role in transmitting quality, food safety, and other requirements from consumers to farmers (Dolan et al., 1999).

One reason that vertical coordination is becoming more important, particularly in agricultural exports from developing countries to industrialized countries, is that retailers and consumers are taking an interest not only in the characteristics of the final product but in the way it was produced. More specifically, there is increasing attention being paid to the working

conditions in export sectors and the environmental impact of export production in developing countries, concerns that are captured by the term “ethical trade.” Ethical trade is an area of growing interest throughout Europe and a particular focus of British government policy. It is resulting in a wide range of initiatives for establishing, monitoring, and certifying ethical trading standards, particularly in the area of horticulture. The development of ethical trade in fresh produce offers challenges to smallholders in terms of meeting the new requirements as well as opportunities for more value-added activities and better prices.

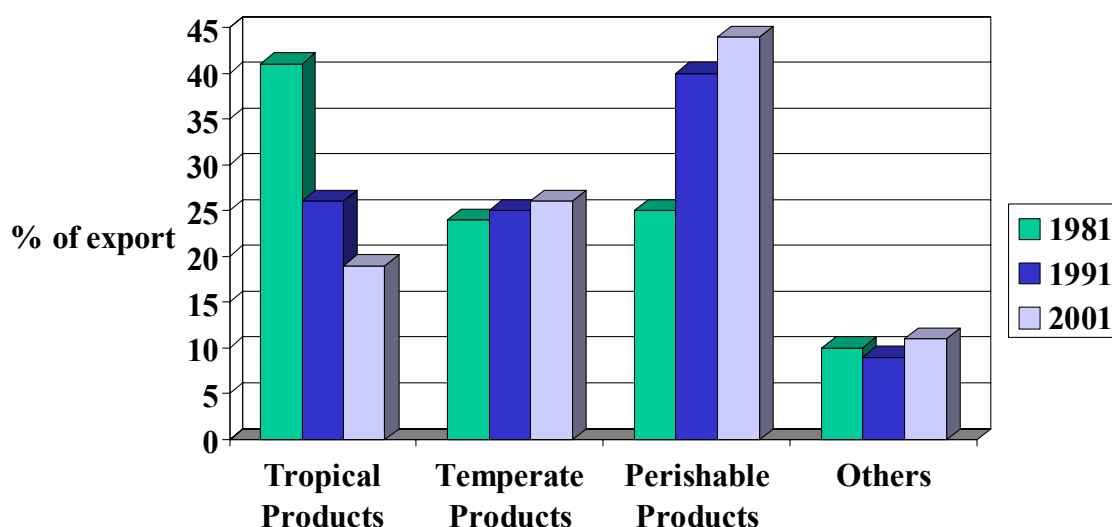
The globalization of the agro-food system, or agro-industrialization, is driven by “meta trends,” such as rising income, population growth, urbanization, expanded female employment, market-oriented economic reforms, and modern information and biological technology (Reardon and Barrett, 2000). In turn, these meta-trends have led to more specific changes in the global agro-food system, as many countries moved away from protectionism and self-sufficiency and created opportunities for agro-industry. Alongside this, there have been profound changes in the organization and institutions of the agro-food system, with the rise and spread of new contractual arrangements, the emergence of new quality standards, and the growing importance of intellectual property rights. These broader patterns have then influenced the nature of agro-industries within developing countries in terms of concentration, increased size of processing, and economies of scale in production. These changes ultimately have an impact on development, in particular on employment, poverty, natural resources, and socio-cultural effects.

Against this backdrop, while integrating poor countries into the world economy has become a development policy mantra, the challenges of increasing high-value exports for low-income countries are enormous. Sub-Saharan Africa has experienced a significant loss of overall market shares for agricultural commodities and processed agro-food in the last three decades, with a decline from nearly 12 percent in the early 1960s to below 3 percent in the late 1990s. A number of factors play a role: loss in competitiveness, entry of new competitors, global price decline for raw commodities, lack of investment in the agricultural sector, and inadequate trade and fiscal policies. High-value exports are playing an increasingly important role in Africa. In fact, the value of high-value exports will soon rival that of traditional export crops. In the second half of the 1990s, the value exports of meat, fruits, vegetables, fish, and flowers from sub-Saharan Africa was approximately two-thirds of the combined value of African exports of cocoa, coffee, tea, cotton, sugar, tobacco, and cashew nuts.

One of the most important high-value export sectors is horticulture, defined as fruits, vegetables, cut flowers, and ornamental plants. In the 1996-2000 period, the value of exports of fruits and vegetables surpassed the value of coffee and cocoa exports, traditionally the most important African exports. Floriculture exports are small but growing rapidly. Sub-Saharan African countries have a comparative advantage in a number of horticultural commodities due to their favorable climate, proximity to European markets, and cheap labor (Barrett et al., 1997). The major players in trade in horticulture in Sub-Saharan Africa are South Africa, Kenya, Zimbabwe, and Côte d’Ivoire. These countries play a significant role

in supplying out-of-season vegetables, tropical fruit, and cut flowers, especially to European markets. South Africa is the region's largest exporter of fruits and vegetables, particularly citrus, grapes, and apples. Since 1999, Kenya has become the top exporter of cut flowers to the European Union, edging out Israel and Colombia, and Zimbabwe has also emerged as a strong player (Table 10). Some countries have based their trade on high-volume commodities such as bananas, pineapples and citrus fruits, while others have targeted narrow niche markets of high-value, low-volume, exotic, and 'out-of-season' products.

Figure 4. Importance of Perishable Products in Developing Country Trade



Source: van der Meer, 2004

In these countries, the poor may be involved in export horticulture as employees on large plantations, commercial farms, and packing plants, or as independent farmers sometimes working under contracts with exporters. There have been many concerns about the impact of contract farming on poor households, but some recent studies suggest that under certain circumstances there are rewards for smallholder contract farmers (McCulloch and Ota, 2003; Stringfellow & McKone, 1996). In the broader debate on whether smallholders have benefited from globalization, the winners have been those that are vertically integrated with agri-businesses or are organized into farmer organizations for collective strength; have access to better infrastructure and credit; and have benefited from the role played by the public sector and others in capacity building (Narayanan and Gulati, 2002).

Most of Africa's non-traditional crops are produced for export to the European market. South Africa, Côte d'Ivoire, and Kenya are leaders in this industry and Zimbabwe and

Zambia have achieved rapid growth recently (Singh, 2002). In 1994, Africa supplied 92 percent of EU imports of green beans from outside of the EU. The export of fresh vegetables from sub-Saharan grew by 150 percent between 1980 to 1997 (Eurostat, 1998). Several reasons are given for the boom in exports. Among these are: the preferential treatment to the EU market afforded by the Lomé convention, the privatization of state enterprises, and increased incentives for export.

Even though some countries have benefited from participation in the high-value horticultural trade, the challenge facing those left behind by globalization in sub-Saharan Africa is how to penetrate this market. But even for those who are considered “successes,” questions remain regarding at what cost this penetration has been achieved, such as the dependence on a small number of buyers, and what impact this has had on smallholder incomes (Dolan et al., 1999; Morrissey and Filatotchev, 2000).

Exports from Kenya, Côte d’Ivoire, Zimbabwe, and South Africa comprise the bulk of sub-Saharan African exports of fruits, vegetables, and flowers to the world market. Yet, there are significant differences in strategy and approach among the four countries. Kenya’s fruit and vegetable export industry is based on smallholder production, while Zimbabwe and South Africa rely more on large-scale commercial farms. Côte d’Ivoire presents an intermediate case. Kenya and Zimbabwe have relatively diversified horticultural exports, including a variety of vegetable products and cut flowers. In contrast, Côte d’Ivoire has concentrated on two main products, pineapples and bananas. Kenya, Zimbabwe, and South Africa depend on air-freight for much of their horticultural exports, while Côte d’Ivoire relies primarily on sea-freight.

Table 5. Fruit and vegetable exports^a from sub-Saharan Africa ('000 US\$)

Country	1980	1990	2000	Annual growth ^d 1990-2000
South Africa	561,296	604,214	821,998	3.1%
Kenya	47,325	84,942	128,643	4.2%
Cote d'Ivoire	110,535	75,716	127,917	5.4%
Zimbabwe	1,826	7,614	29,325	14.4%
Swaziland	23,776	33,978	26,619	-2.4%
Ghana	1,757	3,969	23,693	19.6%
Niger	1,813	4,032	20,990	17.9%
Madagascar	1,542	7,615	10,963	3.7%
Zambia	23	4,118	9,530	8.8%
Sudan	8,234	18,949	6,764	-9.8%
Senegal	4,447	3,053	4,974	5.0%
Ethiopia^b	2,103	4,250	2,851	-3.9%
Tanzania	181	330	2,541	22.6%
Mauritius	42	2,307	1,978	-1.5%
Uganda	-	427	1,955	16.4%
Gambia	-	1,080	997	-0.8%
Mozambique	2,586	3,836	902	-13.5%
Somalia	11,426	18,988	837	-26.8%
Nigeria	2,749	592	508	-1.5%
Guinea	1,800	1,593	430	-12.3%
Togo	-	186	342	6.3%
Mali	884	761	328	-8.1%
Malawi	393	185	229	2.2%
Rwanda	249	200	129	-4.3%
Total	851,908	902,883	1,287,618	3.6%
Total excluding South Africa ^c	290,612	298,669	465,620	4.5%

Note: ^a Fruits and vegetables, as defined here, exclude nuts and dry legumes.

^b The 1980 and 1990 figures for Ethiopia include Eritrea, while in 2000 figure excludes it.

^c The table excludes countries that exported less than US\$ 100 thousand in 2000, but the total includes exports from these countries.

^d Dates are three-year averages centered on 1980, 1990 and 2000, respectively. Growth rates are exponential based on the end-points.

3.2 Lessons from African Success Stories in Horticulture

The leading horticultural exporters in sub-Saharan Africa are South Africa, Kenya, Côte d'Ivoire, and Zimbabwe. These four countries account for about 86 percent of the fruit and vegetable exports from the region and a similar proportion of cut-flower exports.

Yet, there are significant differences among the four countries. First, they differ in the extent to which fruit and vegetable exports play a part in total agricultural exports. In Kenya, they represent 18 percent of total agricultural exports, while beverage crops (coffee and tea) account for about two-thirds of the total. Fruits and vegetables are less significant in Côte d'Ivoire and Zimbabwe, accounting for just 7 and 4 percent of total agricultural exports, respectively. In Côte d'Ivoire, cocoa and coffee account for the bulk of agricultural exports (72 percent), while Zimbabwe relies on tobacco (59 percent) and cotton (17 percent). South African horticultural exports represent a major share of agricultural exports, 42 percent in 2000, making it the most important agricultural export category (Table 11). It should be noted that these results, based on FAO statistics, do not include flower exports. In Kenya, if cut-flowers were included in agricultural exports, they would represent about 9 percent of the total, while in Zimbabwe, cut-flowers would account for 8 percent of agricultural exports.

In addition, the structure of the horticultural export sectors among the four countries varies as a result of differences in climatic conditions, seasonality, farm-size structure, proximity to European markets, and historical factors. Kenya's fruit and vegetable export industry is based mainly on smallholder production, while Zimbabwe and South Africa rely more on large-scale commercial farms. Côte d'Ivoire has both small- and large-scale producers supplying the export market. Kenya and Zimbabwe have relatively diversified horticultural exports, including a variety of vegetable products and cut flowers. South Africa is also diversified, but based on fresh and processed fruit products. In contrast, Côte d'Ivoire has concentrated on two main products, pineapples and bananas. Kenya, Zimbabwe, and South Africa depend on air-freight for much of their horticultural exports, while Côte d'Ivoire relies primarily on sea-freight.

Table 6. Composition of agricultural exports of Kenya, Cote d'Ivoire, Zimbabwe, and South Africa (2000)

	Kenya		Cote d'Ivoire		Zimbabwe		South Africa	
	Value (million US\$)	% of total	Value (million US\$)	% of total	Value (million US\$)	% of total	Value (million US\$)	% of total
Grains	10.2	1.1	10.9	0.6	30.1	3.0	141.4	7.5
Pulses and Nuts	8.6	1.0	51.9	2.8	4.7	0.5	20.9	1.1
Fruits and Vegetables	166.7	18.5	127.0	6.9	36.8	3.7	794.5	41.9
Roots & Tubers	0.0	0	0.4	0	0.0	0	8.6	0.5
Sugar Crops	20.5	2.3	38.4	2.1	38.3	3.8	57.4	3.0
Sugar Products								
Oil seeds	0.6	0.1	4.1	0.2	18.6	1.9	26.2	1.4
Beverages	1.6	0.2	2.0	0.1	4.0	0.4	324.7	17.1
Beverages	618.8	68.7	1,326.0	72.4	38.3	3.8	57.4	3.0
Crops Spices								
Textiles fibers	9.5	1.1	148.7	8.1	173.8	17.4	108.7	5.7
Tobacco and Tobacco Prod	28.5	3.2	7.6	0.4	594.7	59.4	109.9	5.8
Feed stuffs	0.0	0	18.6	1.0	5.7	0.6	7.9	0.4
Meat and Meat Products	0.9	0.1	0.4	0	22.1	2.2	50.7	2.7
Dairy Products and Eggs	1.5	0.2	10.2	0.6	11.9	1.2	39.3	2.1
Hides & Skins	6.5	0.7	0.0	0	10.1	1.0	55.7	2.9
Fats and Oils	16.4	1.8	56.0	3.1	1.3	0.1	37.7	2.0
Miscellaneous	10.8	1.2	29,8	1.6	10.6	1.1	52.8	2.8
Total	901.2	100.0	1,832.2	100.0	1,001.1	100.0	1,893.9	100.0

Source: FAO, 2003.

A closer investigation of these four contrasting success stories reveals a number of factors that contribute to the development of horticultural exports and to the active participation of small farmers in that sector. Some of these factors, such as geography and climate, are difficult to replicate in other countries. Most, however, concern policy and public investment and may serve as tentative lessons for other African countries wishing to expand horticultural exports and enhance its pro-poor impact.

3.2.1 Geography and climate

Kenya is favored with an equatorial latitude and bimodal rainfall that reduce seasonality, combined with a range of altitudes, allowing the production of tropical fruits such as mangoes, pineapple, and avocados, as well as temperate vegetables such as French beans. Similarly, Zimbabwe and South African have an advantage in producing for the off-season in the northern hemisphere. And Côte d'Ivoire has both a humid tropical climate appropriate

for banana and pineapple production and close proximity to European markets. However, the role of geography and climate can be overstated. For example, Uganda, Rwanda, and Burundi have similar growing conditions to those in Kenya, while other southern African countries could produce in the off seasons. Similarly, other coastal West African countries have climates and locations similar to Côte d'Ivoire.

3.2.2 Limited direct government participation.

Another factor is that the governments in these four countries have generally not participated to any significant degree in horticultural markets to buy, sell, export, or set prices. In the cases where government intervention did occur, it was generally not successful. For example, the Kenyan Horticultural Crop Development Authority was originally given authority to fix prices, regulate trade, operate processing facilities, and market horticultural goods. Based on its unsuccessful experience, the functions were pared back to regulation, market information, and advisory services. In some cases, farmers turned to horticulture to avoid the market regulations and price controls imposed on staple grain markets. Similarly, joint ventures between the Ivorian government and foreign investors to establish pineapple processing plants were not able to compete, leading to a virtual disappearance of canned pineapple exports. While it is true that greater involvement by the government is probably warranted in the case of countries that are less developed institutionally, this does not imply a need for the government to produce, market, or export horticultural crops itself.

3.2.2 Positive investment climate

Although all four countries have experienced periods in which the government created state enterprises and marketing boards and tightly regulated agricultural marketing, they have also maintained a reputation for being open to private investment, including foreign investment, at least compared to other African countries. In Kenya, investments by Del Monte in the 1970s greatly expanded pineapple exports, while Chiquita Brands and *Compagnie Fruitière* played a key role in the Ivorian exports of pineapple and banana.

Sometimes it is assumed that a positive business climate implies tax holidays, availability of land at concessionary rates, exemption from certain regulations, and subsidized investment credit. Indeed, African governments have offered these types of incentives to horticultural investors, most notably to multinational companies such as Del Monte, Dole, and Chiquita. However, exemptions and special treatment open the door to corruption and avoid broader reforms that may be needed to promote investment in general. While there is no reason to give special treatment to large international companies, particularly in the establishment of plantations, there is often a need to make investment approval easier, tax rates transparent and reasonable, and land available at market prices for all investors. At least as important are signals from the highest political levels that investment from private companies, local and foreign, is welcome and that unnecessary delays and rent-seeking behavior are not acceptable.

3.2.3 Macroeconomic and political stability.

Both Kenya and Côte d'Ivoire had reputations for political and macroeconomic stability in the 1960s and 1970s, which is necessary to elicit long-term investments in productive capacity. South Africa and Zimbabwe have experienced more political turmoil, most importantly that associated with the struggle for majority rule, but the periods of horticultural growth correspond to periods of relative stability. The larger the investment and the longer the pay-off period, the greater the need for confidence on the part of investors that conditions will not change adversely during the length of the investment project.

3.2.4 Realistic exchange rate.

A realistic exchange rate that gives exporters the full value of the foreign exchange they generate is critical factor in stimulating exports of horticultural commodities, among others. Similarly, liberalized foreign exchange markets are needed to facilitate the purchase of imported inputs and equipment. This is particularly important for the horticultural sector which tends to require more inputs and equipment than staple food grains. Although all four countries experienced periods of currency over-valuation, the level of inflation and exchange rate over-valuation was modest compared to that experienced by some of their neighbors, including Tanzania, Uganda, Zambia, and Ghana. The 1994 devaluation of the CFA franc provided important stimulus to exports of horticultural products (among others) in Côte d'Ivoire, contributing to the healthy 4.4 percent growth rate in fruit and vegetable exports over 1990-99.

3.2.5 Institutional innovation.

Horticultural development requires a continuous process of institutional innovation. Institutions are needed to address sector-wide externalities. For example, the adoption of a common code of practice, the exchange of market information, investment in sector-specific infrastructure, and funding of research and extension are activities that benefit the sector as a whole but cannot easily be carried out by an individual firm. Although it is difficult to establish causality, all four countries examined here have active producer organizations which have addressed these issues. The role of the government depends on the level of development of the sector. At early stages of development, the government must play a larger role in providing these services and investment because there are no alternative institutional mechanisms to fund them. As professional associations are formed, they are eventually able to take on more and more of these functions, although the process may take a decade or more.

3.2.6 Experimentation in forms of vertical coordination.

Various types of marketing institutions are needed to improve vertical coordination between horticultural farmers and trader/processors. This may include various types of contract farming, farmer credit groups, marketing cooperatives, or farmer associations. The Kenyan government has allowed and (in some cases) promoted the development of a wide range of private marketing institutions such as the Fresh Produce Exporters Association of Kenya (FPEAK), local producer associations, self-help groups, and so on. In addition, it has allowed experimentation with a wide range of institutional arrangements between farmers and buyers. In spite of early attempts to oblige processors to work with smallholders, greater leeway is now given for the most economical arrangement to evolve in response to market signals. Over the decades, Kenyan participants in the horticultural sector have accumulated considerable experience in managing the relationship between growers and buyers.

3.2.7 International commercial links

The presence of the Asian community in Kenya has undoubtedly contributed to horticultural crop development. Before the 1970s, the Asian community created a demand for Asian vegetables, providing smallholders with valuable experience in these crops which would later be useful in serving the UK market. In addition, the presence of the Asian community made it easier to penetrate the UK market, first with Asian vegetables and later with French beans and other fresh produce. In the case of Côte d'Ivoire, multinational corporations (Chiquita Brands and *Compagnie Fruitière*) offer a different solution to the problem of coordinating African supply and European demand. By vertically integrating production, processing, and distribution, the flow of information and credit is facilitated. At early stages of development, these commercial links can be promoted with subsidized trade fairs and international trade missions, but eventually responsibility for these activities should be reassigned to professional associations and other private institutions.

Similarly, the development of the cut flower industry in Kenya and Zimbabwe was heavily dependent on Dutch and Israeli floriculture experts who were hired as managers and technicians. Without relaxed policies toward work permits for foreign specialists, it is not likely that the cut flower sectors would have taken off in these countries.

3.2.8 Investment in agricultural research and extension.

The case studies do not provide conclusive evidence, but it is likely that public investment in horticultural research and extension is a key factor in supporting the sector. Although the contribution of horticultural research is not well documented, studies of the benefits of agricultural research almost invariably show high rates of return. The fact that horticulture often involves new crops or new varieties to satisfy an export market only increases the need

for research and extension efforts. Disease control and post-harvest processing are also particularly important in the case of horticultural research. And new sanitary and phytosanitary requirements by importing countries create a demand for research into ways to reduce or eliminate pesticide residues and prevent the spread of horticultural pests. Avocado exports by smallholders in Kenya was launched when the agricultural research stations provided planting materials and informal training to small-scale farmers.

The types of public investment depend on the level of development of the horticultural sector. At the early stages and for small countries, public support should focus on testing imported varieties under local conditions, providing farmer training, and monitoring for outbreaks of plant disease. Countries that are larger or more development can move toward varietal development and more basic research.

3.2.9 Investment in transportation infrastructure.

The cost of transportation and the travel-time to major markets in Europe is a critical factor in the success of the horticultural sector. South Africa, Kenya, and Côte d'Ivoire serve as regional hubs for air traffic. The growth of the tourism industry in Kenya, Zimbabwe, and South Africa and the consequent frequency of air connections with Europe has facilitated the development of fresh produce exports to Europe via air-freight. In Côte d'Ivoire, much of the horticultural export is by sea-freight, so investment and efficient management of the port in Abidjan is of critical importance. Domestic transportation infrastructure is also an important factor, since horticultural exports products must be delivered to the airport soon after harvest. The Kenyan horticultural sector benefits from an extensive road network in the highland areas. It is estimated that much of the export vegetable production in Kenya takes place within 100 kilometers of the airport. Similarly, banana production in Côte d'Ivoire is concentrated along paved roads near the port.

3.2.10 Competition in the transport sector.

The degree of competition in transportation markets is as important as the existence of good infrastructure. Lambert (2002) emphasizes the importance of Kenya's "open skies" policies under which exporters can charter their own planes to deliver horticultural goods. In addition to being economical, transport must be reliable and regular. The aviation industry is heavily protected in most parts of the world, with regulations controlling access by foreign carriers. Africa is no exception with its plethora of small and uneconomic national airlines. Adopting an open skies policy might endanger some of these national airlines, but it would probably introduce greater competition and reduce the cost of air freight. This would have a positive impact on the export of fresh produce and other high-value commodities. Competition in port facilities is important where sea freight is used to export horticultural commodities. In

Côte d'Ivoire, sea-freight costs dropped significantly when fruit wharf access, initially reserved for the OCAB, was opened up to competition from other ocean freight services.

Again, the appropriate policies depend partly on the stage of development. At early stages, the government will probably be more involved in the provision of transportation services (particularly air freight and sea freight), but it should allow competition with emerging private transportation companies. At a later stage, the private sector will play a larger role in transporting export goods, and competition policy implies preventing collusion and anti-competitive behavior among the private transportation companies.

3.2.11 Contract enforcement.

Although disputes in contract farming arrangements will never be avoided completely, the experience of Kenya and other countries indicates that there may be a role for the government in enforcing contracts between buyers and growers, or at least in mediating the disputes between them. Developing new institutional arrangement that would facilitate the enforcement of contracts would contribute significantly to the more-widespread use of contract farming and would expand the participation of small farmers in high-value horticultural production and export. Although the costs of enforcing each contract may be prohibitively high, there may be scope for better record-keeping to identify and exclude farmers that have violated contracts in the past. In the short run, this would protect the interests of buyers, but in the long run it would increase the availability of credit and other forms of assistance for farmers.

3.2.12 Streamlined and transparent export procedures.

Horticultural exports are highly perishable, so that even minor delays in processing export paperwork can incur significant losses to the exporters. For horticultural exports to be profitable, the rules, regulations, and formalities associated with exporting agricultural goods must be transparent, streamlined, and consistently applied. Establishing regulations that do not delay exports any more than necessary is only part of the solution. In addition, the rules must be implemented with minimal corruption. This requires a high-level commitment to both horticultural exports and good governance.

3.3 Priorities for the role of the government in horticultural development

The varied experiences of Kenya, Côte d'Ivoire, Zimbabwe, and South Africa indicate that there is no single path to horticultural export development and no fixed division of labor between public and private sectors. The experience of these countries does suggest that there are some roles for the government that are usually useful and others that are rarely

constructive, as well as a third set of functions whose value depends on the specific circumstances, including the stage of development of the sector, the size of the country, and the characteristics of the specific horticultural crop.

Some government roles and activities are easily justified because of the clear “public good” characteristics of the good or service being provided. These include investment in transportation, airport, and port infrastructure; efficient customs procedures; market information; extension service and farmer training; plant disease control; pesticide regulation; realistic exchange rate and access to for exchange; promoting competition in marketing and transport services; investment in varietal research in horticulture and post-harvest management; investment in research on post-harvest handling; establishment of grades and standards; quality grading and certification; and, creating a conducive investment and business climate.

In addition, for countries that are at an early stage of development of their horticultural sector when there are generally no private firms or institutions that can carry out these activities, government activities that can be justified include: support for producer and trade associations; coordination of producers and buyers; provision of credit for investment in tree crops; tax concessions to attract investment; land leasing at concessionary rates to investors; campaigns to expand output of new crop; investment in cold storage facilities; and temporary subsidies on inputs.

Finally, government activities and measures which are not conducive to private sector development include: direct participation in horticultural production and in horticultural marketing; mandatory adoption of production methods or crops; price controls on commodities, inputs, or transportation services; administrative allocation of foreign exchange; over-valued foreign exchange; permanent subsidies on fertilizer and other input prices or on output prices; and state monopolies in transport services (Table 13).

Table 7. Effect of government roles in promoting horticultural exports

Positive Role of Public Sector
Investment in transportation infrastructure
Investment in airport and port infrastructure
Efficient customs procedures
Market information services
Extension service and farmer training
Plant disease control
Pesticide regulation
Realistic exchange rate and access to foreign exchange
Competition in marketing
Competition in transport services
Conducive investment and business climate

Potentially Positive Role of Public Sector
Support for producer and trade associations
Coordination/mediation of producers and buyers
Credit for investment in tree crops
Investment in varietal research in horticulture
Tax concessions to attract investment
Land leasing at concessionary rates to investors
Campaigns to expand output of new crop
Investment in research on post-harvest handling
Establishment of grades and standards
Quality grading and certification
Investment in cold storage facilities
Temporary subsidies on inputs

Negative Role of Public Sector
Direct participation in horticultural production
Direct participation in horticultural marketing
Mandatory adoption of production methods or crops
Establishment of price controls
Administrative allocation of foreign exchange
Over-valued foreign exchange
Permanent subsidies on fertilizer and other input prices
Permanent subsidies on crop prices
State or private monopolies in transport services

Another criterion that affects the role of the government in supporting horticulture promotion activities in the middle category is the objective of promoting the role of smallholders in the sector. Most governments give priority to poverty reduction, and economic theory provides justification for a government role in equity-enhancing activities. Thus, it is easier to justify public support activities if the horticultural sector is based on smallholder production than if it is organized into vertically integrated plantation-processor/exporters.

Finally, the value of some activities depends partly on whether other conditions on the list have already been satisfied. Three items may be thought of as pre-conditions for any of the other policies and investments to promote horticultural exports. First, a positive investment climate is necessary to promote private-sector investment in general, but even more so in the case of horticultural exports because of the risk associated with international trade in a perishable commodity. Second, an over-valued exchange rate and foreign exchange controls will stifle horticultural exports, no matter how favorable the geographic and climatic conditions are. The third condition is an efficient and largely corruption-free export procedure. An exporter with a valuable but highly perishable export commodity has virtually no bargaining power with corrupt customs or airport officials. Good roads, low taxes, and an efficient agricultural research system cannot offset the losses faced by an exporter if shipments are delayed or blocked with any regularity. Until these three basic conditions are in place, it is probably not worth examining the other factors which have contributed to the success of horticultural exports in the leading countries in sub-Saharan Africa.

V. THE EUROPEAN UNION MARKET FOR FRESH FRUITS, VEGETABLES, AND CUT FLOWERS¹

The European market is one of world's largest markets for horticultural products. In 2003, the EU represented a 51 million tons market for fresh vegetables and a 39 million tons market for fruit. One of the characteristics of this market is its self-supplying nature, when only 1 million tons of vegetables and 7.5 million tons of fruit are imported every year. Sub-Saharan African (SSA) countries are key exporting partners to this market. In this section, we review market trends and consider market opportunities for Ethiopia.

4.1 Fresh Vegetables

4.1.1 Market Trends

According to VEK (2003), total imports of EU countries are approximately 8.5 million tons, of which 7.5 million tons is intra-EU trade. During 1996–2002, total imports of fresh vegetables of EU-15 countries increased by 2.3% annually. During the same period, EU imports from outside the EU increased by 8.3% annually. The total value of EU imports is approximately € 7.5 billion. The total value of EU imports from outside the EU is approximately € 1 billion.

Table 8 Import of fresh vegetables of EU countries (thousand tons)

Year	1992 (EU-12)	1994 (EU-12)	1996 (EU-15)	1997 (EU-15)	1998 (EU-15)	1999 (EU-15)	2000 (EU-15)	2001 (EU-15)	2002 (p) (EU-15)	Increase '96-'02
Intra-EU	5,656	5,863	6,951	7,066	7,302	7,322	7,487	7,963	7,662	1.7%
Extra-EU	614	649	732	668	883	900	873	992	1,095	8.3%
Total	6,270	6,512	7,683	7,733	8,186	8,222	8,360	8,954	8,757	2.3%
% Extra-EU	9.8%	10.0%	9.5%	8.6%	10.8%	10.9%	10.4%	11.1%	12.5%	

Source: ZMP 2003, Eurostat

Imports from non-EU countries have been increasing by 8.3% annually but are still a small part of total EU imports of fresh vegetables. The 1.0 million tons of imported fresh vegetables from non-EU countries is only 4% of EU domestic production.

Among produce, tomatoes are the most traded commodity in the EU (intra-EU trade), followed by onions and carrots. With regards to imports from outside the EU, onions and tomatoes are ranked top, followed by beans, paprika and mushrooms (Table 15).

¹ This section relies heavily on VEK (2003).

Africa is the largest supplier of extra-EU imports, together with the other non-EU countries in Europe. However, imports from Asia (beans and Asian vegetables) are strongly increasing. In Africa, Morocco is by far the largest supplier to the EU with 220,000 ton. In Europe, Morocco is seen as the cheap alternative to Spanish production, just as Mexico is to California in the Americas context. Morocco will probably continue its export growth of fresh vegetables to Europe. The comparative advantage of Morocco is that the production can be trucked to Europe.

In Sub-Saharan Africa, Kenya is the largest supplier to the EU with over 45,000 tons in 2000. In 2001, exports dropped due to production problems with beans. Senegal, Zimbabwe, Ghana and Zambia have been steadily increasing their exports. They now account for approximately 7,000 tons each (Table 15). Other SSA countries, such as Ethiopia, Uganda, Burkina Faso, Cameroon, the Gambia, Togo, Tanzania, Ivory Coast, Mali and Nigeria export in small quantities to Europe.

Table 9 Product mix of EU imports in 2001

Total EU imports			Extra-EU imports		
Produce	tons	percentage	Produce	tons	percentage
Tomato	2,040,506	22.8%	Onion	285,805	27.4%
Onion	1,110,247	12.4%	Tomato	206,863	19.9%
Carrot	822,910	9.2%	Beans	98,237	9.4%
Cucumber	693,632	7.7%	Paprika	82,534	7.9%
Paprika	651,245	7.3%	Mushrooms	67,478	6.5%
Salad (head)	384,731	4.3%	Garlic	43,039	4.1%
Cauliflower	349,765	3.9%	Pepper	26,280	2.5%
Other Salad	336,519	3.8%	Cucumber	15,154	1.5%
Mushrooms	246,536	2.8%	Zucchini	17,167	1.6%
Beans	228,758	2.6%	Carrot	15,454	1.5%
Zucchini	214,675	2.4%	Asparagus	14,517	1.4%
Kohlrabi	224,019	2.5%	Sweet Corn	13,964	1.3%
Others	1,650,701	18.4%	Others	154,834	14.9%
Total	8,954,244	100.0%	Total	1,041,326	100.0%

Source: ZMP 2003, Eurostat

Table 10 Exports of fresh vegetables from sub-Saharan Africa to the EU ('000 mt)

Country	1992 (EU-12)	1994 (EU-12)	1996 (EU-15)	1997 (EU-15)	1998 (EU-15)	1999 (EU-15)	2000 (EU-15)	2001 (EU-15)	2002 (p) (EU-15)	Share (in 2001)
Kenya	19,721	22,970	30,205	30,351	31,602	41,192	45,699	43,688	45,933	45.3%
South Africa	4,190	4,350	3,916	3,472	11,180	13,141	3,858	10,281	18,279	10.7%
Senegal	3,561	3,786	5,409	5,745	6,173	6,701	8,098	8,714	8,811	9.0%
Zimbabwe	2,717	3,458	5,525	5,957	7,769	8,410	7,381	6,937	8,105	7.2%
Ghana	262	1,497	3,058	3,568	4,542	5,183	6,255	6,786	6,766	7.0%
Zambia	1,071	611	1,958	2,909	3,137	4,017	4,246	6,642	7,010	6.9%
Ethiopia	1,446	2,216	2,845	3,190	2,309	3,302	3,533	3,173	1,934	3.3%
Uganda	213	437	1,058	1,576	2,239	2,512	2,335	2,007	2,884	2.1%
Madagascar	116	324	393	2,302	2,103	2,809	2,767	2,224	1,289	2.3%
Burkina Faso	3,338	2,960	2,096	3,207	2,633	2,613	2,454	1,595	1,339	1.7%
Cameroon	425	837	1,490	891	940	1,089	1,206	1,031	991	1.1%
Gambia	1,433	1,181	1,418	1,400	1,373	1,585	981	865	1,047	0.9%
Togo	304	313	247	315	344	360	501	671	782	0.7%
Tanzania	545	648	331	98	6	3	392	649	973	0.7%
Ivory Coast	289	468	415	401	481	440	694	509	770	0.5%
Mali	325	419	537	667	616	487	572	334	323	0.3%
Nigeria	191	162	87	72	229	191	142	228	240	0.2%
Mauritius	93	78	32	40	46	50	94	178	51	0.2%
Niger	105	117	15	26	.	.	0	0	0	0.0%
Rwanda	135	15	6	-	-	-	0	0	0	0.0%
Burundi	169	154	138	23	-	2	10	0	0	0.0%
Total SSA	40,649	47,001	61,179	66,210	77,722	94,087	91,218	96,512	107,527	100.0%

Source: ZMP, 2003, Eurostat (p) = provisional

4.1.2 Opportunities for Ethiopia

EU imports of fresh vegetables are growing faster than the EU production itself. Africa and non-EU Europe are the largest exporters although Asia has the fastest growth rate. The African product range is still characterized by the strong domination of tomatoes and onions. The current position of Africa is merely the result of the export volumes of Morocco and to a lesser extent Kenya. Morocco's position is largely the result of its geographic position, with European investments in Moroccan tomato production and successful EU negotiations. The Kenyan position is the result of synergy in logistics between flowers and fresh vegetables, the presence of a number of large European-African commercial farms, the quick adoption of market requirements such as pre-packed vegetables and process quality standards such as ISO and Eurep-GAP, and its suitable mild climate (Jaffee, 1995).

From a general market perspective, market opportunities lie in the growing demand for high quality and pre-packed vegetables. This is the result of the large amount of required labor for pre-packaging and the realized added value that allows the relative costs of transport. The current product range supplied by Kenya and Asia provides high-growth potential. The opportunities for these vegetables should be based on: climate zones (focus on geographical

regions); combination of perishables and short transport time by air; added value and pre-packing to allow relatively high transport costs; and food safety considerations.

4.2 Fresh Fruits

4.2.1 Market Trends

Trade in fruit is superior than that of vegetables, with a significantly larger share of extra-EU imports. The EU imports approximately 18 million tons of fruits, of which 10.3 million tons are intra-EU trade (including French overseas territories and departments). Between 1992 and 2001, total fresh fruit imports of EU countries increased, while, in the same period, EU imports from outside the EU was stagnant. The total value of EU imports is approximately € 13.0 billion, while the total value of EU imports from outside the EU is approximately € 5.3 billion.

Table 11 Imports of fruit by the EU ('000 tons)

Year	1992	1994	1996	1997	1998	1999	2000	2001(p)
Intra-EU	8,128	9,313	10,929	10,437	10,897	11,053	11,418	10,295
Extra-EU	7,239	6,284	7,482	7,393	7,114	7,622	7,346	7,692
Total	15,366	15,597	18,411	17,830	18,012	18,675	18,764	17,986
Extra-EU (%)	47.1%	40.3%	40.6%	41.5%	39.5%	40.8%	39.2%	42.8%

Source: ZMP, 2003; based on Eurostat (p) = provisional

The main fruit products imported from outside the EU are: bananas (42 %), oranges (12 %), apples (8,5 %) and pineapples (4,8 %), followed by grapefruits and other citrus (Table 18).

In terms of suppliers to the European market, central and south America are the largest suppliers (54 %) of extra-EU imports. Africa supplies 23% of extra-EU imports. Volumes and market shares are stable (Table 19).

South Africa is the largest African fruit supplier with 885,000 tons, and exports a wide range of products such as citrus, top fruit, grapes and others. In 2001, Cameroon replaced Ivory Coast as the largest SSA supplier to the EU, when Ivorian exports dropped by almost 50 % as a result of droughts and political instability. Cameroon's exports were 218,000 tons in 2001, with banana as the main commodity. Zimbabwe has the third position among SSA suppliers, with 45,000 tons of export. Kenya is only ranked 11th of African exporters of fruit to the EU. Other small SSA suppliers are Ghana, Swaziland, Namibia, Guinea, Mali, Mozambique and Burkina Faso (Table 18).

Table 12 Product mix of extra-EU imports of fruit

Year	1995	1996	1997	1998	1999	2000	2001	Share
Bananas	3,742.2	3,838.7	3,174.6	3,060.6	3,222.5	3,325.2	3,230.7	42,0%
Oranges	869.3	967.4	860,5	865,0	840,7	738,6	909,3	11,8%
Apples	694.9	634.1	622,1	612,7	742,8	585,3	652,0	8,5%
Pineapples	230.5	274.9	281,5	263,2	332,6	318,3	365,4	4,8%
Grapefruit	435.9	437.7	440,5	428,4	414,4	383,5	340,5	4,4%
Grapes	227.1	253.7	242,5	260,8	312,1	341,0	315,2	4,1%
Small citrus	250.1	330.5	289,6	273,1	288,2	273,3	292,4	3,8%
Pears	268.6	245.2	265,9	274,1	297,4	261,0	256,2	3,3%
Lemons	190.8	205.8	164,4	152,3	189,7	175,3	204,1	2,7%
Kiwi	128.4	137.7	154,1	174,1	147,2	169,7	185,9	2,4%
Other melons	103.5	106.3	111,5	139,4	168,3	165,9	171,0	2,2%
Mangos	63.5	65.9	75,9	84,5	116,3	119,4	134,9	1,8%
Avocados	105.6	110.2	98,1	98,9	89,0	112,7	102,8	1,3%
Plumps	49.8	49.0	71,6	69,4	73,5	52,9	85,0	1,1%
Cherries	44.6	60.5	66,9	62,8	73,6	57,2	73,7	1,0%
Other apples	125.3	186.4	242,5	66,0	40,4	86,1	73,5	1,0%
Watermelons	42.3	42.1	44,6	44,0	51,7	50,1	59,2	0,8%
Strawberries	29.9	28.9	28,6	27,1	30,4	36,6	38,5	0,5%
Other fruit	16.7	19.5	21,8	26,0	40,2	28,5	32,3	0,4%
Total	7,729.1	8,112.3	7,378,7	7,113,2	7,622,0	7,436,2	7,691,7	100,0%

Table 13 Exports of fresh fruits from Africa to the EU ('000 tons)

Country	1992	1994	1996	1997	1998	1999	2000	2001 (p)	share
South Africa	643.5	570.6	693.6	665.2	866.7	850.1	828.3	884.4	50.8%
Morocco	371.0	358.0	476.7	382.4	329.9	339.0	298.6	266.8	15.3%
Cameroon	111.3	159.5	169.9	161.4	121.7	166.6	208.1	218.3	12.5%
Ivory Coast	281.2	275.5	339.2	333.1	306.2	381.4	369.9	184.1	10.6%
Zimbabwe	7.0	8.3	18.1	30.3	30.4	31.3	36.3	45.2	2.6%
Ghana	7.4	14.4	26.2	29.5	24.5	30.2	34.4	33.6	1.9%
Swaziland	21.2	29.2	24.6	15.3	29.5	25.5	29.1	25.4	1.5%
Egypt	26.8	9.6	13.5	12.9	12.3	12.9	16.7	23.8	1.4%
Tunisia	21.9	21.4	21.4	15.9	24.5	21.3	25.1	21.5	1.2%
Madagascar	5.6	7.8	11.2	7.7	10.4	12.5	18.8	16.6	1.0%
Kenya	8.0	8.0	2.8	14.1	7.8	10.6	12.2	16.4	0.9%
Namibia	1.5	4.0	2.7	1.4	1.2	1.4	1.8	2.0	0.1%
Guinea	1.2	1.1	0.8	0.1	2.3	2.6	3.6	1.1	0.1%
Mali	1.2	0.8	0.8	1.5	1.0	0.8	1.2	0.9	0.1%
Mozambique	3.5	3.6	8.9	2.1	0.8	2.2	1.7	0.7	0.0%
Burkina Faso	1.2	0.7	0.3	0.9	0.2	0.2	0.2	0.4	0.0%
Cape Verde	1.9	0.1	0.0	.	.	.	.	.	0.0%
Réunion	0.5	0.9	1.1	.	.	.	.	.	0.0%
Somalia	0.2	4.7	25.5	22.6	7.0	.	.	.	0.0%
Total Africa	1,516.1	1,478.2	1,837.3	1,696.4	1,776.3	1,888.7	1,886.2	1,741.2	100.0%

Source: ZMP 2002, based on Eurostat (p) = provisional

4.2.2 Opportunities for Ethiopia

In terms of market opportunities for producers in Ethiopia, the fresh fruit sub-sector presents several challenges, relative to the fresh vegetables sub-sector. These have to do with the slower growth rate of fruit imports into the EU market, the fact that the fruit product range imported from outside EU predominantly consists of “commodities” with a relatively low value per weight that demands highly efficient and effective production and distribution; and that the low value to volume ratio implies that the competition in the fruit market is international since fruit can be transported by sea and Ethiopian exporters would have to compete with major players such as South Africa, Australia, the Americas and Asia.

However, opportunities in the fruit sector can still be identified. Perishable fruit varieties (fast moving products with a short shelf-life of one to two days) are particularly interesting for Ethiopian producers since they have a comparative advantage over competitors further away. Thus, the niche would be to seek new fruit varieties with a high value to volume ratio that enables air transport, such as dwarf fruit for decorating purposes.

A key consideration remains food safety. Food safety is both a threat and an opportunity depending on exporters’ ability to comply with the norms of the importers. When food safety cannot be guaranteed, exports volumes will be affected. When the standards are met, exports may substantially increase.

Generally, for both fresh fruits and vegetables, it should be noted that while total EU imports of fruits and vegetables for the year 2000 was over \$7 billion, the ACP countries accounted for about \$0.9 billion. Many of these are sea-freighted fruits such as banana and pineapple, for which Ethiopia, as a land-locked country, has no comparative advantage in the mainstream market. In 2000, Ethiopia ranked 17th in the list of ACP suppliers to the EU by value.

The top producer countries have managed to attract multinational agribusiness investors, and fruit and vegetable crops are grown on large scale plantations. The businesses are often vertically integrated with their own marketing companies in Europe. Currently many of the top producer countries presently have advantages in terms of better infrastructure, experienced management, and cheaper airfreight. Thus, for example, airfreight out of Ghana (at \$0.70/kg) is less than half that that of Ethiopia.

4.3 Cut Flowers

4.3.1 Market Trends

The Netherlands is the world's largest cut-flower exporter, with exports valued at approximately USD 2.0 billion, thus representing almost 55% of the world market shares. Colombia and Ecuador are second and third in world ranking. The Netherlands supplies a wide range of flowers. The most valuable varieties are roses (28%) – which clearly dominate the world market; carnations (13%), tulips (8%), lilies (7%) and gerbera (5%). In comparison, Colombian exports are mainly flowers for bouquets (32%), roses (24%) and carnations (21%). Ecuador's exports are dominated by roses (64%).

Table 14. Leading exporters of cut flowers ('000 US \$)

Country	1992	1998	1999	2000	2001	
Netherlands	2,153,560	2,296,041	2,095,183	2,003,393	2,027,932	55.7%
Colombia	395,644	600,014	546,210	566,986	562,466	15.5%
Ecuador	25,330	201,883	210,409	215,414	206,561	5.7%
Kenya	61,477	131,550	141,326	144,441	165,336	4.5%
USA	14,359	20,569	14,762	13,738	114,436	3.1%
Israel	146,120	175,196	115,884	102,292	114,415	3.1%
Spain	52,665	95,977	85,450	77,407	78,582	2.2%
Zimbabwe	28,743	61,925	58,810	63,797	65,520	1.8%
Italy	111,277	80,158	67,921	58,235	54,885	1.5%
Thailand	27,579	51,856	50,175	50,042	43,775	1.2%
Others	266,950	369,194	383,313	390,009	206,231	5.7%
Total	3,283,704	4,084,363	3,769,443	3,685,754	3,640,139	100.0%

Source: Pathfast Publishing

Altogether, African countries represent 8% of world cut flower exports with a value of almost US\$ 300 million. Kenya is the largest African exporter with 55% of African market share, followed by Zimbabwe (22%) and Zambia (6%) (Table 21). Roses are the most important cut flower export for SSA producers, representing 71% of Kenya's production and a great share of the production in Zimbabwe and Zambia. Other significant exports are carnations (7%), chrysanthemums (1%) and various summer flowers.

Table 15 Africa's leading exporters of cut flowers ('000 US\$)

Country	1992	1998	1999	2000	2001	
Kenya	61,477	131,550	141,326	144,441	165,336	55.1%
Zimbabwe	28,743	61,925	58,810	63,797	65,520	21.9%
Zambia	2,379	14,146	16,969	16,155	16,404	5.5%
South Africa	13,377	14,656	13,468	12,086	12,793	4.3%
Uganda		6,226	6,615	10,049	11,429	3.8%
Tanzania	1,076	6,361	7,800	6,752	9,142	3.0%
Morocco	16,224	9,661	7,067	5,804	5,433	1.8%
Mauritius	5,233	4,857	3,779	4,080	3,742	1.2%
Ivory Coast	2,064	2,112	2,182	2,533	3,509	1.2%
Rwanda					2,650	0.9%
Ethiopia	1,675	457	351	841	891	0.3%
Cameroon		642	703	858	856	0.3%
Malawi	674	3,147	1,110	558	651	0.2%
Egypt	534	435	576	476	595	0.2%
Total	133,456	256,521	261,100	269,205	299,841	100.0%

Source: Pathfast Publishing

In terms of imports into the EU, Germany is the largest European importer of flowers. Up to 1985, Germany represented more than 50 % of the EU's imports. In subsequent years, the consumption (and imports) of flowers expanded to other European countries, especially in the UK, France, and the Netherlands. A significant share of imported flowers are re-exported.

Germany also used to be the leading importer of flowers from non-EU countries. However, in the late eighties and nineties, Dutch auctions changed their flower import policy and the Netherlands became the first European flower hub. Today, more than 55 % of non-EU imports are channeled through the Netherlands. The UK is the second largest non-EU importer of flowers, with historic connections on carnations from Colombia and Kenya (Table 22).

A substantial proportion of imported cut-flowers are sold through the Dutch auctions. The rose market can be divided into segments based on stem length and bud size; these segments are sweethearts, intermediates, and T-hybrids. Sweethearts have a stem length of 35 – 50 cm and a small bud size. The T-hybrids have a stem length of 80 cm and longer and a large bud size. The intermediates are in between these two. At Dutch auctions, there are two categories, namely small roses and large roses. Small roses are the sweethearts and part of the intermediates. Large roses are the other part of the intermediates and T-hybrids.

Table 16 Cut flower imports from non-EU countries (million Swiss francs)

Country	1960	1970	1975	1980	1985	1990	1995	1998	1998
Netherlands	0.1	2.2	27.2	80.8	103.0	154.5	286.7	487.4	55.1%
UK	2.0	5.3	18.5	46.7	78.7	92.0	118.7	154.0	17.4%
Germany	2.6	36.1	93.6	208.4	132.5	103.4	115.5	98.5	11.1%
Italy	0.0	3.0	7.8	17.0	26.5	33.4	45.8	56.1	6.3%
Switzerland	0.8	10.6	19.9	36.2	37.5	28.8	32.4	31.0	3.5%
Spain	0.0	0.0	0.0	0.0	0.2	5.9	13.7	24.6	2.8%
France	0.1	2.1	1.7	10.2	16.7	24.6	27.5	26.5	3.0%
Belgium/Lux.	0.2	0.4	0.3	1.2	2.2	1.8	3.1	25.3	2.9%
Norway	0.1	1.8	6.2	11.1	13.2	12.5	8.1	9.0	1.0%
Sweden	0.4	7.9	12.2	18.5	27.8	25.8	18.5	7.4	0.8%
Greece	0.0	0.0	0.0	0.2	1.1	1.9	2.4	3.9	0.4%
Austria	0.1	3.8	7.1	22.7	24.6	23.0	2.7	3.0	0.3%
Ireland	0.0	0.0	0.2	0.0	0.0	2.9	4.7	4.1	0.5%
Finland	0.1	0.2	1.3	5.7	7.0	5.8	4.9	3.4	0.4%
Denmark	0.0	0.1	0.0	2.7	1.8	0.9	0.5	0.4	0.0%
Portugal	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.2	0.1%
Total Extra EU	6.5	73.5	196.0	461.4	472.8	517.2	685.1	884.7	100.0%

Source : AIPH

In 1995, only 237 million stems of small roses were imported through Dutch auctions, while Dutch supply was 1.6 billion stems of small roses. Due to high production costs in the Netherlands, the market for small roses has become increasingly supplied by African producers. In 2002, imports were 1.0 billion stems of small roses, while Dutch supply dropped to 439 million stems. For small roses, the total number of stems has decreased over the last 4 years. For large roses, it was the opposite: the number of stems has increased from 0.7 billion in 1995 to 1.7 billion in 2002, as both imports and Dutch supply have increased.

Up to 1998, Israel was the largest non-EU supplier to the EU, followed by Kenya and Colombia, with Ecuador a strong newcomer. Recently, Kenya took over Israel's leading position (Table 23). The EU's imports of flowers from SSA countries has increased significantly by 13.8 % every year between 1996 and 2002. The annual growth is fastest in Uganda (26 %) and Zambia (21 %). The roses sector is where most of the growth is taking place. In 1992, carnation was the most imported flower at the Dutch auctions (26 %), followed by roses (18 %). In 2002, roses represent 40 % of imports, followed by Hypericum (6.5 %) and Gypsophilla (6.4 %).

Table 17. Non-EU flower suppliers to the EU ('000 Euros)

Country	1996	1997	1998	1999	2000	2001
Kenya	83,656	100,212	110,772	130,482	151,270	176,905
Israel	134,363	137,725	145,798	111,583	95,914	115,829
Colombia	94,088	104,388	102,494	93,542	101,726	101,469
Ecuador	27,064	38,573	54,854	62,925	76,267	79,954
Zimbabwe	39,757	46,134	50,377	51,811	64,337	67,934
Zambia	6,929	8,508	12,189	15,985	16,822	18,235
Thailand	18,418	18,972	16,559	16,120	18,217	16,329
Uganda	3,234	4,445	4,791	5,633	10,569	12,751
Tanzania	3,910	5,193	5,543	7,736	8,264	10,135
South Africa	8,170	8,880	8,221	8,637	7,849	9,899
Turkey	11,690	11,642	13,113	10,978	7,103	8,260
Morocco	9,177	8,096	6,695	5,228	5,482	6,248
India	6,000	7,541	6,950	4,518	4,723	6,029
Ivory Coast	1,621	1,839	1,911	2,085	2,650	3,919
Costa Rica	3,493	3,700	3,081	3,323	3,523	3,833
Peru	3,133	4,549	2,779	2,255	3,015	2,636
Australia	2,702	2,442	2,838	2,734	2,224	2,455
New Zealand	1,808	1,707	2,099	1,621	1,320	1,696
Others	23,857	13,366	14,645	13,913	15,819	15,000
Total import	483,070	527,912	565,709	551,109	597,094	659,516

Source: Eurostat

4.3.2 Opportunities for Ethiopia

While the potential for non-EU growth of the EU flower market remains strong, particularly for roses, which have experienced tremendous growth in recent years, Ethiopia's position among African suppliers of fresh cut flowers is relatively weak. Important considerations are the growing market share of supermarkets in flower and ornamental plant distribution systems as an important opportunity. Access to this market requires supply chain management, processing infrastructure (bouquets) and a critical product range. A substantial part of the growth of the African, and Ethiopian, flower industry will be based on the increasing share of EU supermarkets, especially in the UK.

VI. GLOBALIZATION, COMPETITIVENESS, AND VALUE CHAINS

5.1 Global Value Chains

Globalization, however defined, has brought profound changes in the organization of the global economy. A defining feature of global economic systems is the shift from traditional units of production defined within national boundaries to the rise of global *value chains*, embodying networks of actors, tied together by contractual relationships. Value chains, also referred to as supply chains, are defined as institutional arrangements linking producers, processors, marketers, and distributors —often separated by time and space— that progressively add value to products as they pass along the chain (Nabi and Luthria, 2002).

The value chain describes the full range and sequence of activities required to bring a product from its inception through the intermediary phases of production, delivery to consumers, and disposal after use (Kaplinsky, 2001). With globalization, such chains have become increasingly global, with raw materials, design and marketing know-how, and manufactured inputs coming from different parts of the world. Thus, in the case of labor-intensive products, increasing global sourcing by industrialized country retailers has created networks of producers and retailers spanning the world. In its basic form, a value chain links product design, production, and marketing (Figure 4).

Figure 5. A Basic Value Chain



Source: Kaplinsky, 2001

5.2 A Broad View of Competitive Advantage

The term “competitiveness” became widely used in debates over economic policy in the early 1980s. Porter (1990) argues that the traditional theory of comparative advantage based on factor endowments has become less relevant over time. Product differentiation makes

mere cost advantage less useful, and the globalization of production makes home-country factor endowments less important. Furthermore, industries and nations can become successful even with limited factor endowments if they pursue appropriate policies and develop expertise in particular sectors. He proposes a theory of *competitive advantage* that explains the success of nations and industries in terms of a wide range of economic, political, and cultural factors.

The competitive advantage of an industry or cluster of industries is defined as the “presence of substantial and sustained exports to a wide array of other nations and/or significant outbound foreign investment based on skills and assets created in the home country” (Porter, 1990). Thus, competitiveness at the national level has to be defined in terms of the ability to maintain high and rising productivity. What has become known as the Porter Diamond consists of four inter-related determinants of competitive advantage:

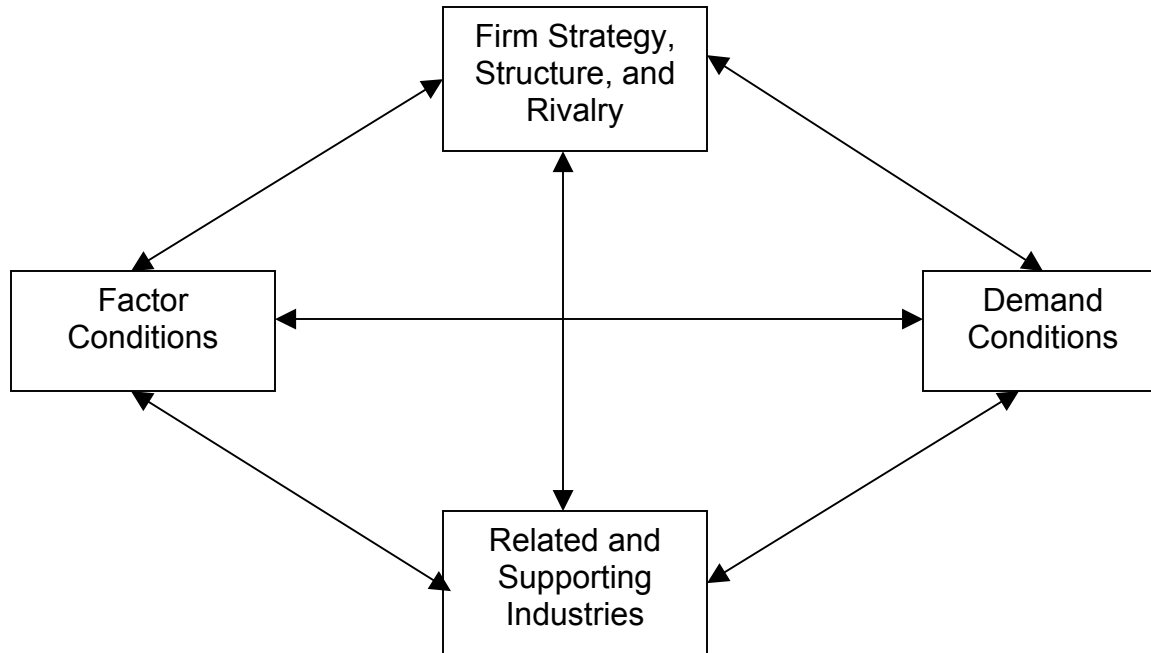
- **Factor conditions:** Competitiveness is partly determined by the availability, quality, and cost of factors of production, including labor, capital, natural resources, infrastructure, and “knowledge resources.”
- **Demand conditions:** Competitiveness in a given sector is also enhanced by a large domestic market for the good with quality-sensitive consumers. This provides the motivation for industries to continually improve quality, service, and value, preparing them for competition in the world market.
- **Related and supporting industries:** In addition, the competitiveness of a sector depends on the existence of firms in related industries to provide support services, capital goods, inputs, and information.
- **Firm strategy, structure, and rivalry:** Finally, export performance is improved when domestic firms compete strongly against each other, creating incentives for continual improvement, particularly when the competition is for quality and service rather than mere price competition. The business culture, prevailing norms, and the regulatory environment affect the vigor with which firms compete against each other.

Porter emphasizes the dynamic nature of these determinants, with causal relationships between each pair, as well as external influences such as government policy, innovation, and external price shocks (Figure).

Because industries are linked vertically (by buyer-supplier relationship) and horizontally (by having common customers or suppliers), industries do not fail or succeed in isolation. Instead, a nation is likely to develop a competitive advantage in a *cluster* of related industries. For example, Sweden is said to have competitive advantage in forestry which leads to advantage in wood processing equipment, paper making, and chemicals for wood processing. Furthermore, Porter notes that these clusters of industries are often

geographically concentrated to take advantage of a common pool of expertise, easier communication, and lower transportation costs.

Figure 6: Porter's Diamond of National Advantage



Source: Porter, 1990

Porter's diamond is a useful way to organize factors that affect the competitiveness of an industry. It is clear that the competitiveness of non-traditional exports from a given country are affected by factor conditions, domestic demand conditions, related and support industries, and firm strategies, industrial structure, and degree of domestic rivalry. Second, competitiveness is not fixed or pre-determined by a nation's factor endowments; rather, it is dynamic and subject to change as a result of experience, public policy, and investments.

The need to cater to increasingly demanding consumers is particularly important in the case of horticultural and other non-traditional exports, where, the demands of consumers in industrialized countries are going beyond product characteristics such as quality and food safety and touching on production characteristics such as environmental impact and worker conditions.

Third, it is clear that competitive advantage matters most where international trade is shifting from homogeneous commodities, which compete largely on the basis of price, to more heterogeneous goods, which compete on the basis of quality, reliability of supply, and tailoring product characteristics to consumer demand, as well as price, which is certainly the case for high-value agricultural exports.

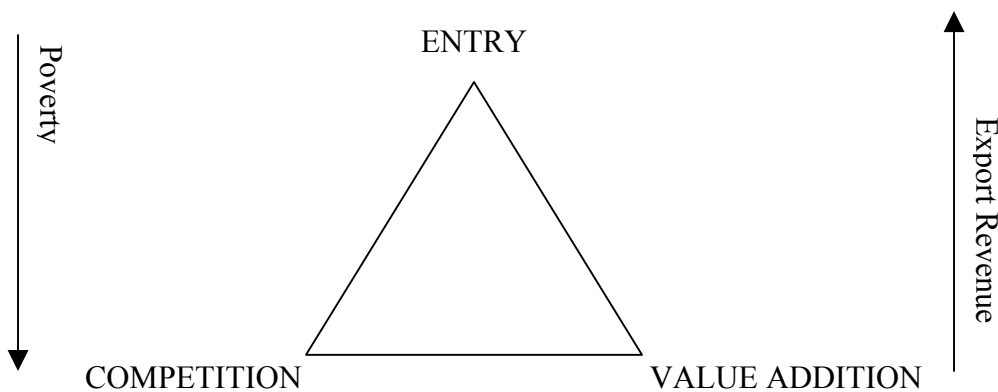
Finally, the emphasis on the need to analyze clusters of industries is very appropriate in the case of non-traditional exports. Producing a perishable good for consumption in overseas markets requires tight coordination of growers, packers, exporters, shippers, and importers. Furthermore, non-traditional exports often cater to niche markets, where information about specific demand preferences must be transmitted down the marketing channel to the farmer. The reliance of non-traditional exports on seed companies, packaging companies, air-freight services, and other related industries reinforces the usefulness of examining the cluster as a whole.

5.3 The Challenge of Developing Competitive Global Supply Chains

The development of high-value agricultural exports requires a multi-level approach: increasing competitiveness at the firm level while addressing the sector-level issues through public policy and investment. A key challenge is to strike a balance in which an enabling environment is created within which private initiative can thrive. This challenge also involves a third level, between the strictly firm level and the strictly public domain: that of public-private partnerships, which are critically important (Figure 3).

Ethiopia’s strategy for the expansion and profitability of its high-value agricultural exports should be centered on three key issues: (i) entry into the global market; (ii) following entry, maintaining its position in an ever-changing market through constantly adapting and transforming its product base, production, logistics, and marketing processes; and (iii) value addition at the source to generate greater returns and market share. Finally, an important policy consideration as Ethiopia seeks to meet these challenges is the impact on poverty alleviation and broad-based growth.

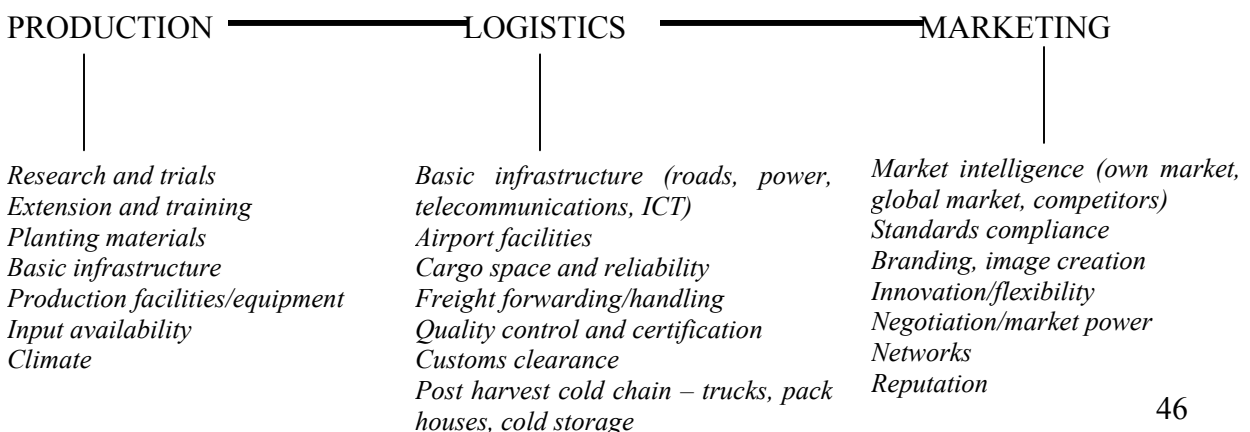
Figure 7. Challenges for High-Value Agricultural Export Promotion



An alternative way to identify the challenges and constraints is according to the three specific dimensions of function in the value chain. These three dimensions are: production, logistics, and marketing. On the production side, important factors are research and trials, technical expertise, extension and training of producers, climatic conditions, planting materials, input availability, basic infrastructure (power, water), and production facilities (greenhouses, floodlights, irrigation, etc). On the logistics side, important factors include basic infrastructure (roads, telecommunications, ICT, power), airport facilities, cargo availability and reliability, freight forwarding and handling systems, post-harvest cold chain facilities such as pack houses, cold storage, and refrigerated trucking, and customs clearance and certification systems. Finally, on the marketing side, important factors involve information acquisition and processing (at three levels: own market, global market, and competition), market promotion, branding and image creation, innovation, negotiation, industry standards compliance and due diligence, and social networks and reputation (Figure 7).

For all three of these dimensions, there is clearly a public and a private role as well as considerable scope for public-private partnership. Functions which lie squarely in the domain of the public sector are the provision of basic infrastructure; research, trials, and extension; airport facilities and customs clearance procedures. Functions that clearly lie in the private sector domain are: input delivery, development of technical expertise, investment in production, processing, and post-harvest facilities, contract negotiation and transaction, reputation and network building. Functions that are in the gray area between public and private domains, in which partnerships can be effectively built, are: the development and propagation of planting materials, market intelligence, market promotion and image creation, public-private research, and standards compliance and certification systems. Thus, contrary to the perception that horticulture is a sector in which the private sector should best be left alone, it is a sector in which, not only there clearly defined roles for a high-capacity private sector alongside the government, but also much scope for well articulated private-public partnership. This has been the experience over the past three decades in Kenya.

Figure 8. Functions and Dimensions of Horticultural Value Chain



VII. CLUSTER ANALYSIS OF FLORICULTURE VALUE CHAINS

Despite limited attempts in the late 1990s, a modern floriculture, export-oriented, industry has only begun to emerge in Ethiopia in the past 3 years. Reasons for the lagging performance of this sector, despite its recognized potential, were often portrayed as an unfavorable business environment and investment climate and a lack of commitment by the foreign direct investors. Recent initiatives by the Government of Ethiopia to promoting this sub-sector have met with private sector interest. However, the expected take-off has not yet occurred and this section seeks to explore progress thus far and continuing reasons for unmet potential. As of early 2004, there are four commercial rose farms exporting to external markets. This section characterizes the key actors and the value chain in terms of the main three components of production, logistics, and marketing, and assesses the “cluster” or the encompassing environment of policy, infrastructure, institutions, and linked industries facing floriculture in Ethiopia.

6.1 Actors

At present, there are four major rose farms that are exporting roses to Europe and other markets. These farms are Golden Rose, ENYI Rose, Ethio-Dream, and Summit. All of the rose farms are located in Oromia region and production is undertaken on commercial farms ranging from 2 hectares to 15 hectares, with projected expansion up to some 20 hectares. The farms generally employ both permanent and temporary labor and operate year-round, with trained supervisors who are agricultural college graduates and at least one expatriate manager. In terms of production, the yield per square meter is roughly similar, ranging from 120 to 180 stems per square meter, which converts to roughly 1.5 million stems per year per hectare (Table 15). In dollar terms, Ethiopia’s roses obtain roughly \$0.18 per stem on the European market. A brief profile of each rose farm interviewed is provided below.

Golden Rose was established in June 1999 and started export operations in February 2000. The location of the farm is in Tefik Woreda in Oromia region, which is about 38 km from Addis Ababa. The altitude of the area is 2060 meters. The farm has now reached to 15 hectares size, which was 7 hectares at the beginning, and an additional 10 hectares is under progress. This will bring the total land holding to 25 hectares in 2004. The number of people employed at the farm is 500 people, of which 360 people are permanent and 140 are casual laborers. In addition to laborers, the supervision staff is composed of graduates from Jimma and Ambo agricultural colleges. In terms of expatriate support, the supervisors and other technicians were trained by 3 expatriates who came from India, who are currently managing the farm.

ENYI rose farm was established in late 2002 and started export operations in 2003. It is located about 20 km from Addis Ababa in Kara Kore district in Oromia region. The altitude is in the range of 2100m to 2200m. The farm has started its production with 7 hectares and it has now increased to 15 hectares in 2 phases. The target is to reach 20 hectares in 2004. The numbers of people employed in the farm are 500 workers. The majority of this labor consists of women laborers. Supervisors are graduates from Alemaya, Ambo and Jimma Agricultural Colleges and 3 expatriates from Kenya, India and Israel.

Ethio-Dream was established in September 2002 and started exporting in January 2003. The location of the farm is about 48 km away from Addis Ababa in Holeta district of Oromia region. The altitude of the area is 2200 m. The initial land holding was 2 hectares, with additional 6.3 hectares under development. In three years, the farm is envisaged to reach 20 hectares. There are 26 permanent workers of which 20 are stationed on the farm and 6 in the headquarters office, in addition to 70 to 80 temporary laborers. However, when the farm reaches 4 hectares, it will employ 200 people. In terms of expatriate support, the farm started with an Indian farm manager who is now replaced by a Kenyan farm manager. This manager will be replaced after three years by an Ethiopian graduate from Jimma Agricultural College.

Table 18. Summary Characteristics of Rose Farms

	Golden Rose	Enyi Rose	Ethio-Dream
Start period	June 1999	December 2002	September 2002
Start of exports	February 2000	2003	January 2003
Location	Tefik (Oromia)	Kara Kore (Oromia)	Holeta (Oromia)
Distance from Addis Ababa	38 km	20 km	48 km
Altitude	2063 m	2100-2200 m	2200m
Farm size at start	7 ha	2 ha	2 ha
Farm size at present	15 ha	10 ha	6.3 ha
Farm size projected	25 ha	15 ha	20 ha
Number of permanent employees	360	500	26
Number of temporary employees	150		80
Number of supervisors	40	35	
Production yield (stems/m ²)	180	120-180	140
Total annual production (stems)		14 million	

Source: Interviews, February 2004

6.2 Rose Supply Chain: Production to Market

Given the diversity of climatic conditions and altitudes in Ethiopia, three basic types of rose varieties can be grown. These are sweetheart (30-40 cm stems and small buds), intermediates (40-60 cm in stem length) and tea hybrids (60-80 cm stems). The majority of Ethiopian production falls into the intermediates, with considerable variation between farms. The yields per square meter also vary, with stems per square meter for tea hybrids ranging from 120 to 140 stems per square meter and for intermediates from 140 to 180 stems per square meter.

The rose supply chain involves several steps from production to export. In the production component, the process begins with selection and trials of varieties, propagation of varieties, planting cuttings in greenhouse, application of chemical inputs and irrigation, disease control, and harvesting in the greenhouse. In the logistics/post-harvest component, there is initial cooling at 4 degrees centigrade, then grading, sorting, and bunching, a second cooling at 2 centigrade, then packing in specialized cartons, loading to refrigerated truck, customs clearance, airport handling, and air shipment. In the marketing component, there is identification and negotiation with buyers, searching market information, and ensuring completion of sale (Figure 9). It is interesting to note that what clearly differentiates this sub-sector from the traditional agriculture model is that, not only is production year-round and highly industrialized, but the post-harvest processing is tightly coordinated with a three-day period from harvest to arrival in destination market abroad.

The supply chain is process-intensive in both the pre- and post-harvest phases, including strict requirements on chemical application and timing, temperature and humidity control, irrigation, cooling temperature and length, packing materials, and quality differentiation and sorting. Given the highly capital intensive nature of production and processing, rose farming is not a smallholder activity. It is also important to note the extremely tightly controlled time dimension of the logistics process, given the product attributes desired and the fragility and perishability of the roses.

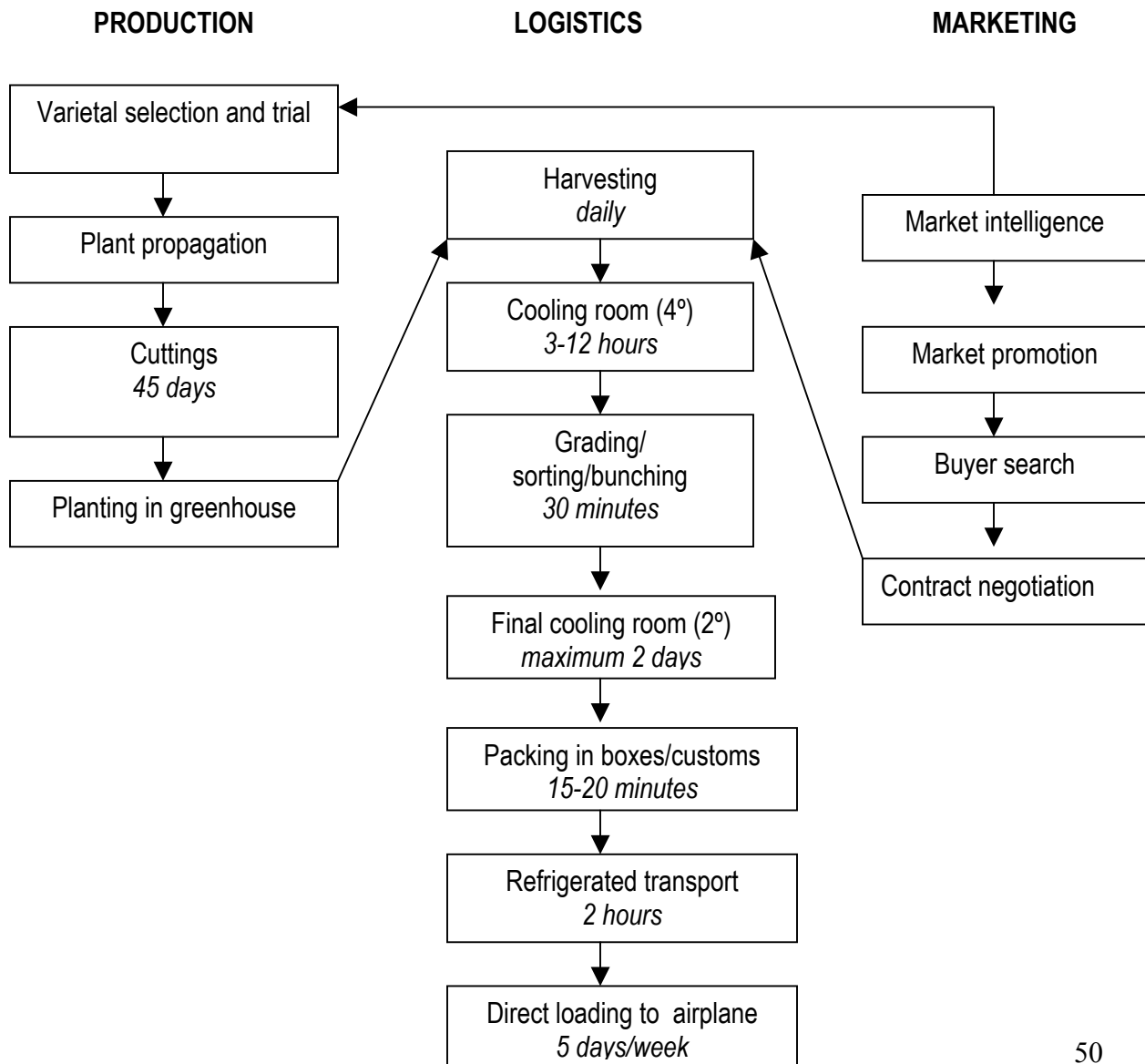
6.2.1 Production

Given its slightly lower altitude, Golden Rose produces 10 rose varieties, with a combination of hybrid, intermediate, and sweetheart roses. In addition to the intermediate rose varieties of Circus, Red Champ, Golden Gate, Sunbeam, Ballet, Tropical Amazon and Grand Prix, the farm also produces a tea rose, Hollywood, and a sweetheart variety, Renee.

Similarly, Enyi farm produces nine varieties, which combine tea hybrid and intermediates: Akito, Milva, Shanta, Gold Strayna, Aqua, Alwha, Pasha, Circus, and Grit. The stems' length of these varieties is between 40 cm to 70 cm. Likewise, Ethiodream produces 3 tea hybrids (Royal Baccara) and 3 intermediates (Golden Starlight, Sunny Leonidas, and Shakira).

Exporters indicate that varieties are selected on the basis of advice from expatriate technical experts and from the seed companies themselves. All the farms conduct their own varietal trials and handle their own plant disease control, without any links to the national agricultural research organization (EARO). Thus, at present, there is no independent service provided to all farms from either a private or public agency to identify suitable rose varieties and conduct adaptive trials under different growing conditions. Similarly, there is no plant propagation of successful varieties in order to enable growing on a large scale by different exporting farms. Only one of the three farms interviewed has acquired experience in plant propagation for the purposes of their own operation. This farm is now considering a plant propagation service for the domestic industry.

Figure 9. Vertically Integrated Rose Supply Chain



Another issue identified by the exporters is the lengthy import clearance and SGS inspection procedures for plant materials, fertilizers and other chemicals, requiring up to ten steps. In addition, obtaining approval for chemical usage takes time, and by the time the study is completed, the usage may have changed. This reduces the availability of inputs at the needed time in the production process.

6.2.2 Logistics

As noted above, the rose export industry is highly time and process dependent. Thus, logistics is a major source of competitive advantage or weakness. Product quality is as much dependent on the pre-harvest processes of water and chemical application and climatic conditions as it is of the post-harvest handling, temperature control, time, and packing conditions. All the export farms interviewed have the pre-requisite cold room and packing units. Similarly, all three farms own at least one refrigerated truck for transport to the airport.

In the logistics component, several key issues appear to constrain the competitiveness of the rose industry. First, with regard to air cargo, all farms indicated the problem of obtaining sufficient cargo space and also of guaranteeing space on outgoing flights from Addis Ababa. Because Ethiopian Air Lines does not guarantee cargo space, one exporter noted a shift to Lufthansa which is guaranteeing 200 boxes per flight at a higher rate. A second issue is the need for a handling company which can facilitate access to cargo space and coordinate space between different exporters for maximization of capacity utilization, which is mutually advantageous for the airlines and the exporters. This is a key role that is currently absent, which creates a significant constraint on the expansion of the industry. This type of handling company, such as 3CL, already exists but has not been promoted for this industry.

A third issue with regard to logistics is that of packing materials. The competitiveness of Ethiopia's product in export markets is highly dependent on the quality of packing materials, specifically the corrugated boxes tailored to different stem lengths. At present, given the weakness of the domestic carton industry, one of the rose farms, Golden Rose, has entered into the business of carton assembly and is distributing to other exporters. The absence of an independent and larger-scale carton industry constitutes a constraint on future industry expansion.

A fourth issue with regard to logistics is the lack of cold storage at the Addis Ababa airport, which would enable consolidation of shipments between exporters and enable better coordination.

Finally, the lack of leasing or rental of refrigerated transport services raises the investment needs of individual exporters and further constrains the expansion of the industry.

6.2.3 Marketing

Given the favorable altitude and growing conditions, Ethiopia's rose industry is targeting the high-end of the European market. This is the same market segment as that of Kenya, rather than Uganda and other African exporters, which are specialized in lower altitude sweetheart roses, with smaller buds and shorter stems. The long-stemmed, large bud roses can be of very high quality, but also require a somewhat longer growing period and humidity control.

Prices are basically determined based upon the peak seasons of Christmas, Easter and Valentine days. The average selling prices is \$0.18 per stem, although there is significant price variation.

Export sales can be made in two ways: either through direct sales via a consignment agent who offers a guaranteed price or through the Holland auction at Elsmere, which offers better price potential but is not guaranteed. In the direct sales system, there is no contracting system because the buyers are not interested in signing contractual agreements and neither are sellers. The sale is on the basis of a guaranteed price (e.g. in Germany 0.14 ct /stem).

The firms interviewed report the majority of sales to Germany, and a smaller share through the Dutch auction (Table 23). In Germany, the firms sell through a single consignment agent, in exchange for a commission rate of 12% to 17%, or USD\$ 0.02 /stem. The agent may also reject the product on quality grounds, although the rejection rate is fairly low, 3% on the average, although it sometimes goes up to 5% to 7%.

In addition to the European market, Ethiopian exporters noted 15% of exports to the Middle East countries during the summer time when European demand declines, with advance payments.

In terms of market competition, exporters indicated that there is limited competition at the moment due to supply constraints to meet demand of their buyers. On the other hand, however, Kenyans are their major competitors. Their competitiveness is through the availability of an organized and strong supply chain. Although Ethiopia has competitive advantages in terms of cheap labor (50% to 60% lower than Kenya), favorable weather condition and a saving of 30% freight cost, it will not beat its competitors like Kenya due to lack of a strong supply chain.

Table 19. Marketing by Ethiopian Rose Farms

	Golden Rose	Enyi	Ethio-dream
Major markets	Germany Netherlands(auction) Dubai	Germany Netherlands (auction) Sweden	Germany Dubai
% Exports with direct sale through consignment agent (at fixed price)		70%	85%
Number of buyers in each country	1	1	1
Average FOB price (€/stem)	0.20	0.14	0.24

Source: Interviews, February 2004

6.3 Price Mark-Up in the Cut-Flower Value Chain

Average operating costs in Ethiopia's flower industry are relatively low, with labor costs estimated at 70 percent of Kenya's labor costs. Similarly, air freight rates are some 30 percent lower than that of Kenya. As seen in Table 26, according to exporters' figures, freight costs amount to 10 percent of the final retail price in per stem values. Calculated on a weight basis, air freight costs amount to \$.98 to \$1.08 per kg, which is considerably less than Kenya or Uganda rates in the range of \$1.30 to \$1.50. This suggests that, while costs may be lower in the Ethiopian rose industry, constraints to competitiveness are due to the inadequacy of freight handling and logistics, the availability and coordination of cargo space, in particular.

Table 20. Price Mark-Up and Farm Operating Costs for Exported Roses

Price Mark-up	\$/stem	% of retail price
Retail sales price	0.35	100%
Agent fee	0.03	9%
Farm operating costs		
-- Salary, chemicals, etc.	0.045	13%
Freight	0.035	10%
Grower price (f.o.b)	0.24	68%
Farm Operating Costs		
Seedlings	Birr	55,628.92
Inputs	Birr	375,448.59
Salaries/wages	Birr	222,459.33
Depreciation	Birr	653,549.33
Interest	Birr	126,419.02
Average production cost	Birr/stem	1.0295

Source: Interviews, February 2004

6.4 Investment and Financing

Rose production for export is a highly capital and knowledge intensive enterprise. As such, rose farms have to invest in considerable fixed assets for both pre-harvest and post-harvest activities as well as in technical expertise and know-how. Thus, pre-harvest fixed asset investment requirements entail the following: propagation house with seedling beds and overhead drip irrigation systems, greenhouse, irrigation system (including reservoir and pump station), land development, agricultural equipment, machinery and vehicles, road and electricity infrastructure, and planting materials. Post-harvest investments include: warehouse, cold rooms, packing units, refrigerated trucks, and buildings (storage, etc). A comparative assessment of initial investments for two Ethiopian rose farms is provided in Table 27. Generally, given the significant fixed costs required at start-up, interviews across firms indicated a starting investment of Birr 20 million (US \$2.3 million).

Table 21. Start-up Investment Components of Commercial Rose Farming (Birr)

Investment Items	Farm 1	Investment Items	Farm 2
Greenhouses (6 ha)	5,257,376	Greenhouses (10 ha)	13,626,648
Irrigation Scheme	255,452	Irrigation system	1,057,777
Machinery and Vehicles	1,257,782	Vehicles	921,784
Rose Plants	2,180,420	Cold store & cooling units	781,862
Agricultural Equipment	223,095	Equipment	2,895,721
Operating Equipment	157,429	Building/other infrastructure	3,963,005
Infrastructure	315,145	Propagation units	424,969
Warehouse (1200 m ²)	1,145,000		
Other buildings	630,576		
Electric installation lines	430,000		
Power supply	153,000		
Total	Eth.Birr 12,295,142		Eth. Birr 23,670,766

Source: Interviews, February 2004

Investment in greenhouses is the single largest investment component, with most of the greenhouse materials imported from abroad according to strict code. Moreover, this investment component does depend on scale, unlike many of the other investment items which have economies of scale, such as farm machinery, vehicles, and buildings.

Given the major investment required, a critical issue facing this sub-sector and its future expansion is the investment climate and financing mechanisms. GR In relation to financing, the business is financed both by local banks and own funds, which account for 40% and 60% respectively.

Interviewed exporters expressed optimism that recent efforts to dedicate financing of Eth. Birr 1 billion for the floriculture industry was a positive sign. However, they also indicated that, in terms of the investment climate, land allocation still remained an issue and that significant efforts were required to reduce the import bureaucracy and restrictions.

VIII. CLUSTER ANALYSIS OF HORTICULTURE VALUE CHAINS

The horticulture industry, while more established than the floriculture industry, is still in an early stage of development. The potential in the sub-sector is very immense. For the year 2004, the targeted volume of exports is about 4,000 ton provided that there is no adverse weather condition. To date, exported volumes to Europe have been around 2,000 to 2,500 tons (Euro 4 million), mainly of fresh green beans, melon, passion fruit, and runner beans. As noted above, to date, Ethiopia's exports to Europe have mainly been of fresh vegetables, with less comparative advantage in fruits due to the higher weight to value ratio. Thus, among sub-Saharan Africa exporters to Europe, Ethiopia ranks 6th, with roughly 7 percent of exported volumes to Europe in 2001. The other top-ranking competitors are Kenya (45%, South Africa 11%, Senegal 7%, Zimbabwe 7%, and Ghana 7%). There is also a significant level of exports to Djibouti through less formal channels, of tomato, onion, orange, banana, and leafy vegetables.

The horticulture sub-sector is characterized by a few major factors. First, unlike the case of flowers, fruits and vegetables have a large domestic market, that is significantly higher than the exported volumes. Second, large state farms play an important role in this industry and there have been recent initiatives to forge partnership and collaboration between the public and private enterprises, evidenced by the presence of both in the association. Third, there is an important parastatal enterprise that is dominating the domestic distribution channels, Efruit. Finally, the market outlet is not only dichotomized between domestic and exports to Europe, but also distinguished by significant exports of fruits to the region, namely through the Djibouti corridor. Thus, while the number of informal or less formal exporters to the region may be high, those with formalized export roles to the European market are few in number.

In terms of institutional support, up to present, the sub-sector has no government stakeholders, unlike the Horticulture Crop Development Authority (HCDA) in Kenya. There are no specialized horticulturalist degree programs in any of the country's agricultural colleges, and thus a significant weakness of skills in this sector. Although there is a horticulture department in the Ministry of Agriculture, it has been fairly ineffective in the development of the sub-sector. Similarly, the national research institution, the Ethiopian Agricultural Research Organization (EARO), has also not focused on applied research in the horticulture sub-sector, unlike in competitor countries.

7.1 The Actors

In terms of the actors, while there are more than 40 companies registered with the Ethiopian Chamber of Commerce, these do not all appear to be commercially viable. A recent positive initiative was undertaken in 2002 to establish the Ethiopian Horticulture Producers and

Exporters Association. When it was established, it consisted of only 5 members from the fruits and vegetables producers. At present, its members have increased to eleven, in addition to nine flower producers (Table 28). The association's objectives are:

- to promote horticulture production and export market;
- to identify the major problems of the sub-sector and possible solutions;
- to represent the members in local and foreign meetings (forums); and
- to conduct training and study tour.

In addition to the above objectives, the Association has already established a Seed Growers Association to assist producers in getting access for seeds.

Table 22. Members of the Ethiopian Horticulture Producers and Exporters Association

	Fruits and vegetable producers	Land holding (ha)	Flower producers	Land holding (ha)
1	ETCO	50 ha	Ethio-Dream	
2	Ethio-flora	74 ha	Summit	
3	Horticulture Development Enterprise	200 ha	Golden Rose	
4	Upper Awash	300 ha	ENYI Rose	
5	Teppo		Ethio-Rose	
6	Valley		Hollela Rose	
7	Awassa Greenwood		Blue Nile Flora	
8	Arsi Mechanisation		Garad PLC	
9	Omega		Menagesha Flower	
10	Gigi Kotare			
11	Dire Industries			

Source: Interviews, February 2004

7.2 Supply Chains

As noted above, there are at least three supply chains existing for horticulture products, depending on the destination market and type of product. In addition, there is a greater degree of involvement of the state in both production as well as marketing.

In the case of domestically traded fruits and vegetables, the supply chain involves supply from the large state-owned commercial farms, such as Upper Awash, Horticulture Development Enterprise, Metahara Sugar, and North Omo Agricultural Development Enterprise to Efruit, the state-owned distribution enterprise. The Ethiopian Fruit and Vegetable Marketing

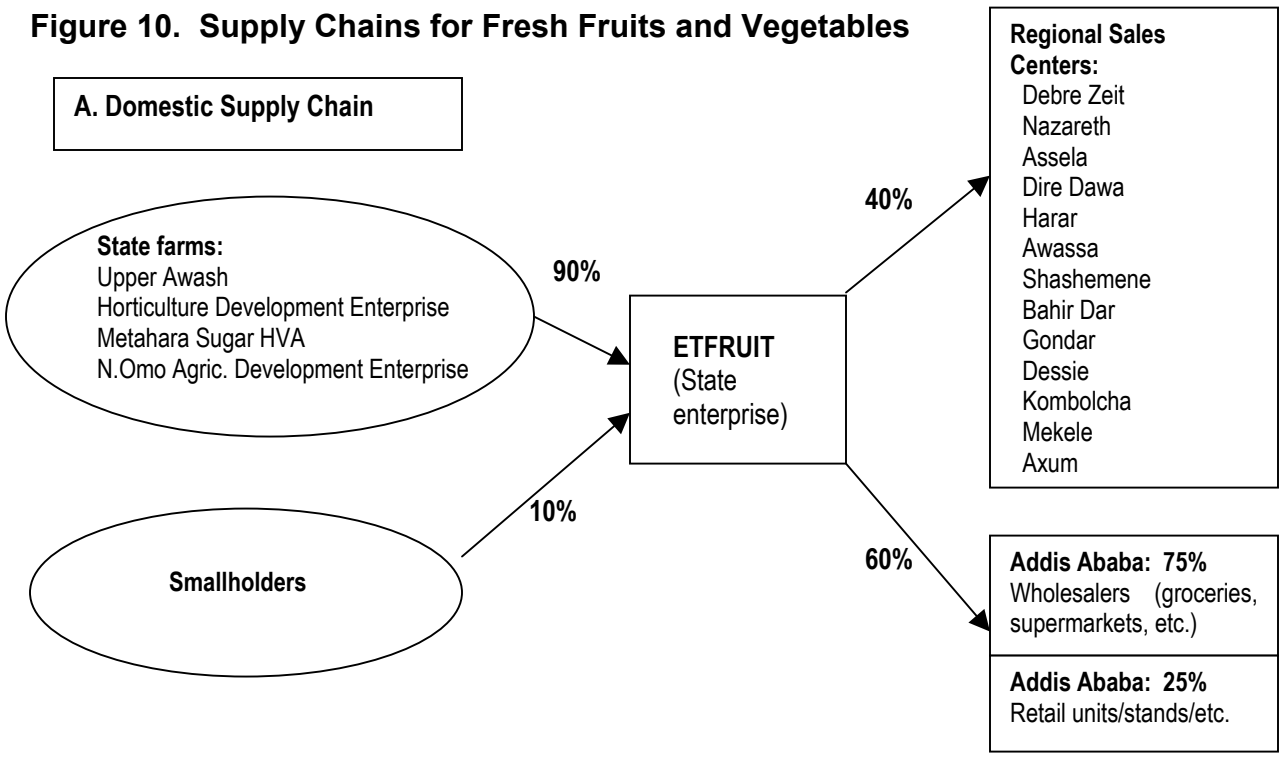
Enterprise (Etfruit) was established in 1980 under the former Ministry of States Farms Development, the Horticulture Development Corporation with the aim of serving as a marketing organ for all state owned horticulture farms. Although 90 percent of its procurement is from state farms, Etfruit is also supplied by small private farms. In terms of its own distribution, Etfruit has developed its distribution centers and branches and is today present in 10 major towns of the country, where it supplies 40 percent of its supply and in the city of Addis Ababa, where Etfruit has three main branches, twenty-one retail shops and thirty mobile shops strategically placed to render efficient service. Etfruit distributes to both wholesale outlets (75 percent) and its own retail units (25 percent).

In the case of exports to the region (Djibouti, Sudan), the supply chain extends from smallholder producers to private exporters in a more informal fashion. This market is generally bulky fruits such as bananas, papayas, and pineapples, quality standards are not strictly enforced nor are the products highly perishable.

Finally, in the case of exports to the European market, where food safety and product quality issues are paramount, the supply chain is somewhat complex. It involves the state farms who export directly to Europe, as well as private exporters with their vertically integrated commercial farms, as well as private exporters who export supplies from smallholders. In addition, the private commercial farms also work with outgrower schemes for a proportion of their produce. Finally, Etfruit is also still a direct exporter although it is no longer a monopoly exporter, as in the past.

Thus, smallholder involvement in the fruit and vegetables sectors is certainly more significant than in floriculture. However, the share of smallholder involvement is difficult to quantify without further research. What is clear, however, is that as the trend for food safety and standards compliance increases in the European market, there will be a greater pressure for vertically integrated private commercial farms. If smallholders are to participate in this sector as producers, they will have to be organized into associations or cooperatives than can enter into contractual outgrower schemes, in which they can effectively comply with process and product standards and norms. Given the high labor intensity of horticulture farming, requiring 32 to 34 laborers per hectare per day, the employment generation effects should be considered as quite important. What is also clear from evidence in Ethiopia and elsewhere is that, despite the higher costs of product monitoring and contract delivery, from a quality and cost perspective, there are considerable gains from smallholder production. Thus, promoting smallholder participation in the European export chain through the promotion of contract farming with organized farmer groups seems to be a sound strategy.

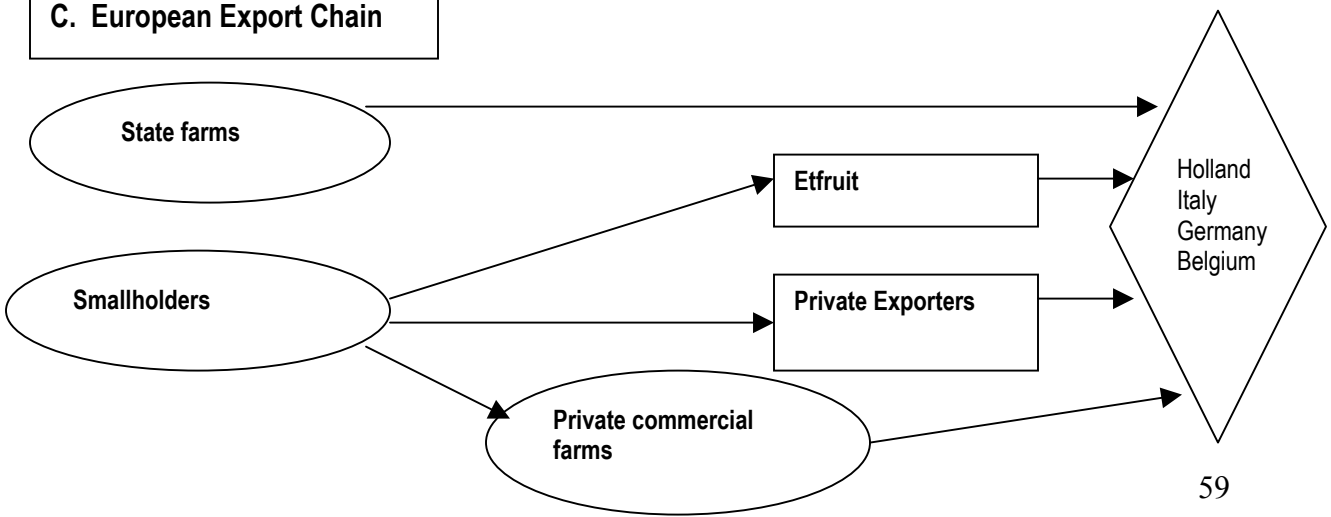
Figure 10. Supply Chains for Fresh Fruits and Vegetables



B. Regional Export Chain



C. European Export Chain



7.3 Market Opportunities

In terms of markets, the bulk (90 percent) of exports are destined to the Netherlands, with the remainder to Italy. In Italy and Netherlands, exporters generally work with a single buyer for each country. From Italy, it is re-exported to Switzerland, Sweden, etc. by re-packing it. Relationships between Ethiopian exporters and the Dutch market have been very positive. The buyers in Netherlands have a very big plant with washing machine, grading, electronics and packing. United Kingdom is also a potential market for extra fine beans.

The prices for bobby beans and runner beans are Euro 2 per kg and Euro 2.5 per kg respectively. Ethiopian produce have a price premium of 10% to 15% over Egypt and Morocco for quality. However, Ethiopia's exports of 2,000 tons lags considerably behind the major suppliers to the European market:

- Morocco 35000 tons
- Egypt 22000 tons
- Senegal 14000 tons
- Burkina Faso 10000 tons
- Jordan 4000 tons
- Kenya 14000 tons (fine and extra beans)

Ethiopia competes favorably in the off-season market with the Mediterranean countries, which are out of the market between mid-January to mid-March.

7.4 Private Commercial Farming for Export

7.4.1 Production

In this section, we review evidence from interviews at a private commercial farm, Ethio-flora. Located in the Zeway area, in the Adamitulu woreda of Oromia region, some 165 kilometers from Addis Ababa, the altitude of the area is between 1200m and 1700m, which is quite suitable for horticulture.

The farm's total production area is 75 ha, with an expansion plan for 25 ha at the present site and an additional 150 ha in Koka, which is about 70 km north of the present farm place. The Koka farm will be jointly run in the form of partnership with the German company called Fischer.

Yield per ha of bobby beans is between 9 kg and 11 kg, which is less than that of Kenya. In terms of value the difference is between \$0.32 and \$0.38. To increase the yield, therefore, the enterprise judges that the following actions need to be taken:

- Change the water management system
- Maintain the soil structure
- Use original seed rather than the multiplication seed
- Train workers and undertake attitudinal change

The total number of labor ranges between 280 and 300, of which 70 are stationed in the pack house. Moreover, Ethio-flora farm is the only farm that has out-growers. There are 70 farmers that are operating under the out-growers scheme. Since these farmers have a limited commercial orientation, the farm has tried to create awareness among the farmers.

The outgrower's scheme is facilitated and supported by two NGOs: the Rift Valley association, which supports 18 hectares of farm, and VOCA-Ethiopia, which supports 7 hectares. Given the difficulty with monitoring the farm management of the smallholders, it was found that the commercial farm's yield per ha is greater than the outgrowers due to the timely watering, weeding, fumigation, spraying, etc.

Regarding research, the farm does not have any commercial trials. However, it has its own trial plots for various fruits and vegetables. On the other hand, the Ethiopian Agricultural Research Organization (EARO) has researched on a commercial basis for onions and tomatoes.

7.4.2 Logistics chain

There are various steps incorporated to channel the final produce to the export markets. From the farm to Addis Ababa, it will take 2 days to transport the products. Before they are transported to Addis Ababa, the products are stored for 2 days in the cold store at the farm.

There are 7 chartered planes every week for transporting the products. Each chartered plane can carry 36 tons. Of these, 8 to 10 tons are reserved for Ethio-flora and the rest are for Upper Awash and HDE.

7.4.3 Standards compliance

Ethio-flora seeks Eurepgap accreditation, which has the following main criteria:

- A traceability system with well kept records
- Latrine, shower, and washroom for employees
- Locked and separate fertilizer and agro- chemical storages
- Packing tables without polythene

In order to fulfill these requirements, the farm has already spent Birr 100,000.

Eurepgap will be implemented in Ethiopia in 2004. There are other African countries experiences such as Kenya and Zambia. Kenya has established an institution called KPCDA that gives support to horticulture farmers. In Zambia, ZEGA is also performing the same function. There is a horticulture college in Zambia that gives post-harvest training to farmers with the assistance of British and Dutch people. MLR and PIP (in France) can be mentioned as other forms of export requirements in the importing countries.

7.4.5 Marketing

The major market outlets are Netherlands (Ethio-flora) and Italy (Upper Awash and Horticulture Development Enterprise). In these countries, the mode of sales is through seasonal consignment agreement. The consignees re-process, grading, repack (in the form of 250gm and 500gm) and distribute to different consumers/ supermarkets (Van Hose company in Netherlands is one of the companies doing this type of business).

The export selling price for Ethiopian produce in the Netherlands ranges between \$1.75 to \$2.00 per kg. These prices represent a quality premium over the major competitors such as Senegal, Morocco, Egypt and Kenya by \$0.10 to \$0.20. Among these countries, Egypt gets high technical support and \$ 0.20 to \$0.30 in subsidy from the government, enabling it to become competitive in the world market

7.4.6 Costs and Price Mark-up in the Value Chain

The farm operating cost is amounting to Birr 35,000 to 40,000 per ha., using local seed. If the seed is imported, the operating cost will increase seasonally. The annual operating cost for the farm is Birr 2.4 million, which excludes the freight cost amounting to Birr 1.7 million.

The number of laborers required per hectare per day is in between 32 to 34 for land preparation and then for grading. Out of this number, 70% of them are women.

Following harvest and packing, the export marketing cost breakdown is:

- Commission cost
- Airport Fees
- Customs
- Loading/Unloading
- Handling

Together, these account for 7% of the gross sale price. Air freight is estimated at 65% to 85 %, inland transport costs from Zeway to Addis Ababa amount to US\$ 0.04/kg, while production cost is between US\$0.36 to US\$0.38 per kg (including packaging). Of the total production costs, packaging materials account for \$0.10 and the remaining \$0.24 is accounted for

chemicals, fertilizer and labor. Due to various reasons, however, these prices have been increasing.

The freight cost from Addis Ababa Bole International Airport to export markets is between \$ 1.28 to \$1.35. Whereas in Kenya, the freight costs for flowers and vegetables are \$1.4 and \$1.5 per kg. Thus, with the various cost items, the grower price is 17 percent of the export sales price (Table 29). Given Ethiopia's lower air freight costs, lower production costs, and slight price premium, this would suggest that Ethiopia's horticulture industry is well positioned for take off.

Table 23. Price Mark-up for Bobby Bean Exports to Europe

Price Mark-up	Price/kg	% of export selling price in the Netherlands
Export sale price	\$2.00	100%
Freight to Europe	\$1.28	64%
Production cost	\$0.38	19%
-- <i>Packaging</i>	\$0.10	
-- <i>Internal transport</i>	\$0.04	
-- <i>Chemicals, labor, fertilizer</i>	\$0.24	
Grower price	\$0.34	17%

Source: Interviews, February 2004

In addition to the above, the foreign cost, which is the commission cost, is in between 40% and 60% of the gross sales.

7.4.7 Investment

While the investment needs are certainly lower than that for floriculture, there remain considerable investment needs, particularly if EUREPGAP certification is to be obtained. According to interviews, the investment items are:

- Farm machinery house
- Pack house
- Cooling System
- Diesel/ Electric Pump
- Stand-by Agro-Chemical Supply
- Grading Equipment
- Farm tools
- Radio Communication

The total investment cost per ha amounts to Birr 50,000 to 60,000. The highest cost is for electric installation, which costs around Birr 400,000 per km.

In almost all the exporting farms, advanced post harvest techniques are applied. Modern cooling facilities have been installed to ensure the freshness and quality of the products. All overseas deliveries are packed as per the standard requirements for fresh fruits and vegetables and precautions are taken to make them free of chemical residue.

7.5 An Overview of the Domestic Marketing Parastatal Etfruit

Started some 30 years ago, following the decentralization and liberalization of the country's economic policy, Etfruit was reorganized in 1993 by the council of Ministers Regulation No. 131/1993 in accordance with the provisions of the public Enterprise proclamation No. 25/1992. In 2002, Etfruit was further re-organized into a share company. Thus, while it initially operated on a consignment basis, whereby it operated on the basis of commission fees, it shifted to a direct procurement system where it purchases either with cash or advance payment from state and private farms. The scope of its services were extended to include private horticultural producers striving to enter the export market. Given that Etfruit is the major domestic distributor and leading exporter of fresh fruits, vegetables, cut flowers and processed horticultural products in Ethiopia. Thus, the future of the industry is tied to the outcome of this major state-owned enterprise.

7.5.1 Scope of Operations and Services

Etfruit is the major domestic distributor and leading exporter of fresh fruits, vegetables, cut flowers and processed horticultural products in Ethiopia. The types of fruits delivered to domestic markets are oranges, mandarin, grapefruit, lemon, lime, mango, and avocado. guava, banana, processed horticulture products such as tomato juice orange marmalade, orange squash, and grapefruit squash and guava nectar.

The marketing services of Etfruit have reached a considerable stage of development during the two decades due to its well-established market network and other related facilities. Currently, Etfruit has 284 workers including top management staff. In addition, the enterprise hires from 200 up to 400 casual laborers annually depending on the flow of produce. The sales operation of Etfruit is broadly classified into two parts: domestic and foreign sales operations.

The major supplies of fresh fruits and processed products are the Upper Awash Agro-Industry Enterprise, the Horticulture Development Enterprise and Metehara Sugar Factory followed by small private horticulture growers and North Omo Agricultural Development Enterprise.

In terms of its foreign sales, the export of horticulture produce including cut flowers has been developed in the last 15 years. During this period, sound market penetration has been achieved in the Netherlands, Germany, Italy, France, Belgium, Switzerland and East block countries. There are four major categories of horticulture product export. These are fruits, vegetables, cut flowers and processed horticulture products.

Products exported through Etfruit come mainly from large-scale state owned commercial farms even though small-scale private farms are being encouraged. Major suppliers to Etfruit are thus: Upper Awash Agro Industry Enterprise, Horticulture Development Enterprise, Ethio Flora Private Limited Farm (Private Company), North Omo Agricultural Development Enterprise, and Metehara Sugar Enterprise.

Etfruit also renders other services to the sector, such as

- Market information
- Refrigerated Semi trailer truck transport rent
- Supply of quality imported seeds and various export packing materials.

7.5.2 Equipment, Assets, and Financial Capacity

The enterprise owns its own stores, refrigerated trucks, and non-refrigerated and ordinary trucks. The company has 28 refrigerated trucks and a capacity of 1000 ton refrigerated cold store. All export produce is transported to the ports of shipment by refrigerated trucks while non-refrigerated and ordinary trucks are used for domestic ones.

Etfruit handles The volume of goods handle locally 19374 metric tons to 49526 metric tons and 106.6 million by the enterprise ranges from in value from Birr 12.8 million to the export sales volumes have likewise shown an increase from 454 metric tons to 32904 metric tons and in value from Br. 0.9 million to 22.2 million.

The company has branches in most of the regions, with locations in Bahir Dar, 2nd Distributor, Addis Ababa, Afincho Ber, Addis Ababa, Debrezeit, Nazareth, Metehara, Harar, Dire Dawa, Assela, Shashemene, and Mekele.

The enterprise was established by regulation No. 131/1993, with an authorized capital of Birr 828,000, of which 317,000 was paid up in cash and in kind. Under the public Enterprises Proclamation, the Government has five years to pay the authorized capital.

According to Article 20 of the public Enterprises Proclamation No. 25/1992, the authorized capital of an enterprise should be fully paid up within five years from the date of establishment. The enterprise was established on 19th November 1993. A period of more than seven years has now elapsed. Hence, the authorized capital ought to have been fully paid up or the capital of the enterprise ought to have been adjusted to the level of the paid up capital.

However, after asset revaluation and financial restructuring of the enterprise, its capital was revised to Birr 30,639,433.

7.5.3 Price Mark-Up in the Domestic Value Chain

Although Etfruit is considered a profitable enterprise, there appear to be significant inefficiencies in its costs structure. As the only procurer of fruits from state farms, it has a monopsonistic position which enables it to maintain profits. Looking closely at its cost structure in the domestic value chain for fruit marketing, it would appear that the enterprise incurs quite high costs of disposal and labor costs (Birr 7.00/quintal) and of staff expenses related to marketing (Birr 10.53 /quintal), or 14 and 21 percent of the gross margin, respectively. These are expenses which, in addition to the overhead costs, can be driven downward through market competition, resulting in a lower final price of fruit and the potential to expand exported volumes to the regional market, at the least.

Table 24. Price Mark-Up for Oranges in Domestic Market

Cost Items	Birr/quintal	% of Sale Price	% of Gross Margin
Purchase price	83.09	62%	
Labor	0.70		
Packing	0.30		
Loading to sales center	0.12		
Unloading at sales center	0.11		
Sales crate boxes	0.07		
Packing materials	1.00		
Transport farm to Addis	16.04	12%	32%
Transport to sales premise	1.25		
Distribution expenses (staff)	10.53	7%	21%
Disposal and labor costs	7.00	6%	14%
Weight loss	3.00	4%	6%
Overhead costs	5.90	3%	12%
Profit	4.00	3%	8%
Sale price	133.30		
Gross Margin (sale-purchase price)	49.91		

As an indication of the loss of competitiveness from high sea freight costs to the Middle East, for exports to the Djibouti market, the transportation cost from Addis Ababa to Djibouti is Birr 19,000 for 200qt, i.e. \$2100 per container. From Djibouti to Jeddah, the sea freight cost is \$600 per container. The Ethiopian Shipping Lines, which monopolizes the shipping business in Ethiopia, has no any refrigerated cargo.

7.5.4 Constraints to Performance and Expansion

Among the many constraints identified by the enterprise that limit its potential for expansion, the key constraints are:

- Insufficient supply to meet market demand
- Poor quality of the products, for instance, citrus fruit is poor in quality due to cultural practices, which makes it uncompetitive in Dubai market.
- The existence of 40 years old age citrus trees
- Need to address varietal improvement and better practices
- Need to address the prevalence of citrus fruits disease, and implementation of envisaged research by EARO
- Lack of refrigerated cargo by the Ethiopian Shipping Lines (ESL)
- Adequate extension and planting materials provision to outgrower schemes, and
- Need for better quality packing materials.

The fruits and vegetables sector presents growth opportunities both in terms of the expanding domestic market and the regional and even European market, which is as yet largely untapped.

7.6 The Cooperative Model: The Case of Adamitulu Jido Kombolcha Peasant Cooperative

In this section, we review the role of another important set of actors, smallholders organized into collectives or cooperatives, through a focused interview with the cooperative engaged in an outgrower scheme with Ethio-flora in Ziway.

The Adamitulu Jido Kombolcha farmers are supported by an Ethiopian NGO, the Rift Valley Children and Women Development Association, as well as VOCA-Ethiopia. Unlike the Rift Valley Association, VOCA-Ethiopia mainly focuses on training, not on credit services. It forms partnership with the government to give credit (through the government channel).

7.6.1 Production

The 3 sites visited, namely, Haleco, Golba and Dodocha cooperatives consist of various land coverage. Accordingly, the production also varies. The average land holding per smallholder is, however, 0.25 ha.

In these cooperatives, farmers grow bobby beans, soya beans, onions and maize are mainly grown. These are grown in collective holdings of 7 ha , 13.3 ha (Golba 1,8ha and Golba 2, 5.3ha) and 25.7 ha in Haleco, Golba and Dodocha respectively. Dodocha grows 6.7ha of green beans, 14ha of dry beans and 5ha of onions.

The farmers are using cultural practices in order to produce a quality product. There are various parameters considered in the planting processes. Through the creation of awareness among the farmers, these parameters can be trained. These are: -

- Land Preparation
- Land Leveling
- Seeding (environmental friendly)
- Location
- Irrigation
- Fertilizing (broadcasting not fustigation)
- Crop Protection
- Weeding

With regard to the results of the above activities, the farmers together with their cooperative's agents will evaluate their performance every year.

The average cost of production of the cooperatives is Birr 4000 per ha as compared to Ethio-flora, which is Birr 6000. These costs include various items such as:

- Seeds
- Fertilizer
- Canal Maintenance (by farmers)
- Drop Structures Maintenance
- Erosion Protection (because the soil is sandy)

All in all, the irrigation maintenance cost is amounting to Birr 52000.

In Golba cooperative, the cost of tractor service is Birr 240 per ha. Likewise, winnowing and ridging are costing Birr 130 respectively.

In Dodocha cooperative, the cost of production for 1ha is Birr 4000 and for 1.75 ha, it was found to be Birr 7000.

As per the beneficiaries of the aforementioned cooperative, with the total investment of Birr 23000 and operating cost of about Birr 7000 for 1.75 ha, they generate a profit of Birr 16000.

7.6.2 Outgrower Contract

The products are sold to Ethio- flora, which has its own farm close to the cooperative farms. In collaboration with Rift Valley NGO and VOCA-Ethiopia, Ethio-flora is handling the marketing business. The outgrower schemes are used in order to get the supply from the cooperatives based upon the contractual agreement signed between 3 representative people from the cooperatives and the marketing enterprise which is Ethio-flora.

The out growers scheme was developed from Kenya's (Lake Naivasha) experiences. This scheme has solved the local market problems through the creation of linkage with the private sector, i.e. Ethio-flora.

Before planting, the contractual (forward contracts) agreements are made, i.e. a fixed price contractual agreement. Through this process, the cooperatives are responsible for negotiating with either Ethio-flora or VOCA-Ethiopia. Prices for the products are determined before production is being harvested through negotiations between the enterprise and the beneficiaries. It is based upon the production cost estimates. The one time set price is subject to change through negotiation at every production period. For instance, Bobby beans are sold for Birr 1.85 per kg or Birr 185 per quintal.

7.6.3 Challenges and Opportunities for Expansion

The cooperatives have a very big potential for developing. However, their sustainability is very challenging due to various reasons: -

- Acute shortage of water supply. The farmers have a strong fear due to the fact that many investors are using the Zeway lake water (by power pumping) at a large scale in the upper stream of the Bulbula River. If this rate of utilization continues at this pace, within 5 years time the lake water will be depleted.
- Obsolete pump machine
- Budget constraints

The future prospect of the farming activities are mainly dependent on the strength of the farmers, the supports given by different stakeholders and above all the continuity of water supply for irrigation. Therefore, all the concerned organizations should be involved in solving the existing problems of the cooperatives.

Moreover, the following issues have to be addressed:

- Furrows irrigation systems should be replaced by drip irrigation systems in order to increase the yield per ha and also to economize the water consumption by various water users. This situation of water shortage was observed at a time of field visits in the area
- Catchments should be done in order to protect the environment.

Other initiatives in this area are efforts by VOCA to link small growers in the area with buyers/exporters to sell their produces. It is also undertaking agreements with farmers on a contractual basis to produce and sale their products. Ethio-flora and Green Star are also the major clients for the products. The Green Star Company, which is located in Debrezeit, is a vegetable-canning factory, which will be fully operational in March/April, 2004.

The company is owned by a Canadian-Ethiopian. It is dealing with 600 farmers organized in 4 primary cooperative (associations), which owned 600 ha of land. They will use potential irrigable area of 2,000 ha.

The 4 associations have formed a cooperative. Each member is a shareholder. They have access to input and output marketing services. The services, which the cooperative unions rendered to the members, are the selling of inputs such as fertilizers, selected seeds, herbicides, etc. They also get dividends at the end of the year.

Moreover, they have access to credits from the cooperatives. The loans are mainly short-term and are used for storage facilities (2 years loan repayment) and irrigation equipment (3 year loan repayment).

Technical assistances are also given to farmers. These are in the form of trainings:

- TOT Training
- Household Training
- Seed-bed, post harvesting, vegetable
- Protection and quality control training
- Production Training
- Storage Training

7.6.4 Marketing Challenges

Since the cooperatives do not have cold store at their farms, the buyers come and collect the product on a given time period. The products are assembled by the cooperatives before the buyers come to collect them.

There are various organizations involved in marketing (buying) the products.

- The Alemaya cooperatives are supplying to the exporters in Dire Dawa.
- Ethio-flora comes and collects the same day picked products. It uses trucks to collect the haricot beans. It selects, packs and transports them to Addis Ababa by cold-truck and then export them by using Ethiopian Airlines. All the processing activities are done at the Ethio-flora farm in Zewaye.

VOCA-Ethiopia is handling 2,000 cooperatives with 500 people in each cooperatives. For instance, in Alemaya and Meki-Zeway areas, there are 300 and 600 members respectively. These numbers will increase by 10% every year around Meki-Batu area.

7.7 Constraints and Challenges to Horticulture Development in Ethiopia

Given Ethiopia's potential in the horticulture and floriculture production, the government should provide holistic support to the sector, as have other emerging countries. Despite the opportunities and potential for horticulture development in Ethiopia, several major constraints emerge. These are:

- Freight risk (unavailable space and high transportation cost).
- Weather risk (unexpected rainfall)
- Price subsidy for countries like Egypt US\$ 0.20 /kg)
- Poor quality of packing
- Competitors proximity to Europe (US\$0.65 / kg-the freight cost) or US\$ 0.25 /kg for refrigerated boat. Senegal and Ghana has already started shipping their produces to France by refrigerated boats.

During the Public-Private Partnership (PPP) discussions, many issues were raised by the private sector, including:

- Access to long term loan including grace period
- Rescheduling of loan due to adverse weather conditions
- Research on horticulture and floriculture
- High freight cost due to the monopoly nature of the Ethiopian Airlines, which is consuming about 80% to 85% of the gross sales.
- Lifting up of the regulations on imported seed
- Privatizing state owned horticultural enterprises i.e. requests were made for Tsedy, Helen and Koka farms.
- Access to power, telecommunications, road, etc.

Some of the above issues such as access to finance have been materialized and some are still in the pipeline.

In the analysis conducted by the horticultural exporters and producers association, the key threats to the horticultural sector are the lack of financial and technical assistance to private sector operators, the lack of adequate cargo handling and cold chain, inadequate varietal trials, inadequate packing materials, and unfair competition abroad (Box 1).

These issues suggest that, returning to Porter's paradigm of competitive advantage, that the road map to promoting this sector must be holistic and multi-level. The challenges for public policy are to enhance the private investment climate, to invest in technical capacity for innovation, to invest in infrastructure, to create and reinforce the need institutional support, and to provide inputs to the industry.

Box 1. Opportunities and Threats Identified by the Private Sector

Opportunities

Ample demand for horticultural products

There exists many niche markets for a wide variety of products, most of which could be produced by one or the other farms. In most cases the problem is not the market but it remains to be the question of competitiveness and/ or economies of scale.

Suitable agro -ecological factors

This opportunity gives all - year - round production capability. Generally, this is an advantage over many other competing countries. The untapped natural resources promise a very successful horticulture business more than anything else, as far as agriculture is concerned.

Strong business image for Ethiopian vegetables and flowers in the European markets

Ethiopia is very well known in some parts of Europe especially for her green beans, climbing beans, cut flowers, okra, melon and passion fruit. There is demand for these Ethiopians products during a particular period and a great volume is re-exported.

Threats

Lack of financial and technical assistance to private investors

The situation most of the private investors have faced is different from what is predicted during the pre-feasibility stage. Consequently, the projects are left with a financial position for which adjustment of loan repayment schedule and additional capital injections are not only required but also seem to be indispensable.


Inadequate cooling chain and cargo handling

Obviously, such post harvest handling practices as maintaining the desired temperature of the product have a direct relationship with its value. Reportedly, competing countries, in addition to their proximity to the market, enjoy the advantage of many and frequent passenger flights.


Increase in the level of production of competing countries

Due to a strong support to the private sector gained from governmental & non governmental organization.

 **Inadequate variety selections & development program** for improved hybrid cultivators of horticultural crops.

 **Inadequate testing and registration of agro - chemicals and commercial and organic fertilizers for horticulture crops.**

 **Increasing cargo freight cost for horticulture export products.**

 **Poor quality of the packing material.** The only one carton factor at Wonji could not produce packing material as per the market requirement and this becomes a major constraint.

VIII. MEETING THE CHALLENGES: A ROAD MAP

In sum, while the specific issues facing the different sub-sectors, floriculture and horticulture, differ, there are several cross-cutting challenges that concern both sub-sectors. The overview provided in this study suggests that a future road map for flori-horticulture development should focus on the 5 I's: investment, infrastructure, institutions, innovation, and inputs.

Investment. The first cross-cutting issue concerns the need to increase the level of investment through removing the disincentives currently in place and making the business environment more attractive for the private sector.

Institutional Support. Second is the need for an enhanced institutional environment that provides support to the sector. The Kenyan case demonstrates that all three of the core functions of production, logistics, and marketing require concerted public sector support and an active public-private partnership. In Ethiopia, a dedicated support agency such as the HCDA does not exist, nor is there a corresponding department in the Ministry of Agriculture that is actively engaged in the sector. Similarly, the commitment to establishing a national level institutional response, such as KEPHIS in Kenya, to ensuring the compliance of Ethiopia's industry to the increasingly stringent quality and food safety standards of the European market has yet to emerge.

Infrastructure: Physical and Technical Capacity. Third, there is a need to develop the basic infrastructure—roads, power, and water—to enable the expansion of the industry; to develop and improve the packaging industry; and to increase the technical capacity of producers and those in the handling function.

Innovation. Fourth, because this is an industry that relies on constant change and improvement to maintain competitiveness, further effort must be made in both flowers and, to a greater extent, in fresh produce to foster innovation in the product lines. This requires a closer linkage between EARO, agricultural universities and colleges, and the private sector in the identification of new products or improving existing ones.

Inputs. Fifth, the provision of inputs, in particular planting materials and cost-effective chemicals, is a critical issue.

The specific components of an action plan for supporting floriculture could include:

- education and training in horticulture in general and flower farm management in particular;
- applied trials of intermediate rose varieties and other flowers at higher altitude locations;
- facilitating the creation of an Ethiopian Flower Exporters Association
- capacity building in government and administration in the horticultural sector;
- assistance in the implementation of quality systems required by clients; assistance in the implementation of integrated pest management to reduce chemical usage and assistance in the implementation of corporate socially responsible farming systems;
- research and development in growing technology in hydroponics;
- attraction of additional investors in the horticultural sector, both foreign and local;
- promotion of flowers from Ethiopia
- implementation of horticultural education programs and extension services from the know-how center; assistance to existing present entrepreneurs and prospects in the field of making business plans;
- stimulation of open information exchange between farmers and cooperation.

In the case of horticulture, the road map components could include:

- putting into place credible institutions to facilitate the capacity of the industry to meet compliance standards and reduce transaction costs;
- strengthening research and extension capacity in order to develop and adapt product lines;
- increasing technical capacity through training and sensitization at pre-production, production, post-harvesting, and handling levels;
- increasing physical capacity, in particular through developing the packaging industry and increasing the cold storage and transport capacity;
- facilitating access to finance: credit and equity funds;
- facilitating the participation of smallholders through training, developing appropriate monitoring systems, and re-enforcing and supporting out grower schemes;
- strengthening and training producer groups that can effectively comply with traceability requirements; and,
- developing alternative domestic and regional markets, with particular consideration of emerging supermarket chains.

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