

Technical Paper

THE GLOBAL COMPETITIVENESS OF THE KENYAN FLOWER INDUSTRY

Prepared for the Fifth Video Conference on
the Global Competitiveness of the Flower Industry in Eastern Africa

December 2011



For:
World Bank Group
Kenya Flower Council



Author: Milco Rikken
www.proverde.nl



Contents

1 Introduction	3
2 Development of the global flower industry	3
2.1 Development of the global flower industry	3
2.2 Leading flower exporting countries: the big five	4
2.2.1 Kenya	5
2.2.2 Netherlands	5
2.2.3 Colombia	7
2.2.4 Ecuador	8
2.2.5 Ethiopia	9
2.3 Other countries	9
3 Policies and incentives towards floriculture	12
3.1 Role of government policies	12
3.2 Policy and policy guidelines in the leading flower exporting countries	13
3.2.1 Kenya	13
3.2.2 Netherlands	14
3.2.3 Colombia	16
3.2.4 Ecuador	17
3.2.5 Ethiopia	18
4 Driving forces for horticultural development	19
4.1 Impact of external forces	19
4.1.1 The currency triangle: euro - dollar - national currency	19
4.1.2 Climate	20
4.1.3 Oil prices	20
4.2 Internal factors driving development	20
4.2.1 Government policies	20
4.2.2 Sector cooperation	21
4.2.3 Research and development	21
5 Review SWOT of the Kenyan flower industry	21
5.1 External factors	22
5.2 Internal factors	22
6 Projections and recommendations	24
6.1 Projections	24
6.2 Key challenges and recommendations	24
References	28
Appendix 1 Dutch agricultural knowledge system	29



1 Introduction

The World Bank, using funding received from the All ACP Agricultural Commodities Program (AAACP), has organised, in cooperation with the Kenya Flower Council (KFC), a series of video conference-based seminars (VCs) on topics pertaining to competitiveness in the floriculture industry. The World Bank series will be integrated, albeit independently organised, into a larger CDE funded activity of the KFC on issues pertaining to regional competitiveness. The 5th seminar, held on the 29th of November 2011, covered the issue of global competitiveness of floriculture production in the East Africa Region. Participating countries in the VC were Ethiopia, Kenya, Tanzania and Uganda.

The objective of this paper is to offer an analysis of the competitiveness of the Kenyan flower industry and by extension the East African producers compared to other global producers and exporters.

Given the lead position of Kenya in the regional East African industry, it has been deemed appropriate that the focus be on developments in Kenya. We therefore intend the paper to give insight into the main issues around competitiveness in order to provide a contextual and experiential learning point for the other countries involved in the video conference.

The paper is organised as follows:

- Section 1 introduces the background and objectives of the paper.
- Section 2 provides a summary of the developments in the global flower industry over the last 10 to 15 years, targeting the EU market. Experiences from leading exporting countries are highlighted.
- Section 3 offers a bird's eye view of the policy and policy guidelines that are operational in the major flower growing countries.
- In Section 4, driving forces for horticultural development are identified. Incentives which really promoted the development of industries in the leading exporting countries are brought to light.
- In Section 5, existing SWOT analyses of the Kenyan flower industry are reviewed, taking into account the results of the preceding video conferences and lessons learnt in other leading countries.
- Finally, Section 6 provides recommendations to strengthen the position of the Kenya flower industry for further growth in the next 10 years.

2 Development of the global flower industry

2.1 Development of the global flower industry

The present-day flower industry is a dynamic and highly international industry. Significant growth rates have been achieved during the past few decades. Trade is dominated by south-north flows with Europe and North-America housing the world's largest consumer markets, while the producing countries are situated close to the equator. For the past ten years, the leading flower exporting countries have been the Netherlands, Colombia, Kenya, Ecuador and Israel. Since a few years, Ethiopia has joined this list, while Israel's position has weakened.

A comparison of last year's figures with 2004 confirmed that production growth took place in countries around the equator. Since 2004, production area in Kenya has grown by 1,400 hectares, newcomer Ethiopia by 1,568 ha, Ecuador by 421 hectares and Colombia by 300 hectares. In Israel and the Netherlands, production area shrank. Given the rise in export value, the Netherlands nevertheless continues to play a key role in the international flower trade, being both the largest importer of flowers from outside the EU and the main supplier of flowers to other EU countries.

The astonishing growth of flower production in the countries around the equator, however, was not gradual, and certainly not automatic. Producers were hit hard by the economic crisis. Production in Colombia and Ecuador has even dropped in recent years.



There is a general feeling that the industry faces a period of dramatic changes as it responds to the challenges posed by economic conditions. Market demand is stagnating, while the supply of flowers is abundant. In the medium and long term, a moderate growth of only 2 to 4% annually is expected in Western Europe's cut flower markets. In addition, consumer demands, and subsequently trade requirements, are becoming more demanding and increasingly differentiated. The demand for sustainable produced and distributed products is rising.

As a result, margins are under pressure and playing rules are changing significantly in the flower industry. The industry is evolving towards lean and transparent supply chains. Direct trade channels, bypassing the auction system, are growing. An acceleration of technology and knowledge development is witnessed, not only in cultivation, but particularly in the way flowers are traded. Transactions are increasingly handled by means of computer systems. More than 60% of the roses traded at the FloraHolland auction are sold through the remote buying system 'KOA'. European wholesalers offer products in their own online web shop, where customers (wholesalers and retailers) can buy directly from stocks. Trade becomes virtual making accurate exchange of information critical.

Another important trend that can be noticed is the increasing relevance of social and environmental standards in the European flower trade. New patterns of consumption, media pressure, and campaigns by non-governmental organisations (NGOs) have generated consumer interest in the conditions under which flowers are produced in the developing countries. Nowadays, the market is characterised by the existence of a multitude of standards in the form of certification schemes, codes of practice and a handful of consumer labels. One of the reasons for this large number of co-existing certificates is the fact that retailers tend to adopt those standards which best meet their needs. There is even a strong trend among large retailers to set up their own private standards. So, although fragmented, the importance of standards in the European flower is increasing¹ (ProVerde 2010).

It is expected that high-tech developments and ever stricter requirements for suppliers continue in the future and will increasingly determine who is allowed to participate in these chains. Further growth of flower cultivation in East Africa will depend for a large part on the ability to adapt to these changing conditions.

2.2 Leading flower exporting countries: the big five

The five leading global flower exporters in terms of export value of this moment are the Netherlands, Colombia, Kenya, Ecuador and Ethiopia. These countries are competing with each other on the same markets in Europe, Russia, and North-America, and competition is getting more tense every year. This increased rivalry is partly due to stagnating demand, but also as a result of the growing number of large-flowered roses grown in Africa and the generally improving quality of the African products.

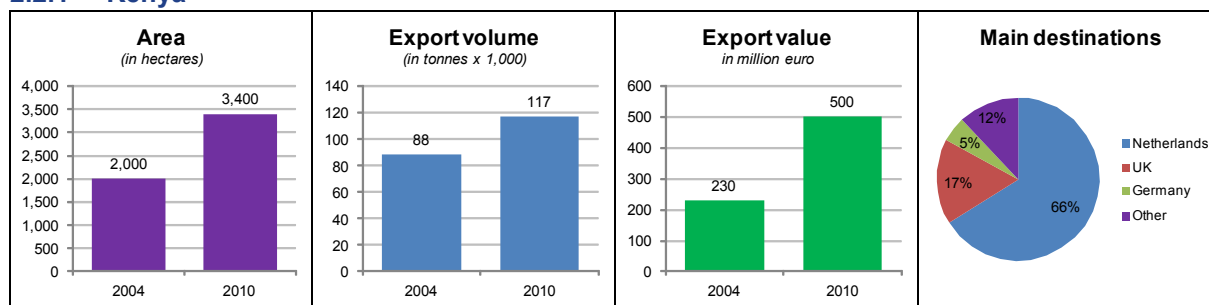
Ecuador, and to a lesser extent Colombia, are exporting more flowers to Europe and Russia than a few years ago. Russia has already become an important market for Ecuador. Colombia is also increasingly targeting European markets, which traditionally are supplied by Dutch and African flowers. Kenya and Ethiopia have started to supply the Russian market as well.

Competition on the North-American market is also increasing. Ecuador is looking to increase its market share in the coming years. Kenya is still struggling to develop its exports to the USA, despite the absence of import duties. US airlines and the Kenyan government are discussing possibilities of opening up direct flights between the two countries.

¹ Moreover, as a form of industry self-regulation, producer associations in developing countries have also become quite active in introducing new standards and codes of practice. Examples are the Kenya Flower Council with their KFC Code of Practice and Asocolflores, Colombia with their Florverde standard, and the Code of Practice for Sustainable Flower Production by the Ethiopian Horticulture Producer and Exporters Association (EHPEA).



2.2.1 Kenya



Source: Vakblad voor de Bloemisterij, Kenya Flower Council (2011)

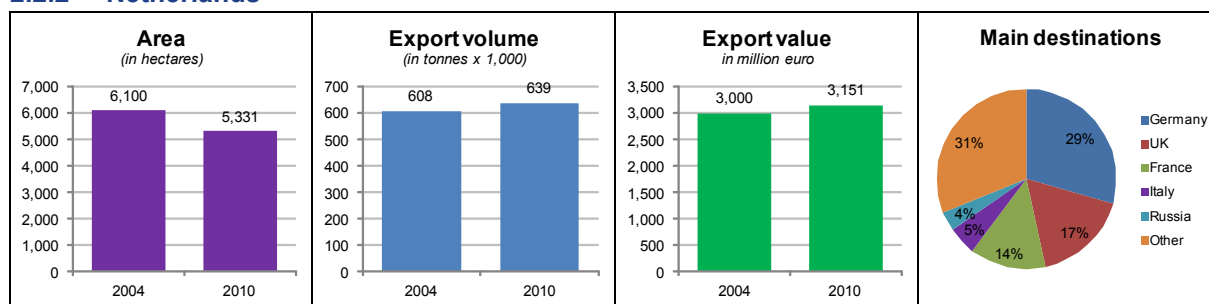
The Kenyan flower industry has grown tremendously since the turn of the century. In 2000, production area was an estimated 750 to 1,000 hectares with about 38 thousand tonnes of flowers being exported. In 2004, the sector had already grown to 2,000 hectares. Now, there are about 3,400 hectares of flowers (greenhouse and outdoors) with 117,000 tonnes of flowers exported last year. Kenya grows mainly roses, carnations, statice, alstroemeria, liliium and a variety of summer flowers.

Kenyan companies have long benefited from a strong euro, making their costs in Kenyan shillings and US dollars relatively low. This advantage continues as the Kenya shilling has lost 40% of its value against the euro since January this year (as of November 2011). Labour and energy costs are low compared to other countries. Kenyans still pay no import duty when exporting to Europe.

Growth, however, has not always come easily in Kenya. Particularly the last years have shown to be a challenge. In 2008, Kenya was confronted with political unrest, which affected the sector for a few weeks. Flowers could only be exported with difficulty. Some farms did not get the flowers out for some days. That year, the sector also faced increasing transportation costs due to high oil prices. In 2009, there was the economic crisis that resulted in lower prices. That same year, a long period of drought began that lasted for some time into 2010. In 2010, there was the Icelandic ash cloud and the weakening euro against the dollar. Air freight costs increased and heavy rains last year affected production. On the other hand, prices were generally better in 2010 than the year before.

The problems meant that there was hardly any expansion in 2009 and plans for 200 additional hectares were put on hold. In 2010 and 2011, Kenya returned to growth, partly because many farms are switching from small- to large-flowered varieties. The market asks for this assortment. Because large varieties are less productive, growers expand to maintain overall production level.

2.2.2 Netherlands



Source: Vakblad voor de Bloemisterij, HBAG (2011)

The Dutch floriculture industry is widely known as the leading industry in the world. The Netherlands has quite advanced methods of production and innovative marketing mechanism. Growers are supported by well-developed services in terms of research and development, and an efficient distribution system that is well connected by air and by ground transportation with the most important producing and consuming countries. The driving force for the success of the industry is related to the

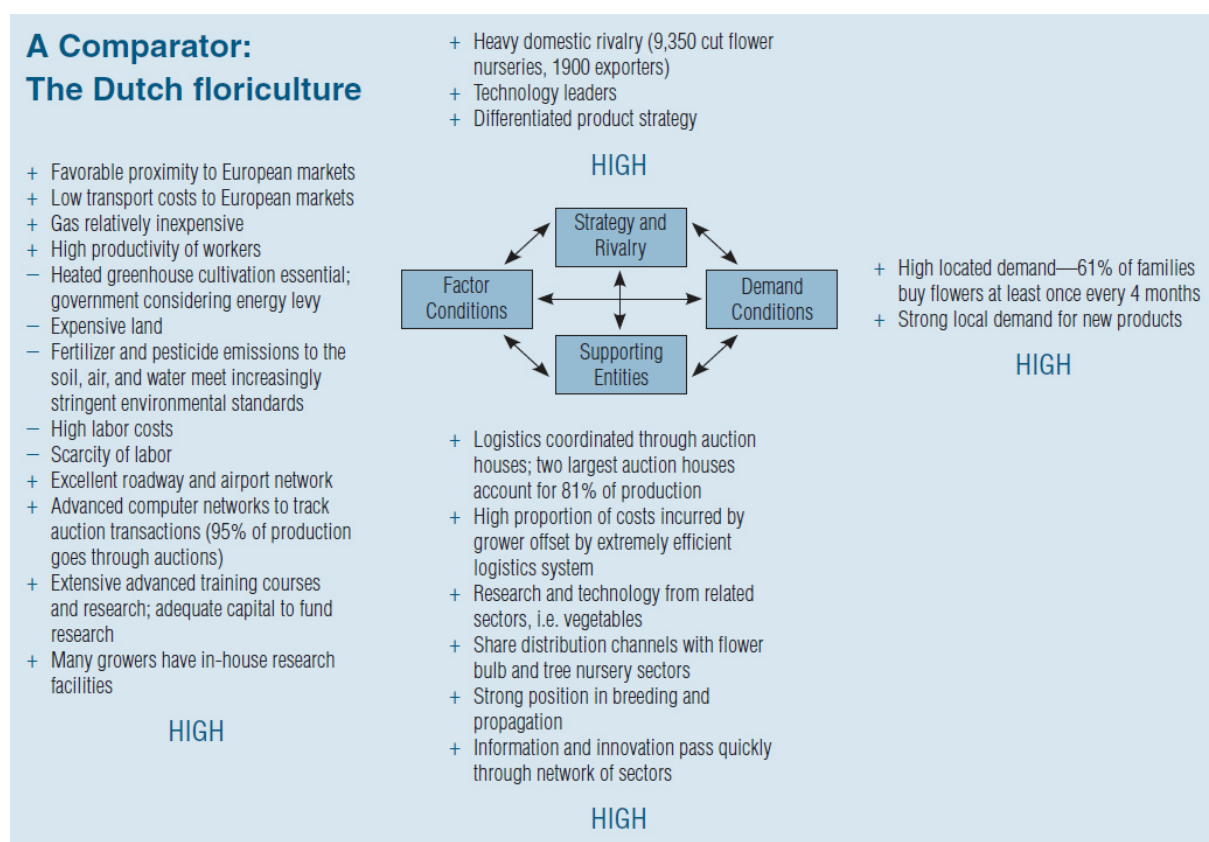


crucial role of the auctions, the well-developed infrastructure, a drive for innovation and a strong sense of cooperation. (Kargbo 2010, World Bank 2009)

Nevertheless, Dutch flower production is struggling. Outdoor production has grown in recent years by about 385 hectares since 2004, but production in greenhouses declined by no less than 1,154 hectares. Costs for labour, energy, land and greenhouse construction are high, government regulation is relatively strong, and the impact of the economic crisis is also felt in the Netherlands.

All factors translate into an increasingly disadvantageous competitive position towards other producing countries. Illustrative is the strong decrease in the rose sector, which is directly affected by production growth in Kenya, Ethiopia and Ecuador. The Rose production area fell from 748 hectares in 2006 to 499 hectares last year. Before roses, carnation and gypsophila suffered similar fate. Also, some summer flowers such as hypericum, solidago and eryngium are mostly gone abroad.

Fig 1. Applying the Porter Diamond to the Dutch floriculture industry



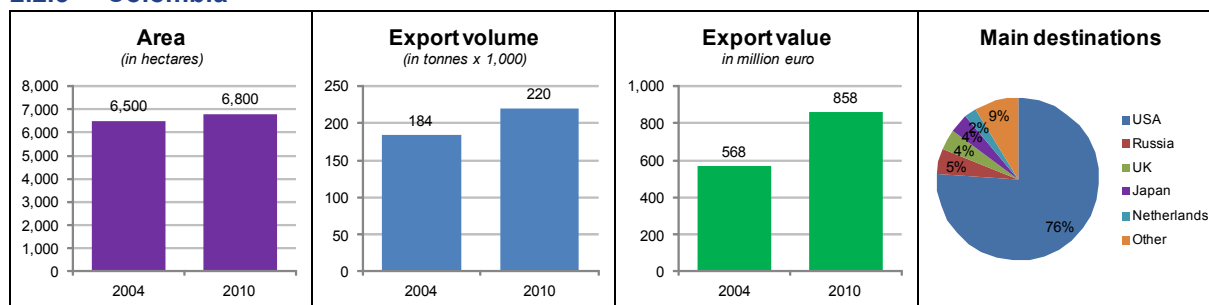
Source: World Bank (2009)

To offset the high costs, Dutch growers need high yields. This leads many of them to intensive cultivation of species with a high production. On an area smaller than that of Colombia, the Dutch produce more flowers. The Netherlands is also renowned for its broad assortment, which is available within 24 hours, 365 days a year.

Notwithstanding the decline in production area, the Netherlands' position in the global cut flower trade remains unique. Besides a major producer of flowers, the Netherlands is the commercial and logistical hub of many flowers from countries like Kenya, Ethiopia, and Israel. On balance, the export value of flowers traded by or through the Netherlands increased. Even without imports, the Netherlands would be the largest exporter in the world.



2.2.3 Colombia



Source: Vakblad voor de Bloemisterij, Asocoflores, DANE (2011)

Colombia kicked off production of flowers in the 1960s. Known for its large companies with a broad assortment, the country developed into the leading flower supplier to the North American market. Production expanded rapidly thanks to an ideal climate for growing flowers year round, the Colombian entrepreneurship, abundant water resources, good air connections, and cheap labour.

Since the early 1990s, flowers have been allowed to enter the US under preferential import tariff rates as part of the Andean Trade Promotion Drug Eradication Act or ATPDEA, an incentive programme in the fight against drugs. Half February 2011, the ATPDEA was expired. As a result, US importers had to pay 3.2 to 7% tax on Colombian flowers. Recently, a new Free Trade Agreement (FTA) was signed that extended the ATPDEA allowing flowers again to enter the US without import duty.

In 2004, the situation was becoming more difficult mainly due to the local currency. The peso was very strong against the dollar, which resulted in lower incomes from their main export market, the USA. Farm incomes were further affected by high inflation rates. Despite these problems, the area under cultivation of flowers managed to increase from 6,500 hectares in 2004 to 7,300 hectares in 2007.

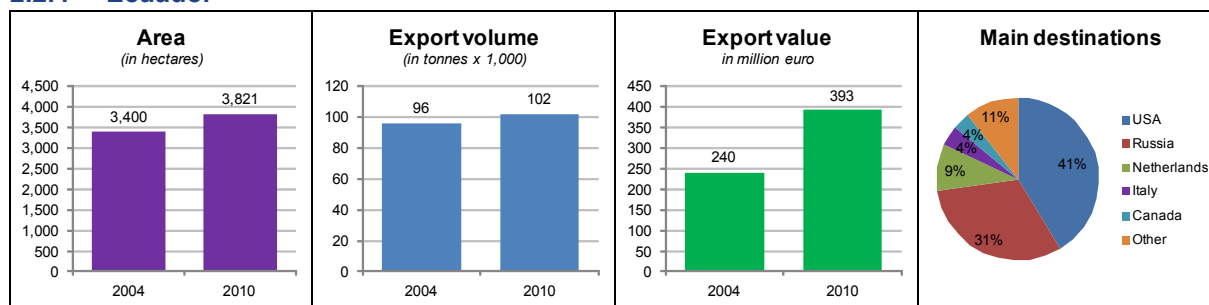
The strength of the peso remains a major concern for Colombian growers. The main cause of the high exchange rate is an increased flow of dollars coming into Colombia because of the improved safety and the discovery of oil and other resources, which attracts foreign investors. Farmers complain bitterly about the strong peso / weak dollar, high transport costs and high inflation. One of the main costs for Colombian flower growers is labour, which has risen sharply in recent years. In addition, exports to the USA were also affected by the economic crisis. Finally, the sector has been hit severely by weather problems in the past years.

Colombian growers are open to innovations and have developed for instance strong expertise in biological soil decontamination. Some companies have been growing successfully in the ground for years without any form of disinfection with chemicals or steam. Most flowers are grown in plastic greenhouses and in the open air. Colombians have experience in sea transportation, amongst others thanks to the so-called Merlin project, which lasted three years and was initiated by Asocoflores.

In summary, production costs increased while revenues are disappointing. Banks have little confidence in the sector and are reluctant to lend money. With all these problems, Colombian growers have been looking for buyers outside the USA, in the UK, Mexico, Japan and Russia. Adaptations in the assortment and growing techniques, new transportation technologies, and marketing efforts are all deployed in order to make this strategy successful.



2.2.4 Ecuador



Source: Vakblad voor de Bloemisterij (2011)

More than 75% of the production area in Ecuador is roses. Climatic conditions, including high light intensity and day/night temperature variations allow for deep, intense colours and excellent shelf life. The climate, combined with efficient business management and good varieties, have made Ecuador an important player in global floriculture. Developments, however, have been quite challenging.

At the beginning of the century, farmers faced difficult times as the country traded their national currency the sucre for the dollar. Growers could no longer earn money from the favourable sucre-dollar exchange rate. Moreover, costs in the new dollar economy kept rising: inflation was a staggering 91% in 2000. Many farms went bankrupt. In 2004, there was a slight recovery. This occurred partly because growers with their large T-hybrid roses began to focus more on the lucrative Russian market. Ecuadorian roses are highly valued in Russia, particularly for celebrations like Women's Day (March 8). In 2004, 8% of Ecuadorian flowers were exported to Russia. In 2010, it had increased to 31%.

Positive developments also took place in infrastructure. Many roads have been improved. A new airport is under construction that should be ready in 2012. The new airport will make required stopovers unnecessary. Fully loaded planes can fly directly to their final destination thanks to the longer runway and lower altitude of the airport. Increased competition between airports will also help to bring down air freight costs. In recent years, Ecuador has built experience in shipping flowers by sea, mainly hypericum, gypsophila and carnation. Expectations for roses are not high.

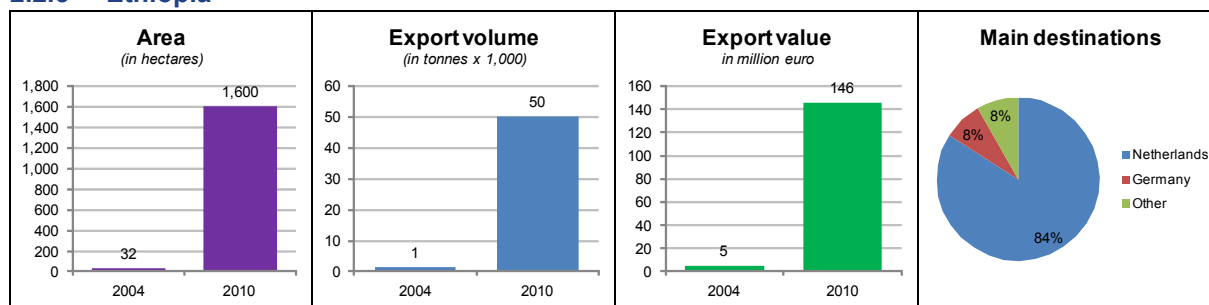
Over time, the US market has become less important for Ecuador. The US market increasingly asks for big volumes, which can best be met by Colombian growers. To make things worse, since February this year, US importers have to pay duties ranging from 3.4 to 6.8% on flowers from Ecuador as the ATPDEA was allowed to expire. Roses have found new markets, while most summer flowers are still going to the USA and Canada.

The last three years, Ecuador is back in heavy weather. Times are even harder than in the beginning of this century. A major problem for growers is the fact that wages have risen enormously in a short time. Five years ago, the minimum wage was US\$ 120 per month. Now it is US\$ 268 and further increases are expected. What's more, actual costs of wages are much higher as employers are expected to provide breakfast, lunch, insurance, medical care, clothing, transportation and two extra months of salary per year.

In 2009, the industry's impressive growth ended and revenues decreased by 5%. The year 2010 was also difficult with similar yields and rose production hit by a period of cold weather. Summer flowers (Gypsophila is the leading product) did better last year as demand from the USA remained good. The recent poor years, especially with roses, have affected acreage (-10% in 2009 alone).



2.2.5 Ethiopia



Source: Vakblad voor de Bloemisterij, EHPEA, Eurostat (2011)

A newcomer among the big boys of global floriculture is Ethiopia. Until 2004, there was no significant flower industry in the country. Seven years later, according to official sources, the sector counts 1,600 hectares of which the lion's share is taken up by rose farms, with some diversification into cuttings and new products such as hypericum, gypsophila, lilies, and freesias. Reportedly, not the full 1,600 acres are in production. Floriculture is now one of Ethiopia's main export sectors.

An important stimulator for this strong development of the floriculture sector has been the Ethiopian government. Wages are low, considerably lower than in Kenya. The Dutch government also contributed to the development of the sector. In recent years, 32 Dutch agricultural companies have received a PSI grant² for Ethiopia.

The first successful large-scale producer of roses was an Indian investor who contracted specialists from Israel. Later, Dutch producers entered the market. Especially important was the entry of Sher-Ethiopia, a leading Dutch company and by far the largest developer of greenhouse production in Ethiopia. In contrast, the role of national agricultural research and extension services seems to have been quite insignificant for the development of the industry (Tilman Altenburg, 2010). Nowadays, the inland cold chain functions relatively well, especially since refrigerated trucking service providers exist in the country and are used extensively by exporters.

The enormous growth in production did not come easy. With regards to the enabling environment, major bottlenecks were strict regulations concerning the repatriation of foreign exchange earned on exports, lack of adequate pesticide regulation, weak phytosanitary inspection and no protection of breeders' rights (Gebreeyesus 2009). Just like the other countries, Ethiopia's young sector was hit by the economic crisis. Several companies went out of business or were taken over by the bank. Many new local companies still lacked knowledge and experience in the cultivation of roses to counter the difficult times. Some of the farms that stopped were continued by Sher.

Innovation in the flower industry is largely driven by foreign investors. Ethiopian investors, however, have been able to emulate their business models. Most roses are sold through the Dutch auctions. Only a limited number of firms sell directly to wholesalers and supermarket channel. Few rose growers have developed their own marketing or partnership arrangements in the export markets. (GDS 2011)

2.3 Other countries

China

China is a large producer and exporter of flowers in Asia. In 2009, Chinese wholesale value of production reached US\$ 1,172 million (Kargbo 2010). However, cultivation is very inefficient and only accounts for 0.5% of the world's total supply. At present, levels of floriculture research and

² The Private Sector Investment programme, PSI is a subsidy programme of the Dutch Ministry of Foreign Affairs that supports innovative investment projects in emerging markets. A PSI project is an investment project, implemented by a Dutch (or foreign) company together with a local company, in one of the eligible developing countries. Investments that meet the criteria are eligible for a financial contribution to the costs of the investment.



management skills are limited, but available land is cheap and domestic consumption levels are booming. The industry has good-spirited entrepreneurs and the government supports the development of the sector.

China has the potential to become the largest world producer of flowers in the near future because of the large investment directed at the industry by the government, excellent infrastructure, and favourable production factors. It has the largest potential market in the world and flower consumption is expected to increase as the economy grows. The main direction for the Chinese flower industry will be to further develop its home market, improve assortment and delivery systems. China is not expected to become a direct competitor for Africa on the European market in the coming years.

Egypt

The floriculture industry in Egypt is modest. There are about forty professional firms, most of which are located in the Nile delta. The largest is 40 hectares, followed by two companies of 25 hectares, the rest being smaller. Growers have a wide assortment, including houseplants. Egypt also has countless small family companies of some 1,000 m² or smaller. The majority produces for the local market, which is large in Egypt. The home market is also important to the more professional companies. Another part goes to the Gulf region. Only a small portion goes to Europe, of which 80% is sold via FloraHolland. Important Egyptian export products are carnations, carthamus, ammi and gypsophila.

A study conducted by the Egyptian government showed that there are growth opportunities, but there is still much to be done. After harvest, flowers do not always get the right treatment and quality varies. Egypt will not compete with Kenya and Ethiopia as the climate is not suitable. The season runs from October to June. In summer, it is too hot so year-round production is impossible. Egypt should, however, be able to compete with countries like Israel and Turkey. Advantages of Egypt are cheap labour and electricity, and there is enough water. (Middelburg 2009)

India

India is fast becoming a strong centre of floriculture production. Production is principally targeting the growing local market. The large number of flowers commercially grown in India is generally of two types: loose flowers and cut-flowers with stems. Both these types are grown mainly under open field conditions and partly under a protected environment. India is probably the largest producer of flowers after China. Still, India's present contribution to the global floricultural export market is negligible (less than 0.5%). Nevertheless, floriculture is at present a priority and identified thrust area in India. National policies, budgetary allocation, diversification of horticultural products, liberalised imports are clearly an indication that the country is committed to development in the field of horticulture including floriculture.

Israel

The floricultural area in Israel has been shrinking considerably and continuously during the past ten years. The number of stems exported fell from 1.35 billion in 2004 to 878 million last year. Growers face strong competition from African and to a lesser extent, South American countries. Production costs are higher because labour, land and water are scarce. For years, the Israeli growers have difficulties obtaining work permits for Thai workers of whom they are so dependent. In addition, the Israelis had to deal with the economic crisis. A severe frost period in early 2008 brought a heavy blow to the sector. Finally, the exchange rate between the euro and shekel was not always favourable to exporting flowers to Europe, which is their main market. Many growers were forced out of business, especially smaller farms and farms where the second generation did not take over the business from their elderly parents.

Over the past years, there has been a strong trend towards Israelis adapting their product range. Rose production has virtually disappeared, while many growers switched to paprika or foliage. Foliage can be transported by boat to Europe, saving costs. The production of flowers such as gypsophila and solidago has decreased due to strong competition from Africa and South America. Waxflower (Chamelaucium) and Ruscus have become major products. Besides foliage, the Israeli growers focus more on exclusive products, which cannot be grown on a large scale in Africa. The new focus has not prevented that floriculture in Israel has fallen back.



South Africa

A wide range of flowers and plants are produced in South Africa. Most horticultural products are destined for the local market. Some products are exported to Europe, but freight costs are considerable. In addition, most growers are too small. They often have a too broad assortment and consequently insufficient volume of a particular product to export. However, there are exceptions, like a chrysanthemum company of several acres that directly export to England.

For several decades, South Africa has been an important producer of cuttings. Kalanchoe and chrysanthemum cuttings are some important crops.

Labour costs are relatively high because of the rising prosperity and growing power of the unions. South Africa is no longer the cheap country where breeders quickly set up a nursery. Propagation of bulbs still has good potential. Not surprising, as several bulbs originate in South Africa. The country has many different climates and soils. Tropical crops such as Protea grow well in the open air. Such crops have a considerable share in the floriculture package that is exported to Europe.

Tanzania

Rose is the main ornamental crop. Nurseries are located especially in the north, around the town of Arusha. Most companies have already existed for over ten years. In the beginning, the government assisted the industry with tax exemption for a certain period and cheap land. There have been investments, particularly in greenhouses for roses. However, other crops like summer flowers are following suit. The same goes for the cuttings and seed production. Government support, however, ceased for a while which hampered further development of the sector.

Not all farms are managed optimally. This leads to crop failure and low production. The current low prices, however, affect not only the companies that underperform. The whole development of the floriculture industry in Tanzania has come to a standstill (Middelburg 2009). Still, political stability, good water, climate and low production costs make the country a popular location for ornamental growers.

In 2004, TAHA, the Tanzanian Horticultural Association, was founded. Improving air and road networks are some focal points. The recently established Horticultural Development Council of Tanzania is also concerned with "horticultural business". Also the Tanzanian government is again promoting horticulture with funding and land. Air freight is not always available and sometimes growers need to truck a few hours to get a suitable flight.

Uganda

Rose is the most important ornamental crop in Uganda. About 80% of exported flowers are roses. The flower industry is now about fifteen years in the country. A small proportion of the pioneers of the early years is still active. There are currently about fifteen exporting companies, of which about half is fully owned by Ugandans. Most companies are located in southern Uganda, between the cities of Entebbe and Kampala near Lake Victoria. Over the years, cutting production has become increasingly important. Not in area, but for employment and export value. From the exported value around 40% is derived from chrysanthemum cuttings.

Rose growers are facing difficulties. Due to the high day temperatures, it is impossible to grow large buds in the traditional rose growing regions. Earning money with the small-flowered roses was already difficult due to declining demand and the rising number of intermediates. Growers tried to remain profitable with a strategy of high production and low costs. Export growth in recent years, however, has stopped.

According to Uganda's national paper (VC5), the critical constraints to the competitiveness of Ugandan horticulture are:

- Inadequate infrastructure and weak systems to support business.
- Power shortages.
- Limited air freight and transport facilities.
- Limited access to and high cost of financing.
- Ambiguous land tenure system.



- Sanitary, phytosanitary (SPS) and other trade-related standards and institutions need improved capacity.
- Inadequate research and development.
- Multiple taxes and charges with similar effects

Zimbabwe

Thanks to a favourable climate, cheap labour, good infrastructure and land fertile, Zimbabwe was once a country that mattered in floriculture. But currently it is only a marginal player. In its heyday in 2001, Zimbabwe was the number 3 foreign supplying country to the Dutch auctions with a turnover of 70 million euro. The same year problems started. President Robert Mugabe launched a disastrous land expropriation policy. Thus, the area of rose production collapsed from 425 hectares to 150 hectares in 2011. There are also still some summer flower nurseries with products such as hypericum, bupleurum and carthamus. Many are exported directly bypassing the auction system.

The remaining growers have a hard time. The economy has come to a standstill, inflation is sky high and unemployment is around 90%. Because of the uncertain situation, they have not invested for years in greenhouses and assortment. Rose growers focus on small-flowered roses and that segment is under pressure. There are doubts whether it will get better over time. The political climate is still far from stable, impeding foreign investments.

3 Policies and incentives towards floriculture

3.1 Role of government policies

In a recent World Bank Technical Paper (Jaeger 2010), it is argued that a commercial horticulture sector needs government policies that provide an environment in which the sector can thrive. It does not need direct intervention from the government in its activities; rather, the government should recognise the need for a vigorous private sector as the engine of commercial growth. Five areas are identified in which government policy can provide an active support to commercial horticulture:

Infrastructure: A usable transport infrastructure is critical. Not only do poor roads increase transaction costs, but produce is highly perishable and often easily damaged. Secondly, airport services, including cold storage facilities, need to be adequate to secure a closed cold chain. Lastly, improvements to the infrastructure of water, health services and education all lend support to developments of the rural economy.

Investment: Government must recognise the importance of investment both from domestic sources and foreign investors. It is the larger farms that drive the sector forward that will provide employment and generate the critical mass to attract buyers and transporters. In particular, it is important to recognise the potential contribution from foreign investors who bring in not just funds but also technical knowhow as well as management expertise and very likely market linkages too. As witnessed in Ethiopia, their contribution to a young floricultural sector can be enormous. Support might include:

- A simplified investment code.
- Support to land acquisition: the identification of available land, the titling of the property, and the acquisition by lease can all take unduly long and will discourage investors.
- Appropriate fiscal incentives: tax incentives are not always useful when broadly applied through holidays for investors, but tax breaks to support specific activities can have a more precise effect.
- Support to inward investors, a one-stop-shop for information, guides and official paperwork.

Institutional: institutional coordination and innovation are the hardest aspects of directing government policy. For the business community, it is important to reduce the bureaucratic overhead that adds to the cost of doing business.

Innovation: a key component of competitiveness is the ability to innovate. Without an innovative capacity, any industry will fall behind its competitors. Innovation can be encouraged by:



- Innovative companies might be given tax relief on their research and development spending.
- The government might bring in specific technical assistance where there are particular problems.
- An active agricultural research programme delivered through a widespread extension service.

Human capital: We have found that an important constraint is often the quality of the workforce. The training of unskilled labour puts a major cost onto any flower farm. The shortage of supervisors and middle-managers can be critical to the survival of a flower industry. Training schemes to encourage the development of middle-management are needed. And finally, senior management: export horticulture in particular demands a set of management skills that are not readily available. Foreign investment is often important to bring in this capability.

3.2 Policy and policy guidelines in the leading flower exporting countries

This section offers a bird's eye view of the key government policies towards the flower industry in the major flower growing countries. It is determined to what extent these policies support the competitiveness of the flower business.

3.2.1 Kenya Government

The Ministry of Agriculture is the lead agent in agricultural transformation in the country. The ministry provides overall policy, regulation and operational direction. Other ministries whose mandates directly impact on horticulture include Water and Irrigation, Health, Environment and Natural Resources, Local Government, Cooperatives development and Marketing, Trade and Regional Development Authorities.

In June 2011, the Kenyan government made public its final draft of the *National Horticultural Policy*, which is tabled for approval by the parliament in the course of 2012. The new policy shows continued government recognition of the role of horticulture (and more specifically floriculture) for Kenya. It offers policy interventions for production, support services (financing the industry, research and extension), marketing (local, regional and export markets), infrastructure as well as regulatory and institutional arrangements.

The policy document states that the broad objective of government intervention is to accelerate and sustain growth and development of the horticultural industry in order to enhance its contribution towards food security, poverty reduction, employment and wealth creation. More specifically, policy objectives for the realisation of the broader objective are to:

- i) Facilitate increased production of high-quality horticultural produce.
- ii) Enhance provision of the sub-sector's support services.
- iii) Promote value addition and increase domestic and external trade.
- iv) Establish and develop infrastructure to support the horticulture industry.
- v) Establish and strengthen institutional, legal and regulatory framework in the horticultural industry.
- vi) Promote mechanisms for environmental sustainability and other cross-cutting issues.

Taxes and levies

The fourth video seminar (VC4) in this series covered the "Impact of Taxes & Levies on the Flower Industry in Kenya". The Kenyan team recognised the following tax reforms for greater productivity:

- 10-year corporate income tax holidays.
- 10-year withholding tax holiday on dividends and other remittances to non-resident parties.
- Perpetual exemption from VAT and customs import duty on inputs (greenhouses, greenhouse covers, and cold chain systems).
- Dam construction and irrigation equipments.
- Capital equipment and other resources.
- Perpetual exemption from payment of stamp duty.
- Subsidised financing loans.



Furthermore, an overview was given of the taxes and levies in the flower industry:

- Export levy of KSh 0.2 per kilo of every produce being exported – HCDA.
- Local market levy per weight or by tonnage of the truck – Local Authority.
- A phytosanitary services levy KSh 0.2 per kilo of produce exported.
- Phytosanitary certificate levy of KSh 400 per certificate – KEPHIS.
- Water levy of KSh 0.37 per litre of irrigation water – WARMA.
- A minimum levy of US\$ 400 for composting organic matter – NEMA.
- Tax on land payable to the local government.
- Personal and income taxes for all the permanent and pensionable staff.

Clearly, the Kenyan flower industry, being a more mature sector, still enjoys considerable tax benefits, particularly aiming at attracting new investors.

Other public sector partners

Kenya Plant Health Inspectorate Services (KEPHIS)

KEPHIS is responsible for regulating plant health issues relating to phytosanitary and seed matters. In order to effectively fulfil its mandate, KEPHIS has formed the Plant Variety Protection, Seed Certification, Phytosanitary Services, Agro and Agri-input Formulation Analysis and Farmer Advisory service units.

Horticultural Crops Development Authority (HCDA)

HCDA has the mandate to facilitate the development, promotion, facilitation and regulation of the horticultural industry in Kenya. The organisation is divided into six divisions: Finance and Administration, Human Resources, Information Technology, Strategic Planning and Marketing, Extension and Training, and Nursery Services and Pilot Projects. Over the years, changing government policy and international market requirements have necessitated a re-orientation in the regulation of the industry. Currently, HCDA focuses on its regulatory duties. The organisation has prioritised its horticultural information services, and is the main provider of horticulture production and trade data.

PCPB, KEBS, EPC and NEMA

- The functions of the Pest Control Products Board (PCPB) are to regulate the importation, exportation, manufacturing, distribution and use of pesticides.
- The primary function of the Kenya Bureau of Standards (KEBS) is to promote standardisation in commerce and industry.
- The Export Promotion Council (EPC) is established with the mandate of developing and promoting Kenya's exports. EPC's primary duty is to identify and address constraints facing exporters and producers of export goods and services.
- The National Environmental Management Authority (NEMA) is the principal instrument of government in the implementation of all policies relating to the environment.

3.2.2 Netherlands

Currently, the following policy instruments are used by the Dutch government:

- Subsidies (innovation investments; demonstration projects).
- Tax reduction on sustainable investments.
- Rules/directives, for example EU's CO² cap-and-trade system.
- Guarantees, for example for geothermal projects (risk reduction).
- Support for research and extension.

In the Netherlands, the tax system is fairly general, while other countries may have more specific agricultural facilities or other favourable facilities. However, a broad range of investment incentives exists: free depreciation of environmental investments, accelerated depreciation for starting



entrepreneurs, an investment allowance, the energy-saving investment allowance and the environmental investment allowance. The Netherlands offers a broad range of additional tax credits. In the Netherlands, investment incentives, the agricultural arrangement (support to knowledge system) and the rules for loss transfer are particularly beneficial and place this country in the category of countries with the most supportive tax system in the EU. (Veen 2007)

In a recent presentation, the Dutch Ministry of Economic Affairs, Agriculture & Innovation (EL&I) stated that the new government (installed last year) has set a general policy for the agricultural sector, aiming to promote sustainable, viable, innovative and internationally competitive agribusiness. The new industrial policy is very specific about leaving room for entrepreneurs to do their business and to grow.

The new government has chosen nine so-called 'top sectors' to focus on for further strengthening. Each top sector has been asked to form a 'top team' (with representatives of companies, scientists and government), who advises the Minister on the ambitions and priorities of the sector. 'Horticulture and Source Materials' is selected as one of nine top sectors of the Dutch economy. The horticulture top team has recently offered its policy recommendations to the minister. Seven key elements were articulated: 1) doubling the growth in added value, 2) being a world leader in international enterprise, 3) being an international hub for knowledge exchange, research and education, 4) sustainability, 5) optimisation of space and infrastructure for the entire chain, 6) a strong image and an internationally leading brand, and 7) a decisive and responsible sector organisation.

Private Sector Investment programme (PSI)

During VC5, participants inquired about the PSI-programme and its impact in East Africa. The PSI programme (successor to the PSOM programme) is a subsidy programme of the Dutch Ministry of Foreign Affairs / Development Cooperation that supports innovative investment projects in emerging markets. A PSI project is an investment project, implemented by a Dutch (or foreign) company together with a local company, in one of the eligible developing countries. If this investment meets the criteria, it can be eligible for a grant by PSI. This grant consists of a financial contribution to the costs of the investment. Under certain conditions, up to 50 percent of your investment will be compensated.

PSI is a tender programme. Companies are invited to submit applications twice a year. Submitted projects are judged, among other things, by their standard of local innovation. One of the beneficial side effects of PSI is that it introduces developing countries to new knowledge. Furthermore, both parties must be financially sound. In addition, the scale of planned expenditure must ensure further investments in the foreseeable future.

Table 1. Total PSOM/PSI expenditures on horticultural projects in East-Africa		
	Expenditures	Period
Ethiopia	€ 10,808,217	2003 - ongoing
Kenya	€ 5,174,761	2004 - ongoing
Tanzania	€ 4,965,155	2002- ongoing
Uganda	€ 6,190,102	1999 - ongoing
Total	€ 27,138,235	

Source: NL EVD International (2011)

PSI is available to Kenya, Ethiopia, Tanzania and Uganda. However, in the case of Kenya, only Dutch companies may submit applications for these countries. In the case of Ethiopia, Tanzania, and Uganda, businesses from all countries may submit applications, except for businesses from the project country itself.

① More information about PSI can be found at: <http://www.agentschapnl.nl/en/node/50050>



The Dutch agricultural knowledge system: education, research and extension

The Dutch government has always been strongly supporting the agricultural knowledge system. From the beginning, the system consisted of a close interaction between the agricultural education system, research and extension system. The exchange of information and transfer of knowledge, based on a strong infrastructure for scientific research and education, has led to a tremendous improvement of the Dutch knowledge basis and to a corresponding high level of innovation. The Ministry of Agriculture was responsible for the entire agricultural education system in the Netherlands.

The system, however, has changed over the past twenty-five years, not only in the organisation of the knowledge system, but also in the interaction between the companies and the research organisations. Now, the knowledge system is in the middle of a transition towards new concepts of co-innovation, in which industries and research centres operate together in new and more open forms of collaboration. See Appendix 1 for more information on the agricultural knowledge system.

3.2.3 Colombia

The Colombian government has been quite actively supporting the development of the flower industry and helped to create a favourable environment for the production and export of flowers from as early as the 1960s. Government policy improved macroeconomic stability and encouraged an expansion of non-traditional exports. Relevant aspects of the reform package were:

- Formation of ProExport, which helped finance exporting companies and provided some investment around necessary infrastructure. It was also associated with trade and investment promotion.
- Creation of export tax credits, which was essentially a tax incentive to export.
- Creation of Plan Vellejo, which gave duty exemptions for raw material imports used for export production.

Apart from these policies, the Colombian government also prioritised trade agreements that would help ensure preferential access to the primary markets for floral products. (Brenthurst 2007)

Mid 2011, the Colombian government announced that the country will continue investing significantly in the floriculture sector. Eight specific stimulus proposals will be introduced to further strengthen the industry. The proposals encompassed a variety of measures, ranging from the abolition of a 5 percent import tax on chemical compounds used in agriculture, to a 6 million dollar investment by the Colombian Agricultural Research Corporation (Corpoica) that aims to stimulate innovative research and development.

Current subsidies and incentives for flower producers:

1. ICA - Phytosanitary Incentives: Through this program, the Ministry of Agriculture and Rural Development (MARD) aims to support proper phytosanitary handling and maintain employment generated in the flower sector. Producers receive a payment per hectare if they have proven to comply with the phytosanitary requirements of the Colombian Agricultural Institute (ICA).
2. ICR - Rural Capitalisation Incentive: The incentive is an economic benefit granted to a natural person or legal entity that makes investments directed towards modernisation, competitiveness and sustainability of agricultural production.
3. IAT - Technical Assistance Incentive: This incentive is an aid granted to trade organisations by the Ministry to finance 80% of the total expenditure on the delivery of technical assistance services to producers in the sector.

Asocolflores

Governmental policy has long promoted the activities of sector associations. The Colombian success in floriculture, however, can also be attributed to the efforts of *Asocolflores*, the Colombian Association of Flower Exporters, representing more than 75% of total flower exports from Colombia. It was established in 1973 as a 'promotional, advisory and representational' entity of flower exports. *Asocolflores* is deeply involved in various R&D initiatives, ranging from joint projects in science and



technology with the American Floral Endowment Fund and a number of US universities to *Ceniflores*, the Colombian Centre for Innovation in Floriculture.

Asocolflores created Ceniflores to back research, promote technological development and contribute to improve the competitiveness of Colombian floriculture. The centre conducts research programs on technological conversion, soils and substrates, integrated crop protection and extension. The particular interest of the centre is to focus on how to improve efficiency in production and post-harvest processes, by defining the bottlenecks and searching for solutions through the adoption or adaptation of existing technologies. Ceniflores also coordinates the floriculture industry phytosanitary campaigns in conjunction with ICA, in order to reduce the presence of pests in flower exports. In addition, to support the Colombian farms in monitoring and control practices, Ceniflores has also put together a training package for farm personnel. Information provided through manuals and videos is based on verified information on pest habits, life cycle and management processes with recommendations for improvement.

Asocolflores also has a range of social and environmental development initiatives. One such initiative is *Florverde*, which is essentially a code of conduct aimed at sustainable environmental and social responsibility in the floriculture industry. The Florverde Farm Program is a strategic tool to promote sustainable floriculture with social responsibility at both the company level and industry-wide. Its implementation ensures compliance with strict international social and environmental standards from planting to post-harvest. The Florverde Farm Program began in 1996 and is a long-term comprehensive strategy geared toward optimising the use of resources and improving the quality of life for workers and their families to improve competitiveness with the flower industry, while encompassing the concept of sustainable development. Florverde certification is a Full Benchmarked Scheme with GLOBALGAP.

Finally, Asocolflores also initiated *Proflora*, which is a biannual cut flower trade fair, arguably the world's foremost and certainly the largest in the western hemisphere.

Asocolflores encourages a strong sense of cohesion among flower producers and promotes country product recognition abroad. It assumes a national approach of coordination in response to the various obstacles and challenges associated with production and export. Therefore, local rivalry among competitors gives way to broader goals of national competitiveness. (Brenthurst 2010)

3.2.4 Ecuador

The current government of Ecuador applies several tools to support entrepreneurship and productive investments such as support funds, specific incentives, and promotion of investment projects. There are no specific incentives targeting the development of the flower industry. Actually, several of the incentives described below may very well affect farm profits. Furthermore, flower growers in Ecuador have to pay a minimum annual tax, whether they make profits or not.

InvestEcuador lists eight major groupings of government incentives:

1. General incentives: A number of tax reductions and exemptions, mainly targeting investments related to improving productivity and technology, stimulate cleaner production and salary increases and hiring new personnel.
2. Sector specific incentives: Twelve sectors have been selected for specific preferential initiatives. Floriculture, however, is not among them!
3. Disadvantaged zones: When operating in a disadvantaged geographic zone, companies receive a deduction of 100% of the cost of hiring new workers for five fiscal years.
4. Innovation and exportation: This tax reduction applies to reinvestment of profits in new equipment, assets, plant material, etc. All used for productive activity, research, technology or otherwise improves productivity, generates productive diversification or increased employment.
5. Democratisation of capital: An incentive to share company ownership with employees (may defer payment of income tax and advances for five years).



6. Green production: Incentive to invest in more sustainable production (tax deduction related to depreciation and amortisation of machinery and equipment for cleaner production).
7. Micro-enterprises (MYPYMES): Range of incentives supporting companies with 1-9 employees and sales below US\$ 100 thousand (70% state guarantee for private investment financing; public procurement system; state investment fund, etc.)
8. Free trade zones: Free Trade Zones with Andean neighbours and Chile offering, among other things, tax reductions and imports of goods at zero percent VAT rate.

Direct foreign investment may be executed in any productive sector without any prior authorisation and under similar conditions and treatment of investments made by Ecuadorians. Foreign investors are entitled to transfer abroad, in freely convertible foreign currency their net returns from their international investments without limits, taxes or encumbrances. Investors have free access to stock market and national finance system to obtain credit lines.

3.2.5 Ethiopia

The Ethiopian government has played a crucial role in the impressive growth of the floriculture sector. Development of horticulture has become one of the top priorities of the Ethiopian government. Prior to 2003, however, there were few programs specifically targeting the flower industry. The export promotion strategy adopted in 1998 made no mention of the flower industry. Although the flower industry might have benefited from this broad export promotion support scheme, take-off did not occur until industry-specific support was provided by government. (Geebreyesus 2010)

When the success of pioneering firms became evident, and the Ethiopian Horticulture Producers and Exporters Association (EHPEA) was formed to lobby the government, additional incentives were made available. By the end of 2002, the government realised the opportunity offered by the flower industry and actively engage in promoting the sector.

As described in more detail in Ethiopia's position paper on the impact of taxes (VC3), the Ethiopian government has introduced various measures and launched an all-out effort towards developing the flower industry. They created attractive conditions for farmers to start in Ethiopia: low land rent, income tax exemption of five years. The government also provided long-term credit on very generous terms through the Development Bank of Ethiopia. Investors could borrow up to 70:30 debt-equity ratio with no collateral requirement and against low interest rates.

Government has been engaged also in upgrading and formalising the institutions responsible for the sector. Until recently, Ministry of Trade and Industry (MoTI) dealt with the private sector in the flower industry. In 2002, it established a Horticulture Development Team which, in 2008, was upgraded to the Ethiopian Horticulture Development Agency (EHDA) with the aim of providing faster and more coherent services for horticulture exporters. The new agency is under the Ministry of Agriculture and Rural Development. It has its own budget and freedom to hire staff without being bound by the general rules of the civil service. The idea of creating such a semi-autonomous unit was to offer one-stop services for investors in order to avoid cumbersome transactions with several layers of bureaucracy. (Tilman Altenburg, 2010)

Furthermore, EHPEA has been a major force behind the growth of the industry. Its main goal is to promote and safeguard the sustainable and competitive position of the Ethiopian flower industry. By using its logo 'The New Face of Ethiopia' and by focusing on sustainable production, Ethiopia is gaining more and more acceptance on international markets. (Ploeg 2009)

In sum, promotion of the newly emerging cut flower industry has benefited considerably from export incentives and the good relationships between firms, the sector association, and public authorities, which have helped to remove obstacles. According to Tilman Altenburg (2010), the generous incentives offered to flower exporters come at a considerable cost. In addition to foregone taxes, the



lease rate for land implies an extraordinary hidden subsidy. In principle, such subsidies are justified as long as investors help to discover new business opportunities that can be emulated by others.

4 Driving forces for horticultural development

So far, we have seen that a number of issues have had a great impact on the development of the flower industry in the leading flower exporting countries. A distinction can be made between internal and external factors, which can or cannot be controlled by individual companies, organisations or governments. Particularly external factors like climate, currency exchange rates and oil price fluctuations have shown to have a major impact on the competitiveness of companies active in the flower business.

Internal factors are determined in the first place by the entrepreneurs themselves, but also governments and sector organisations have played an important role. Other relevant actors are research and training institutes, credit and financial institutions, quality and regulatory agencies, and trade and investment promotion agencies. In some countries, the government plays an important role in coordinating efforts among different actors.

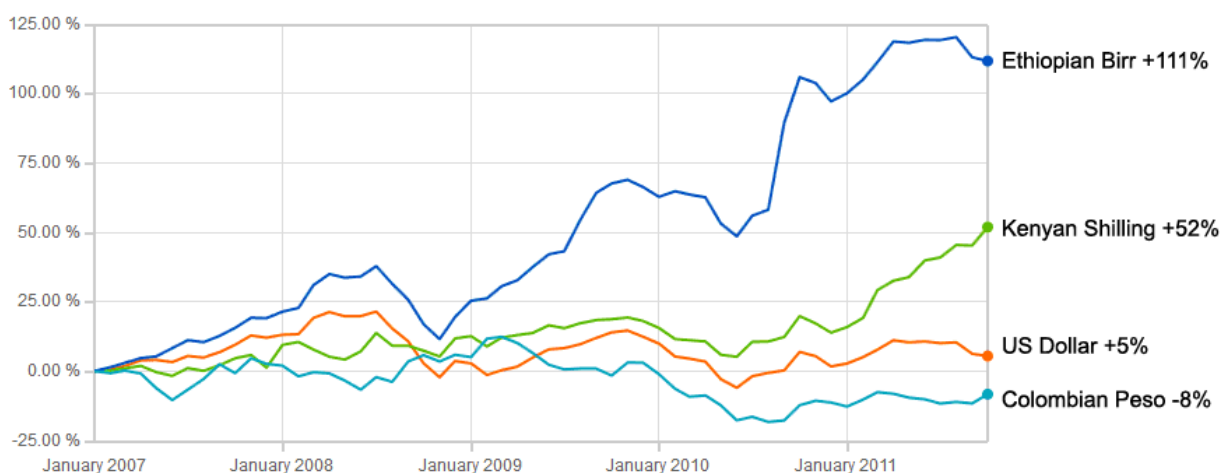
4.1 Impact of external forces

4.1.1 The currency triangle: euro - dollar - national currency

Inflation and the relationship between national currencies of producer countries and other currencies have shown to be of extreme importance for the income of growers. Kenyans, for example, received their revenues in euros and benefited so many years from the strong euro against the dollar. For a long time, revenues were high while costs (for a large part paid in US dollars and local currency) were low. The same was true for Ethiopian farmers. As the chart below shows, both countries benefit from the weak local currency, respectively the Kenyan shilling and Ethiopian birr.

Fig 2. Exchange rate changes to euro: US dollar, Colombian peso, Kenya shilling and Ethiopian birr

Period 1/1/2007 to 11/11/2011



Source: Oanda, ProVerde (11-11-2011)

In Colombia, on the other hand, a strong peso against the dollar has long been the reason for lower profits. Ecuadorian growers have been affected by the fact that they lost their local currency and are now operating in a dollar economy. In the Netherlands, exchange rate relations have also had a major impact on the profitability of companies. An example was the weak British pound in 2008, which



resulted in a dramatic drop in exports to the UK. British buyers instead turned to Colombian suppliers. Overall, it is difficult to indicate what the currency rates in the coming years will look like.

4.1.2 Climate

Climatic conditions play a major role in horticulture. Some illustrative examples: Last winter, Colombia had a frost period and in May, growers were subjected to extremely heavy rainfall. Both had a great impact on flower production, outside and in unheated greenhouses. Last year's disappointing rose production in Ecuador was attributed to a cold period. In 2008, Israel was plagued by a week of night frost, which had a major effect on flower production and resulted in the downfall of some companies.

Kenya had the last two years a long period of drought and a period of heavy rains. The first resulted in a discussion on water use by growers in Naivasha. The second led to lower production and increased pressure from diseases. Actually, the only country where production did not suffer from climatic problems was the Netherlands, mainly because of heated greenhouses.

4.1.3 Oil prices

In 2008, the price of a barrel of oil increased to a staggering US\$ 150. Growers around the world were confronted with exploding costs. Kenyan growers, for example, whose costs are almost 70% oil-related, feared the worst. Rising costs for transportation, chemicals, fertilisers and packaging would undermine their competitive position considerably. The same was true for farmers in Ethiopia, Ecuador, Colombia, and to a lesser extent, Israel. In the Netherlands, a commotion arose about the high price of gas, which is linked to oil prices. Six months later, the situation was completely changed. In the spring of 2009, the price for a barrel of oil plunged below US\$ 50 and growers could breathe easily for a moment.

4.2 Internal factors driving development

Developments in the leading flower exporting countries showed us that a number of controllable ingredients have had a critical impact on shaping an enabling business environment for entrepreneurs in the flower industry:

1. Government policies
2. Sector cooperation
3. Research and development

4.2.1 Government policies

Experiences learn that the flower industry is highly dynamic and cannot be led by public initiatives alone. The primary role of the government should be facilitative and indirect (laws and regulation for foreign investment, intellectual property rights, technology transfer, air cargo licensing, foreign exchange transaction, etc.). Still, these are critical to the success of the sector.

The main task of public policy is to remove specific obstacles that are beyond the reach of individual firms, for example, to ensure free access to land, or competitive air freight rates; to subsidise pioneering firms; to create opportunities for capability building; and reduce excessive and complicated bureaucracy.

Tax incentives are used widely, particularly by East African governments. Mosioma (2007) explains that justification of tax incentives is based on the argument that it will lead to job creation, know-how spill over, facilitate backward/forward linkages to the local economy and, in the end, will raise government income. It is, however, not clear if these tax incentives provide a sustainable basis for achieving a long-term economic development. The costs of such policies are considerable. There is also a risk for a race to the bottom, meaning that East African governments compete by means of tax incentives. Potential solutions lie in strengthening regional bodies to offer guidance in designing tax policies. Examples in the Netherlands and Colombia, show that tax incentives can also be used moderately and to target specific areas like innovation.



4.2.2 Sector cooperation

The importance of sector cooperation and organisation cannot be overstated. In all leading countries, private sector organisations are reasonably strong and active. They also enjoy a broad base among producers and exporters. Differences exist in the scope of services these organisations provide. Some associations are very active in promoting, others more in aspects like advocacy, research, training, socio-environmental issues, logistics, etc.

The Colombian story illustrates that a real challenge and source of future success lies in a co-ordinated approach that creates national product recognition in foreign markets. The network of Colombian producers, service providers, transporters, associations and researchers all strive for a common goal. Brenthurst (2007) argues that this is Colombia's real strength and the rationale behind the ongoing investment and R&D.

4.2.3 Research and development

Technology and innovation are ever more important playing cards in the international competitive game. The Dutch, Israelis and Colombians are pushing forward. Growers are backed by government incentives and well-developed agricultural research and development systems all striving to strengthen the knowledge and efficiency in the sector. Areas of interest, also for African industries, are cultivation techniques (productivity), market information, assortment (new varieties), sustainability, logistics (sea transportation), communication technology, etc. The Netherlands demonstrated the importance of close interaction between the agricultural education system, research and extension system.

An abundance of information and research results are available in the Netherlands, Colombia and Israel. This information can also be relevant to the Kenyan flower industry. Opening up these sources and/or co-ordinating research activities in Kenya with related and experienced institutes abroad should be considered. There is ample potential for linkage with research and capacity-building activities in other East-African countries.

5 Review SWOT of the Kenyan flower industry

A SWOT (strengths, weaknesses, opportunities, and threats) analysis is the general, qualitative starting point for any competitiveness strategy. While the SWOT analysis is not a very precise tool, it is a good way to provide a general characterisation of the current state of the industry, identify issues, and generate discussion. It is particularly useful as a neutral facilitation tool to focus an initial discussion on the perceived state of the value chain or to perform initial brainstorming on the potential opportunities and risks. It is also a good way of identifying areas to examine in greater detail. (Webber and Labaste, 2010)

In this chapter, we consolidate results from existing studies, policy documents and the preceding video conferences. Issues are selected that have a particular impact on the industry's competitiveness. The purpose of the SWOT is to fuel discussion and to be used as an initial input for a more detailed value chain analysis as part of the subsequent CDE study.

We first set the stage by describing developments that are beyond the control of the Kenyan actors: which external factors affect the competitiveness of the Kenyan industry? After that, we will take a closer look at factors within the circle of influence, i.e. the strengths and weaknesses of the Kenyan sector.



5.1 External factors

Opportunities	Threats
<p>Market trends</p> <ul style="list-style-type: none"> • Growth particularly outside Western Europe. • Increasing role of supermarket channel. • Demand for bulk, but also specialty varieties. • Market diversification, f.e. USA, Russia. (KFC 2010) • Increasing direct trade. • Interest in supply chain integration to reduce intermediate costs and improve time-to-market. • Shift of adding value from the wholesaler towards the growers in developing countries (demand for mixed bouquets remains strong). <p>Productive environment</p> <ul style="list-style-type: none"> • Technological developments, amongst others in sea freight. • Availability of research results abroad. <p>Competition</p> <ul style="list-style-type: none"> • Difficulties in other leading producer countries like Ecuador and Israel. 	<p>Market trends</p> <ul style="list-style-type: none"> • Stagnating demand due to the economic crisis. • 'Local for local' • Computerisation and virtualisation of the supply chain. • Increasing scales and professionalisation. • Pressure on margins. <p>Market access</p> <ul style="list-style-type: none"> • Increasing social and environmental concerns (CSR, certification, carbon footprints, etc.). • Increasing barriers to smallholder involvement. (Jager 2010) <p>Productive environment</p> <ul style="list-style-type: none"> • Erratic weather patterns. (VC 1) • Prevalence of pest and diseases emanating from climate change. (VC 1) • Volatility of transport costs and costs for fertilisers and pesticides. <p>Competition</p> <ul style="list-style-type: none"> • Oversupply due to continuing growth of global production. • Competition from Latin American producers in the European market. • Relocation of production to outside Kenya. (KFC 2010)

5.2 Internal factors

Only those factors are listed that currently distinguish Kenya from other leading producers. Kenyan growers, for instance, enjoy reduced duties on imported inputs. However, this cannot be considered a competitive strength as the level of incentives is similar to (or less than) other countries.

Strengths	Weaknesses
<p>Production</p> <ul style="list-style-type: none"> • Varied climatic zones enabling product differentiation. • Year-round / off-season production. (CBI 2011, Jager 2010) • Economies of scale. • Broad assortment, including summer flowers. • Relatively experienced workforce, including managerial level • Dynamic smallholders (KFC website) • Respect for breeders' rights (IPR): access to varieties. 	<p>Production</p> <ul style="list-style-type: none"> • Failure to raise productivity profile. (KFC 2010) • Vulnerability to weather events (climate control capabilities). • Vulnerability to agro-bacterium tumefaciens and other soil borne diseases. (VC2) • Insensitivity of some firms to the principles of CSR. (MOA 2010) • Inability of smallholder farmers to access high-quality planting material due to high costs and royalties of patented material. (MOA 2010)
<p>Post-harvest and logistics</p> <ul style="list-style-type: none"> • Availability of air freight: hub for the airline industry. (KFC website) 	<p>Post-harvest and logistics</p> <ul style="list-style-type: none"> • Poor road conditions in some production areas. • Inadequate facilities at the sea port for handling fresh produce. (MOA 2010)



<p>Marketing</p> <ul style="list-style-type: none"> Experienced in direct channel. 	<p>Marketing</p> <ul style="list-style-type: none"> Negligible domestic market demand. Little promotion of the national brand. Difficulties accessing accurate data and market information. (MOA 2010, CBI 2011) Dependency on exchange rates. (ProVerde 2011)
<p>Supportive structure</p> <p><i>Government</i></p> <ul style="list-style-type: none"> Limited government interference. (Jager 2010) Liberalised economy with the removal of exchange control and other constraints. (KFC website) <p><i>Sector organisation</i></p> <ul style="list-style-type: none"> KFC actively participating in public policy formulation. KFC recognised by market players. <p><i>Inputs suppliers</i></p> <ul style="list-style-type: none"> Inputs are readily available. 	<p>Supportive structure</p> <p><i>Government</i></p> <ul style="list-style-type: none"> Challenges associated with corruption, political tension and insecurity. (Export.gov, Jager 2010) Inadequate Government policy coordination. (KFC 2010) Inadequate incentives for investment in value addition and innovation. (MOA 2010) Weak inter-agency coordination leading to poor delivery of regulatory services. (MOA 2010) Decentralised system of taxation often results in double taxation and is time wise costly. (VC 4) <p><i>Sector organisation</i></p> <ul style="list-style-type: none"> Inadequate financial and non-financial resources for KFC secretariat. Co-operation among Kenyan and East African associations can be improved. (KFC 2010) <p><i>Knowledge</i></p> <ul style="list-style-type: none"> Lack of an integrated and comprehensive data and information management system. (MOA 2010) Lack of R&D activities, low level of innovation. (KFC 2010, CBI 2011) Inadequate financial, human and physical resources for research and development on varieties. (MOA 2010) Inadequate coordination among research institutions. (MOA 2010) Inadequate specialised institutions to offer specialised horticultural extension services and training. (MOA 2010) <p><i>Finance</i></p> <ul style="list-style-type: none"> High inflation in Kenya. Inaccessibility to funds (partly due to high interest rates), particularly for SME producers. Government financial support to the industry is inadequate. (MOA 2010) Lack of appropriate insurance products tailored for the industry. (MOA 2010)



6 Projections and recommendations

6.1 Projections

We found that currency rates, oil prices, climate and the economic situation in the target markets for a large part shape the development of the floriculture sector. These factors are basically determined by forces far from the sector and even far from the producing country. Furthermore, these factors are difficult to predict. This makes it challenging to make statements about how the major producer countries will fare in the coming years. Still, based on the trend of recent years and based on the current competitive position, we can indicate the potential of the Kenyan industry and its main competitors.

In the past decade, production has further shifted toward the equator, and African countries have become more important. If this trend continues, then Kenya will possibly become the main producing country in the near future. For now, this role, as measured by production, is still reserved to the Netherlands, with Colombia in a close second position.

Kenya is already for a number of roses and summer flowers the most favourable production country. The climate in Kenya is reasonably stable. In addition, soil and greenhouse structures are relatively inexpensive. East African countries have by far the lowest labour costs. Wages in Ethiopia are still much lower than in Kenya, but Kenyan employees have more experience in floriculture.

The rose assortment in Kenya rapidly shifts from small to large-flowered. Also in Ethiopia large-flowered roses dominate. This brings the assortment of African countries closer to the South American products. Moreover, the distance to market from East Africa is less than from South America. Transport costs way heavy for South American exporters. Certainly for the Ecuadorians who have come to focus on Russia and Europe. Rising wages are an important threat to the flower industry in Colombia and Ecuador. In Colombia, wages increase as a response to inflation and in Ecuador as the result of government policy.

The Netherlands is still the major hub for the flower industry and that gives an advantage. Many flowers from Kenya find their way through the Netherlands. Dutch farmers enjoy relatively low transport costs. However, the costs of labour, greenhouse structures, energy and land are much higher than their foreign counterparts. As a result, the Netherlands' competitive position has deteriorated significantly. These developments do not mean that production will disappear in the Netherlands. Dutch growers seek exclusivity and quality combined with high production per m².

So, Kenya and Ethiopia seem to have the best cards for the coming year. The expectation is that there are no other countries able to challenge the big five flower exporting countries. Production in Israel has been shrinking considerably and continuously during the past ten years. In Tanzania, infrastructure is still a problem; the climate poses a limitation in Uganda; and the situation in Zimbabwe has already been rather unstable for years. A possible candidate in the distant future is China, but for now, infrastructure and the quality of the flowers let too much to be desired.

6.2 Key challenges and recommendations

Competitiveness is largely determined by the productivity with which a nation uses its resources. It is not a static concept but dynamic, especially in the context of pervasive globalisation. Competition is no longer restricted to costs and price but increasingly plays out on multiple fronts: connectivity, standards and certifications, quality and innovation, exploitation of cultural and geographic endowments, etc. Because these new fronts are constantly changing and reshaping, a competitiveness strategy should be dynamic and should simultaneously engage diverse institutions and agents who are linked at various levels on various dimensions. (World Bank 2009)



With market constraints becoming increasingly complicated, while worldwide supply grows and consumption stagnates, profit margins for flower producers are shrinking by the year. This is a real concern for such a significant industry in Kenya. Kenya must maintain its competitive edge in the global flower sector over competitors both nearby and far away. The only way is to continuously increase competitiveness. In order to do so, the following key challenges have been identified:

Guarding against external forces

Challenge:

The Kenyan flower industry is extremely vulnerable to the impact of external factors like currency rates, oil prices, climate and the economic situation in the target markets.

Recommendations:

1. Diversify, both in product and in the market. The Kenya flower industry should further diversify its export assortment and develop export markets.
2. Stimulate the development of climate control capabilities.
3. Adoption of Good Agricultural Practices (GAP) plays a significant role in the effects of climate change and increasing the competitiveness of an enterprise. (VC1)
4. Make available appropriate insurance products tailored for the industry.

SME involvement

Challenge:

Small and medium-sized (SME) producers – not only smallholders, but also producers with less than about 8 hectares – will find it increasingly difficult to compete internationally. Growers will face ever stricter requirements, which generally favour larger companies. Not all SMEs have access to the resources needed to keep up with the professionalisation of the global flower industry. The competition is scaling up, and quality and efficiency are continuously improving.

Recommendations:

1. Make information accessible to SMEs.
2. Improve financing possibilities for SMEs.
3. Targeted research and training for SMEs. SME producers are always limited by capital in terms of labour and technology and any capacity building in making them competitive would be vital.
4. Stimulate and facilitate cooperation among SMEs and between large firms and SMEs.

Focusing fiscal incentives

Challenge:

Experience from Ethiopia illustrates the potential impact of government support and coordination on the development of a young industry. Also the Colombian and Dutch governments still play a major role in facilitating advances in the sector. Each country faces specific challenges that ask for targeted support. So is the case in Kenya. A specific issue in Kenya, for instance, is the decentralised system of taxation that often results in double taxation and is time wise costly.

It is important that there is a sound incentive regime in place ensuring that resources flow to the industrial sectors that have the best comparative advantage, and within those, to the firms that are economically more efficient. The incentive regime should reward good performance such as high productivity and large positive externalities, and punish bad performance.

Recommendations:

1. The incentive mix needs to be re-balanced and become specific. Tax breaks to support specific activities like innovation, productivity and sustainability can have a more precise effect. Kenya is able and should compete on other factors than costs alone. As mentioned in VC4: While taxation imposed on the utilisation of resources such as water will encourage effective utilisation of resources, imposing taxes on composting is likely to impact negatively adoption of Good Agricultural Practices thus compromising the industry's competitiveness.
2. It is imperative to consolidate taxation for ease of admissibility and compliance. (VC4)
3. Be aware of a "race to the bottom". Coordinate tax policies among East African countries.



Knowledge and innovation

Challenges:

Kenyan growers will have to innovate continuously in order to remain competitive. They will need to respond to the permanent pressure on margins, professionalisation and changing supply chain requirements. They face growers in competing countries who are supported by excellent knowledge systems. According to Heemskerk (2008), most of the institutions, organisations and policies required for a functional innovation system are present in Kenya, but there are gaps in the system, because they are not optimally coordinated and do not operate in a systematic way. The industry has not yet fully utilised existing research capacity in the local R&D system for diagnosing problems providing solutions.

Recommendations:

1. Develop research capacity by improving financial, human and physical resources.
2. Improve coordination between knowledge institutions.
3. Open up international research sources and/or co-ordinate research activities in Kenya with related and experienced institutes abroad. There is ample potential for linkage with research and capacity-building activities in other East-African countries.
4. Enhance collaboration between entrepreneurs and the local research system to more effectively make use of available research capacity.
5. Create incentives for entrepreneurs to invest in research (innovative funding mechanisms).
6. Information technology investment for linking supply chain members and product traceability.
7. Improve specialised floricultural extension services and training.

National cooperation and branding

Challenges:

Competition from other supplying countries on Kenya's main markets is increasing. Colombian and Ecuadorian private sector bodies and export promotion organisations are more actively promoting their national brands than African countries.

Social and environmental concerns are increasingly important in the market (CSR, certification, carbon footprints, etc.). Compliance with standards becomes a license to participate in specific channels. Some Kenyan firms still demonstrate insensitivity to the principles of CSR, fueling adverse publicity and pressure from civil-society groups.

Recommendations:

1. Stimulate sustainable entrepreneurship and compliance with relevant standards.
2. Promote the Kenyan national brand.
3. Co-operation among Kenyan and between East African associations can be improved.

Enabling business environment

Challenges:

Governments create the rules and frameworks in which businesses are able to compete against each other. Experiences from around the world have shown that the formulation of macroeconomic policies alone may not be sufficient to trigger and sustain improvements in competitiveness. Attention also should be given to how they are translated into the operations of firms and markets. Firms that have to pay more than their competitors for energy, telecommunications, customs services, transport and logistics, finance, specialised skills and business services, and overall security will find it hard to compete in overseas markets. (World Bank 2010)

Although under pressure, Nairobi continues to be the primary communication and financial hub in East Africa. It has the region's best transportation links. Still, road conditions in some production areas are poor and facilities at the sea port are inadequate for handling fresh produce.

Kenya faces challenges associated with insecurity, corruption and political tension. The government has been unable to provide a secure environment for businesses and families, especially in urban settings. Property crime and violence are major concerns for investors and their families. Security is another normally avoidable cost for companies.

Recommendations:

1. Improve security.



2. Reduce excessive and complicated bureaucratic procedures.
3. Improve infrastructure road network and telecommunication, and expand sea and airport facilities. (VC4)
4. Stimulate the active participation of private sector in public policy formulation.



References

- Advice Committee 'Tuinbouwcluster Greenport.NL' (2010). Vitaal tuinbouwcluster 2040. Ministry of EL&I of the Netherlands
- Altenburg, T. (2010). Industrial Policy in Ethiopia. Discussion Paper 2010/2. German Development Institute.
- Brenthurst (2007). Colombia's Floriculture Industry - A Story of Self-Discovery and Export Success. Brenthurst Discussion Paper 8/2007. Brenthurst Foundation.
- CBI (2009). EU Market Survey 2011: Cut Flowers and Foliage. Centre for Promotion of Imports from Developing Countries (CBI).
- Cooksey, B. (2011). The investment and business environment for export horticulture in northern Tanzania. Background Paper no. 2. Overseas Development Institute (ODI)
- GDS (2011). Towards a Globally Competitive Ethiopian Economy: The Role of Services and Urbanization. Case Studies – Rose and Polo Shirt Value Chains. World Bank
- Gebreeyesus, M. and Iizuka, M. (2009): Discovery of successful non-traditional exports in Ethiopia and Chile: experimentation and coordination, first draft, paper presented at UNU-WIDER/UNU-MERIT/UNIDO Conference "Pathways to Industrialization", Maastricht, 22 Oct.
- Heemskerk, W. (2008). Agricultural Innovation Systems Analysis (AISA): the Kenyan cut flower industry. KIT
- Jaeger, P. (2010). Smallholders: How to Involve Small-Scale Farmers in Commercial Horticulture. Paper for the 6th video seminar in the series "High Value Agriculture in Southern and Eastern Africa"
- Kargbo A., Jing Mao and Cai-yun Wang (2010). The progress and issues in the Dutch, Chinese and Kenyan floriculture industries. *African Journal of Biotechnology* Vol. 9(44), pp. 7401-7408, 1 November, 2010
- KFC (2010). KFC Strategic Plan 2011-2013.
- Mosioma, A. (2007). Tax Competition: The role of Tax incentives in encouraging harmful tax competition in the East African Flower industry. Tax Justice Network for Africa.
- Middelburg, A.F. (2011). De zes grote bloemenlanden. Article in *Vakblad voor de Bloemisterij* Ed. 40, 2011.
- Middelburg, A.F. (2010). Sierteelt Ecuador in zwaar weer. Article in *Vakblad voor de Bloemisterij* Ed. 43, 2010.
- Middelburg, A.F. (2009). Sierteelt is niet in ieder Afrikaans land booming. Article in *Vakblad voor de Bloemisterij* Ed. 20, 2009.
- Ministry of Agriculture of Kenya - MOA (2010). National Horticultural Policy.
- Njoroge, S., Okech, T. (2011). An Assessment of the Factors Influencing Foreign Direct Investment Inflows in Kenya's Horticultural Industry. *International Journal of Business and Social Science*. Vol. 2 No. 5; March 2011
- Ngeleza, G.K., Muhammad, A. (2009). European Union Preferential Trade Agreements with Developing Countries and Their Impact on Colombian and Kenyan Carnation Exports to the United Kingdom. IFPRI Discussion Paper 00862
- Ploeg, R. van der (2009). World Flower Market. Article in *HortiHolland Magazine*. March 2009
- Polcar, E. (2010). Israeli horticulture back on track. Article in *Floriculture International*. Ed. November 2010
- ProEcuador (2011). Incentivos del Código de la Producción.
- ProVerde (2007). Business Plan Floricultural Research & Development Fund. Kenya Flower Council.
- ProVerde (2010). The European Market for Fair and Sustainable Flowers and Plants. Belgian development agency BTC & Trade for Development Centre.
- Veen, H.B. van der, H.A.B. van der Meulen, K.H.M. van Bommel and B. Doorneweert (2007). Exploring agricultural taxation in Europe. LEI
- Webber, M.C., Labaste, P. (2010). Building Competitiveness in Africa's Agriculture - A Guide to Value Chain Concepts and Applications. IDB and World Bank.
- World Bank (2009). Clusters for Competitiveness. A Practical Guide & Policy Implications for Developing Cluster Initiatives. International Trade Department.



Appendix 1 Dutch agricultural knowledge system

In this appendix, we provide background information on the Dutch agricultural knowledge system as requested by participants in the fifth video conference requested.

Text is an excerpt from: *ProVerde (2007). Business Plan Floricultural Research and Development Fund in Kenya.*

Dutch floricultural research: from OVO towards PPP

The development of the Dutch agricultural system has been strongly supported by the agricultural knowledge system. This system was put into place in the second half of the 20th century and consisted of a close interaction between the agricultural education system, the agricultural research system and the agricultural extension system³.

The OVO-triptych

As a starting point of this agricultural knowledge system often the so-called OVO-triptych is mentioned. The OVO-triptych reflects the close interrelations between **Education, Research and Extension** (in Dutch: Onderwijs, Voorlichting, Onderzoek). The exchange of information and transfer of knowledge, based on a strong infrastructure for scientific research and education, has led to a tremendous improvement of the Dutch knowledge basis and to a corresponding high level of innovation.

The Ministry of Agriculture was responsible for the entire agricultural education system in The Netherlands. The OVO-triptych, in fact, reflected the need for strong links between education and the agribusiness. Professional education and training were given by **Agricultural Education Centres**, which provided programmes from lower to higher education, for students between the ages of 12 and 20. The Agricultural College (later **Agricultural University**) in Wageningen was devoted to education in agriculture-related sciences at an academic level. It was founded in the 19th century, first as a State Agricultural School, with the intention of improving agriculture on the basis of increased knowledge via research and education.

In addition to academic research, more strategic and applied research was carried out at various institutes within the Agricultural Research Organisation (DLO), also under the responsibility of the Dutch Ministry of Agriculture. Since then, 'Wageningen' has developed into an internationally recognised centre of knowledge and expertise in agriculture⁴.

From knowledge-driven to demand-driven research

The organisation of agricultural research, however, has changed over the past twenty-five years. One of the main drivers for change was the required transformation of knowledge-driven to demand-driven research. The development of research, innovation and practical application was no longer the main responsibility of the government, but became much more dependent on the needs (and inputs) of the industry. Another driver for change was the increased globalisation of research, the required investments in technologies and the more multidisciplinary arrangement of research. To remain competitive on a global scale, it became important to improve the efficiency and the efficacy of the agricultural knowledge system in the Netherlands.

In education, the transition is from the OVO triptych towards a so-called OOO network, Education, Research, Entrepreneurship (in Dutch: Onderwijs, Onderzoek, Ondernemerschap), in which academic research, education and industries all work together in a network system, to establish effective education programs.

³ Kamphuis 2005

⁴ Dons & Bino 2006



In research, a transition can be recognised from a linear flow of information, from fundamental research via applied research towards implementation, in practice to a so-called **Public-Private Partnership (PPP)**. With these public-private partnerships, various stakeholders work closely together in a more dynamic and open system. New, innovative collaborations between universities and private companies are considered important to drive the value creation of knowledge⁵.

Wageningen University and Research Centre (Wageningen UR)

This all has led to a major reorganisation of agricultural research in the Netherlands, which took place incrementally between 1987 and 2004, and culminated in the creation of **Wageningen University and Research Centre (Wageningen UR)**.

Wageningen UR is collaboration between 1. Wageningen University; 2. Van Hall Larenstein School of Higher Professional Education; and 3. DLO foundation, i.e. the specialised research institutes from the Dutch Ministry of Agriculture.

Wageningen University and Van Hall Larenstein together offer a selection of bachelor's and master's degree programmes. Van Hall Larenstein focuses on integrated regional development, animal management, and nutrition and health. Van Hall Larenstein offers 14 bachelor's degree programmes and 6 professional master's degree programmes to a total of 4,400 students of 20 nationalities.

Nowadays, the complex array of the sector's research organisations has been transformed into a single large complex organisation covering most agricultural research and education.

How knowledge and research is organised in the Netherlands

Horticultural research takes place on three levels: pure, strategic and applied. Knowledge obtained from research is disseminated via study clubs and via relevant educational institutions. In addition, there are private consultancy firms that carry out commissioned research. Their findings are available primarily to their clients.

Fundamental research

Fundamental research is chiefly the work of university researchers and focuses on answering questions arising from scientific practice itself. This research is driven by pure curiosity and does not always aim at practical applications. Fundamental horticultural research is carried out at the **University of Wageningen** (part of Wageningen UR). The departments most concerned with horticulture are the **Plant Sciences Department** and **Agro technology and Food Sciences Department**. It should be noted that other departments are concerned with research into economic, business and marketing aspects, which play a role in horticulture.

Strategic research

Strategic or application oriented research is the focus of research institutes, which aim to develop expertise that can be applied within two to three years. The research institutes at Wageningen UR work on practically oriented research, aiming to develop expertise that can be applied within two to three years. Research might relate to new sustainable production systems, improvements to chains or responding to climate changes. There are also a range of short-term research assignments, conducted at the request of government, business, or public-private funds. Strategic research on horticulture is conducted by:

- **Plant Research International**; and
- **Agro technology & Food Sciences Group (AFSG)**.

Applied research

Applied research focuses on the use of knowledge to answer concrete practical questions. Applied research takes place throughout Wageningen UR, but especially in the regional centres for Action Research.

⁵ Dons & Bino 2006



Knowledge and insights arising from practice in field farming, animal welfare, housing and environmental issues form the basis for new management systems. New varieties and breeds are also tested, often in collaboration with future users. Funding for action research mainly comes from the business world and from branch organisations.

From 2001, applied plant research in the Netherlands is brought together under the **Practical Plant Research Organisation (PPO)**. The glasshouse horticulture strand of this organisation works in the cut flower, pot plant and the glasshouse vegetable sector. The PPO has research establishments in Aalsmeer, Naaldwijk, Horst and Klazienaveen, where work is carried out in modern, well-equipped glasshouse complexes. In addition, the PPO has laboratories, cold stores and climatic test chambers, different areas of expertise to support research and facilities for light measurement, substrate and nutrient research. The PPO's clients are the Ministry of Agriculture, Nature Management and Fisheries and the Product Board for Horticulture, which represents the private sector. Individual companies and organisations can also commission paid research.

Most Dutch cut flower and pot plant growers are affiliated, through the regional organisations, to the **Plant Production Information Service (LTO Groeiservice)**, a member organisation of the Dutch Federation of Agricultural and Horticultural Organisations (LTO Nederland). This service organises information evenings, excursions, courses and workshops on all aspects of the business. These cover cultivation subjects such as variety selection, climate control and integrated plant protection, but also business subjects like cash flow, personnel and information management and market-oriented production. The growers not only receive information from experts, but also exchange their own knowledge and experience. Many growers find this exchange of information a valuable source of technical knowledge.

The Plant Production Information Service also supports groups of growers. Often, these growers work together on a project basis, for example, in the development of technology, applied research or product promotion. In such cases, the Plant Production Information Service can, for example, write the project proposal, apply for a subsidy and provide the management or organisational support of the project. The Plant Production Information Service maintains contacts with a network of growers through excursion groups, regional working groups and national committees. It thus amassed a vast amount of practical knowledge. On this basis, the Plant Production Information Service represents the growers in negotiations and consultations with researchers, information services, suppliers and buyers.

Product Board for Horticulture

The Product Board for Horticulture (Productschap Tuinbouw, or PT, in Dutch) is a statutory industrial organisation (PBO in Dutch). This means that the regulations (statutes) formulated by the Product Board for Horticulture apply to all companies in the sector. The Product Board for Horticulture promotes the collective interests of all businesses within the sector: growers, auctions, traders, horticulturists, breeders, propagators, producers, retailers and their employees. It aims to facilitate as much as possible all the work in this chain, from producer to consumer.

The Product Board carries out different activities in areas like promotion, market research, information dissemination, formulating standards, and chain projects. The Product Board for Horticulture implements many Brussels regulations via the Joint Administration Department in close consultation with the Ministry of Agriculture, Conservation and Fisheries.

The **Flower Council of Holland** is the marketing and sales promotion organisation of the cut flower and houseplant industry of the Netherlands. As it is part of the Product Board, it is also financed by the mandatory levy to which all sectors of the trade contribute.

Every year, the Product Board for Horticulture spends millions of euros on scientific research. This helps to maintain the top position that Dutch horticulture occupies in technology. The research



institutes improve crops or develop growing methods that spare the environment. The Product Board itself monitors this work, to ensure that this is carried out efficiently.

Note that the role of the Product Board and Flower Council are currently under discussion.

Private research

In addition to the Plant Production Information Service, which is aimed primarily at sector-wide exchange of knowledge, there are **private consultancy firms** that often work exclusively for a single client. As a result of increasing professionalisation and competition in floriculture, growers, growers' associations and traders are turning to these consultancy firms more and more often directly. Their operations are not confined to the Netherlands: they also provide advisory services to foreign companies.

In The Netherlands, there is a clear trend that growers increasingly scale up and form growers' associations. More and more, these growers' associations want to be informed about relevant market developments. Sometimes they use external private companies to conduct specific research. In some cases, these grower groups hire representatives who act on behalf of the group of companies in the market place. Mostly, however, these representatives are merely sales representatives who also function as market researchers.

As mentioned before, we notice an internationalisation or even globalisation of the 'research market'. In particular, larger multinational companies and growers' associations 'shop' around the world among the different centres of excellence. Consequently, partly due to the withdrawal of government, government budgets tend to go to fundamental and strategic research, while industrial budgets fund applied research.

The **Practical Training Centre (PTC+)** in Ede provides supplementary and specialist education for the horticulture branch and for heating and cooling system installers. This organisation provides courses and training programmes not only in the Netherlands but all over the world. Foreign students often come to the Horticulture Department. Courses are also run 'on location' in the student's working environment. A very important aim of the courses is to enable the participants to reap immediate benefits from directly applicable knowledge. The Horticulture Department runs innovative projects in which the latest technological developments translate into education. PTC+ runs a number of international projects and provides guidance and supervision for others.

Capacity Development and Institutional Change Programme (CD&IC), part of Wageningen International, offers partners and clients a comprehensive range of capacity development services. The Programme is part of Wageningen UR's focus on 'science for impact' – actively linking research with societal change processes. CD&IC works to improve food systems, agricultural marketing and trade, natural resources management and the livelihoods of rural people. The Programme is active in countries with transitional and developing economies and on global issues.

In 2006, the portfolio of work previously undertaken by the **International Agriculture Centre (IAC)** was merged into the CD&IC Programme enabling greater collaboration within Wageningen UR on capacity development. IAC's main duties were to hold international courses for professionals, mainly from developing countries, to contribute to courses abroad, to advise on programmes and projects for the benefit of developing countries, to mediate in individual study programmes for researchers and to mediate in the deployment of experienced (agricultural) experts to work on projects in developing countries.