The impact on the Netherlands of the Egyptian greenhouse vegetable chain

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This report forms part of a broader analysis of the competitiveness of Dutch tomatoes, cucumbers and peppers on the European market. It describes elements of Porter's competitiveness analysis for the Egyptian horticultural sector. Within this framework, it presents an analysis of the domestic demand, the supply, the structure and strategy of firms, the network and the Egyptian government. It concludes with a SWOT analysis.

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Preface

This report forms part of the LEI research into the overall competitiveness of the Dutch greenhouse vegetable sector: it describes the Egyptian greenhouse vegetable chain. Egypt and Turkey are the two supply countries investigated in the broader research project; on the demand side, Poland and France have already been researched. Together with the research performed in 2001 on the supply countries Spain, Morocco and Italy and the demand countries Germany and the United Kingdom, an overall synthesis of the competitiveness of Dutch greenhouse products will be presented.

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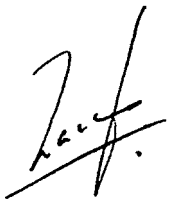

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Summary

The abundance of labour in Egypt allows the country to cultivate its scarce agricultural land in a labour-intensive manner. Horticulture is a good option for Egypt, because of the country's good climate and the availability of water from the Nile. The government not only stimulates horticulture but is also carrying out land reclamation schemes in order to increase the area of land available to agriculture: the area devoted to agricultural will be enlarged from 3 million to over 3.8 million ha.

Developments on the retail markets indicate that Egypt's domestic markets are becoming increasingly demanding. However, the maturity of the Egyptian food market is rather low compared to the highly developed Western European markets. For example, there are only 150 supermarkets in Egypt, only 2% of all retail outlets. This means that the products do not have the quality level for export. A huge effort on the part of local producers will be necessary to meet export requirements.

Egypt has the potential to become an exporter of tomatoes, cucumbers and peppers. However, it is not yet clear whether they will be able to compete price-wise with the Spanish in the winter period. They have the opportunity to produce a guaranteed quality level with which they can maximise the market windows with a quality product in periods of limited supplies and thus compete with Spain. Organic product could be a part of this. The knowledge and the managerial capacity present in Egypt seems sufficient to adopt new technologies and to enter new markets. Already in 1997, Jorna (1997) drew the same conclusion regarding the country's potential. In 2003, some of this potential had become reality. However, exports to Western countries are very small, amounting to hundreds rather than thousands of tons a year. Compared with the Netherlands, the level is negligible.

The Egyptian horticultural sector is rapidly becoming oriented towards the international market. At the moment, however, the export market is the daily business of only a very few firms. Nevertheless, the country is a sleeping giant in this respect. This impression is underlined by the statement: 'If Egypt can produce a small quantity better, it will be able to export large quantities'?

The networks in Egypt are sufficient and the industry can be described as complete, including the imports of machinery. However, the network is not yet mature enough to fulfil the country's export ambitions. The focus is still on the country's domestic market. The Horticultural Export Improvement Association (HEIA) plays a leading role in encouraging entrepreneurs to focus on the international market. The Dutch Centrum voor de Bevordering van Importen uit ontwikkelingslanden (CBI; Centre for the Promotion of Imports from Developing Countries) supports HEIA.

The reform of the Egyptian economy is in full progress and the EU/Egypt Association Agreement will contribute to an increase in the trade between the EU and Egypt. Some signs of this increase are reflected in the export growth of, for example, strawberries and

seedless grapes. Egypt has opportunities to export products that can be complementary products for Dutch traders, who will export these to other European countries.

Egypt has the potential to increase its export levels. Here, success will lie in meeting the quality standards of the EU markets and reaching the appropriate market channels. Only a very small number of Egyptian farms are pursuing these factors. Past developments are of only limited importance for the future. It will, however, take a lot of effort before Egypt will be in the position to acquire a significant position on the EU markets.

Samenvatting

Het land

De oppervlakte van Egypte is bijna 30 maal zo groot als Nederland. Echter slechts 3% (circa 3 miljoen ha) van de totale oppervlakte van Egypte is geschikt voor landbouw. In deze gebieden woont eveneens 90% van de bevolking. Deze gronden liggen allen in het stroomgebied van de Nijl of zijn er sterk van afhankelijk en liggen dan ook in de nabijheid van deze levensader. Deze gronden zorgen ervoor dat 70 miljoen Egyptenaren voor ongeveer de helft gevoed worden. Ter vergelijking Nederland heeft 2 miljoen ha landbouwgrond voor 16 miljoen mensen. De belangrijkste bronnen voor inkomsten zijn de dienstensector (circa 50%), de industrie (25-27%) en op de derde plaats de landbouw (15-16%). Landbouw is met 28% de tweede grootste werkgever. De officiële werkeloosheid is rond de 10%, echter andere bronnen geven 15 tot 25% aan. President Sadat startte de economische herstructurering naar een liberale economie. Een beleid dat Mubarak heeft voortgezet en in 2001 heeft geleid tot een associatie verdrag met de EU met als doel te komen tot een vrijhandelszone. Egypte stimuleert de tuinbouw en wil de toegang tot Europa benutten. Egypte verkeert daarmee op een kruispunt: de ontwikkelingen in het verleden geven slechts een beperkt inzicht in de potenties voor komende decennia.

De binnenlandse markt

Op een aantal basisproducten zoals brood, meel, bakolie en suiker worden nog steeds voedselsubsidies gegeven. Deze worden afgebouwd. Veel vlees en groente worden in kleine stalletjes (circa 15.000) in de openlucht of kleine buurtwinkeltjes (65.000) gekocht. Door de toenemende inkomens neemt de vraag naar gemaksproducten en hygiënische supermarkten toe. Het aantal supermarkten is beperkt tot 150. De rijpheid van de Egyptische markt is laag en ook de kwaliteit van het voedsel is naar Westerse maatstaven laag. Dit houdt in dat er nog een groot gat zit tussen de eisen van de Westerse markten en de geaccepteerde kwaliteit op de Egyptische markt.

Ontwikkeling tuinbouw

De ontwikkeling van de tuinbouw wordt reeds vele jaren ondersteund door twee organisaties die op papier ongeveer dezelfde doelstellingen hebben. De Union of Producers and Exporters of Horticultural Crops (UPEHC) is in 1971 opgericht en beleeft momenteel een herstart. Deze 'private' organisatie is gelieerd aan het Ministerie van Landbouw. Ze richt zich op een versterking van de sector door inkoop van productiemiddelen en informatieverstrekking aan boeren, meestal via voorlichtingsorganisaties. UPEHC richt zich met name op de kleine en middelgrote bedrijven. De Horticultural Export Improvement Association (HEIA) is in 1997 met Amerikaanse hulp van start gegaan. Ze is veel meer internationaal

georiënteerd, huurt internationale experts in en is actief betrokken via een perishable terminal bij de export van producten. De doelstelling van de overheid is producten met een hoge toegevoegde waarde te produceren en te exporteren. Dit vergroot de werkgelegenheid en met een deel van de deviezen kunnen ze andere basisvoedingsmiddelen importeren.

Productiegebieden

Van oudsher is Al-Fayoum de tuin van Caïro. De bedrijven in dit gebied zijn klein, hebben een laag niveau van teeltkennis (snoeien van fruitbomen is niet gangbaar) en de producten vinden vrijwel uitsluitend een plaats op de binnenlandse markt. De Nijldelta ten noorden van Cairo is eveneens een oud gebied en meer gericht op de teelt van rijst. In het gebied rond Ismailia zijn grotere bedrijven met kennis van moderne teelttechnieken, onder andere verwarmde en gekoelde plastic kassen. In dit gebied zijn ook bedrijven die gericht werken voor de export. Het gebied rond de Desert Road van Caïro naar Alexandria is 25 jaar geleden gestart en heeft vooral de laatste 5 jaar een snelle ontwikkeling doorgemaakt. De teeltkennis heeft een relatief hoge standaard en is voor diverse producten gericht op de export. Momenteel is er in de Sinai een nieuw tuinbouwgebied. Het wordt gevoed door nijlwater, dat onder het Suez kanaal door wordt aangevoerd. De ontwikkeling in het gebied rond Toshka in het zuiden van Egypte is nog in een zeer pril stadium van ontwikkeling.

Tuinbouwproductie

Egypte kan jaarrond tomaten, paprika's en komkommers produceren, dankzij het droge en warme klimaat. Hierdoor is de ziektedruk laag. Het klimaat en zonlicht bieden veel mogelijkheden voor tuinbouwproductie. Water moet voor 85% vanuit de Nijl aangevoerd worden, dit is van voldoende kwaliteit en in voldoende mate voorhanden. Door de nieuwe productiegebieden is er bovendien veel maagdelijke grond beschikbaar voor de tuinbouw. De mogelijk hoge dagtemperatuur vereist koeling in de kassen en koude nachten vragen om verwarming.

Bedrijven gericht op de export hebben een zeer moderne state of art van de productiewijze, evenals de rassen. Ze zijn veelal gecertificeerd en sorteer-, pakhuizen en koelcellen zijn aanwezig. Zowel HEIA als het Horticultural Research Institute spreken van market windows: 'Wat kunnen we produceren dat voldoet aan de kwaliteitseisen van de Europese markt en op een moment dat er bovendien geen concurrenten op die markt zijn?' Zoals tafeldruiven eind augustus, voordat de Griekse druiven op de markt komen. Hun belangrijkste productie- en exportseizoen ligt in de periode november tot mei. Licentie en kwekersrechten worden nog verzekerd, omdat Egypte het UPOV-verdrag nog niet heeft getekend.

Export

Nederland importeerde in 2001 voor 27 miljoen aan landbouwproducten uit Egypte en exporteerde voor 110 miljoen (met name vis en zuivel) naar Egypte. De belangrijkste tuinbouwexportproducten van Egypte naar Europa zijn pitloze tafeldruiven, boontjes en aardbeien. De export van aardbeien groeide van 1,000 ton in 1999 tot 11.000 ton in 2003,

die van pitloze tafeldruiven van 3000 naar 14.000 ton: jaarlijkse groeipercentages van de export van rond tot ver boven de 50%. Export van Nederlandse kasgroenten (tomaten, paprika's en komkommers) staat nog in de kinderschoenen en de export is sterk gericht op de Arabische landen. Ook is er een zeer sterke groei in de export van bloemen afgelopen 3 jaar, maar deze is qua omvang nog vrij beperkt.

Positionering van de Egyptische tuinbouw

De tuinbouw in Egypte wordt vergeleken met landen buiten de EU. Een vergelijking met Nederland en Spanje vindt plaats in het hoofdrapport en daar wordt ook de positie van Egypte in het internationale krachtenveld aangegeven. De tuinbouw in Egypte heeft een aantal *sterke* kanten in vergelijking met Turkije en Marokko:

- ervaring in tuinbouw met een redelijk kennisinfrastructuur (Universiteit en organisaties);
- een grote thuismarkt voor tuinbouwproducten;
- een goede beheersing van de Engelse taal bij een brede groep, waar potentieel zaken mee gedaan kan worden;
- er zijn stappen gezet op de Europese exportmarkten, met gecertificeerde producten ondersteund door marktverkenningen (windows);
- de overheid voert een stimulerend beleid onder andere door subsidie op vliegvracht;
- ze kunnen produceren wanneer concurrenten niet of in elk geval niet al te sterk op de markt zijn (market- windows);
- het droge klimaat, vereist relatief weinig inzet van gewasbeschermingsmiddelen. Ook biologische producten worden geteeld voor de export;
- ze kunnen tegen lage kosten produceren, door lage arbeidskosten en mede door de kortere transportafstand naar de Europese markten in vergelijking met Oost en Zuid Afrika of Zuid Amerika;
- met een geringe verschuiving van hun producten voor de lokale markt naar kwaliteitsproducten voor de export komt er een omvangrijke volume beschikbaar.

De *zwakke* kanten zijn:

- een matig niveau van teeltkennis, slechts een zeer kleine groep producenten kan produceren voor de Europese markt. Oude gebieden hebben een zeer verouderde teeltkennis;
- de infrastructuur van post harvest heeft pas een prille ontwikkeling doorgemaakt. De eerst perishable terminal is sinds oktober 2003 in gebruik;
- weinig kwantitatieve bedrijfsinformatie;
- ze moeten hun exportmarkten in Europa nog sterk ontwikkelen;
- de thuismarkt is voor vele producten zeer koopkrachtig, waardoor de prikkels voor export niet sterk zijn;
- de thuismarkt is nog niet ver ontwikkeld voor kwaliteitsproducten, waardoor een groot gat is met de aansluiting op de Westerse markten.

De *kansen* voor Egypte zijn:

- Europa en Egypte hebben in 2001 een associatieverdrag voor een vrijhandelszone gesloten, met op termijn afschaffing van handelsbelemmering;
- koopkrachtige afzetmarkten in Europa en een toenemende handelsliberalisatie naar de EU;
- steun vanuit VS en andere landen om de economie van Egypte te ontwikkelen;
- ze kunnen gebruik maken van de handelsgeest van Nederland, omdat ze aanvullend zijn;
- ze hebben diverse producten, die Nederland niet teelt of in onvoldoende omvang in bepaalde seizoenen. De Nederlandse groente en fruithandel kan daarmee haar assortiment uitbreiden.

Bedreigingen zijn er niet echt, behalve dat ze nu nog nauwelijks een positie hebben op de wereldmarkt.

Conclusie

In het algemeen zal Egypte gezien het productieseizoen en de gewassen geen concurrent zijn van Nederland. Dit geld ook voor aardbeien en boontjes, die in de wintermaanden op de markt komen. Belangrijkste uitdaging voor Egypte is beter te produceren en niet meer. Van de tafeldruiven wordt slechts 1% geëxporteerd en verdubbeling kan eenvoudig bereikt worden. Nederland kan vooral een rol spelen in de vermarkting van de producten. De teelttechniek zal gezien het woestijnklimaat sterk afwijken van de Nederlandse systemen. Hetzelfde geldt voor de gewassen.

De ontwikkelingen gaan momenteel hard en referenties aan de prestaties van voor 2000 zijn niet echt zinvol. Op termijn hebben ze op het gebied van vruchtgroente de potenties om een geduchte concurrent van Spanje te worden. Het overheidsbeleid en de internationale gemeenschap (USAID en EU-associatieverdrag) bieden vele mogelijkheden. In welke mate en op welk moment Egypte een positie op de Europese markt heeft voor vruchtgroente is momenteel nauwelijks in te schatten.

1. Introduction

This report describes the Egyptian greenhouse vegetable chain and its competitiveness with the Netherlands and the Netherlands' competitors on the international markets. It forms part of broader research into the internationalisation and competitiveness of three Dutch greenhouse products, namely tomatoes, cucumbers and peppers (Wijnands et al. 2004). Egypt is considered a potential supplier of these products to the markets on which the Netherlands is active. Another supply country - Turkey (van Woerden and van Paassen, 2004) - and two demand markets - France (Deneux and van der Horst, 2004) and Poland (van Velzen and van Paassen, 2004) - are part of the overall study. The study conducted in 2001 (Poot et al., 2001) investigated the countries of great importance for the Dutch market position. That study focussed on the main suppliers - namely Spain, Italy and Morocco - and the main demand countries, that is, Germany and the United Kingdom. An overview of the most important countries for the Netherlands will be taken into account in the overall study.

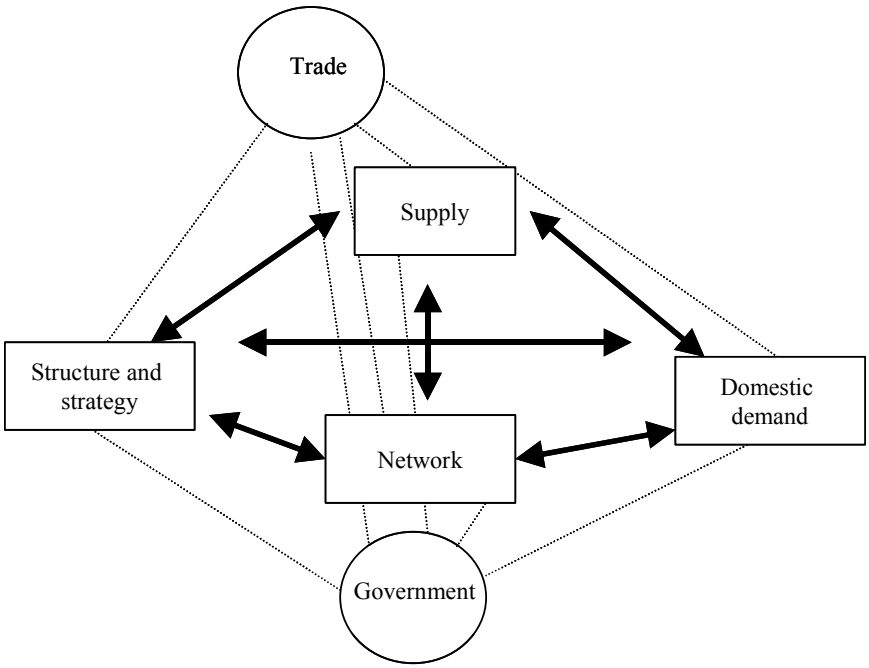

Figure 1.1 Porter's Diamond

The aim of this report is to describe the greenhouse vegetable chain in Egypt and to present an analysis of its competitiveness from the Dutch point of view. Porter's Diamond

(1990) is used to describe the greenhouse vegetable chain. In his approach, Porter distinguishes four key issues - domestic demand, supply, structure and strategy - and two external factors, namely the network and the government (Figure 1.1). The four key issues and the government form the framework of this report. The report starts by presenting a country profile for Egypt and ends with a SWOT analysis.

2. Country profile

2.1 General

Egypt is an independent republic with a democratic government. Within the Arab world, it is the most populous country and has second largest economy. It is neighboured by Sudan, Israel and Libya.

Figure 2.1 Egypt

Egypt's population is growing rapidly, viz. at 1.7% annually; in 2002, the country's population stood at 70.7 million. The total land area is approximately 1 million km^2; the population density is 70 persons per km^2. More than 90% of the population lives in the fertile, highly cultivated Nile Valley and Nile Delta areas, which between them cover approximately 3% of the total land surface and together are similar in size to the Netherlands. Table 2.1 presents an overview of Egypt's main cities.

In 2001, the country's GDP amounted to USD 86.4 billion (EVD, 2004). According to the OECD, the GDP per head fell from USD 1600 in 1990 to USD 1400 in 2001. Nevertheless, the country's GDP is twice Africa's average (OECD, 2003). The annual GDP growth rate was 2.5% in 2001 and 5-6% in the period 1997-2000. The inflation rate was approximately 2.1-2.7% in 2000/2001, but increased to 3.2-3.4% in 2002/2003.

The share of agriculture in the GDP is approximately 15-16%, compared to 2% in the EU15 and 8% in the 10 new EU countries. The share of agriculture in the Egyptian economy has remained fairly constant over the last decade. Services (which are mainly tourist-

oriented) account for almost half of the GDP. The second largest contributor to GDP is the industry and energy sector.

Table 2.1 The main cities of Egypt and their population

City	Number of inhabitants (x 1000)
Cairo	6,400
Agglomeration of Cairo	15,000
Alexandria	3,100
Giza	2,100
Shubra al Khayma	811
Port Said	461
Suez	392

Source: (EVD; Agency for International Business and Cooperation), 2004.

Table 2.2 Shares in GDP and in employment of four economic sectors

Economic sector	% GDP		% Employment	
	1993	2001	1991	2000
Services	47	46	40	49
Industry and energy	26	27	15	13
Agriculture	16	15	38	30
Construction	5	6	7	8

Source: Quefelec (2002).

The services sector is the largest employer: in 2002, it accounted for about half of all jobs (its share in 1991 was just 40%). The share of the agricultural sector fell sharply between 1991 and 2000, namely from 40% to 28% (Quefelec, 2002). Unemployment stands at about 10%, but figures of 15-25% are also mentioned. Unemployment among highly educated people is rather high.

The Netherlands is one of Egypt's top 10 trading partners. Dutch imports amounted to euro 228 million in 2002, of which agriculture accounted for 25%. The imports fluctuate strongly. In the same year, exports from the Netherlands to Egypt (mainly meat, dairy products and fish) amounted to euro 407 million. The USA, Germany, Italy and Saudi Arabia are Egypt's top trading partners; these countries mainly export to Egypt.

Egypt's infrastructure is well developed, although there are some notable deficiencies. For example, the telephone system needs substantial investments to bring it up to international standards, and 50,000 km of the country's 64,000 km of highway require considerable upgrading. The main hub airport is Cairo, which is served by many major

airlines. In total there are 89 airports, of which 63 have a runway longer than 1500 m (NN, 2001).

2.2 Climate, water and land reclamation

The Egyptian climate is characterised by its dryness. In the most moist region (i.e. around Alexandria), the average annual rainfall is 200 mm, while in the south it is less than 80 mm. The temperature in the summer can be as high as 40-500 C in the western and southern desert regions. Along the Mediterranean coast, however, temperatures are more moderate (maximum of about 320 C); here, the nights are fresh and the temperature can drop to freezing point.

The dry climate means that agriculture largely depends on the river Nile - the largest renewable source of fresh water in the whole of northern Africa (Vidal et al., 2001). The Nile is the main source (85%) of water for agriculture; groundwater contributes 8% and the reuse of drainage water accounts for the remaining 7% (EVD, 2004). The agricultural sector is Egypt's largest consumer of water, using about 85% of the country's surface water resources. A network of about 30,000 km of irrigation canals and 17,5000 km of drainage channels serves the estimated 3.1 million ha of irrigated land in Egypt, which represents only 3% of the country's total land area. To alleviate pressure both on the Nile water and on old agricultural land, the government has initiated various strategic programmes, such as the one aimed at reclaiming 1.4 million ha of desert land in the period 1997-2017. The following is a brief description of the major projects being carried out in Egypt.

- The Toshka project, which is designed to develop 225,000 ha of desert land in Upper Egypt for agricultural use. The only significant private investor - Prince Walleed Bin-Talal of Saudi Arabia - has purchased 40,000 ha (Smith, 2003);
- The Sallam canal project, which will bring irrigation to 92,000 ha of land in the west of Suez and to 168,000 ha of reclaimed land in Sinai. Irrigation and crop growing have recently started in both regions;
- The Umoun drain project, which will use water from the Umoun drain basin in the western Nile Delta to irrigate 210,000 ha in Nubaria;
- The Kalapsho project, which will use drain water from the middle Delta to irrigate 23,000 ha of new land in Kalapsho.

These projects will have major impact on the water balance of the Nile Delta. A project initiated by the Egyptian government and the US Agency for International Development (USAID) and costing USD 90 million is bringing the Egyptian irrigation system into line with the demand (Vidal et al., 2001). The present horticultural production regions are described in section 4.1 of this report.

2.3 Vegetable production and international trade

Table 2.3 presents some figures related to various fruits and vegetables, of which tomatoes, peppers and cucumbers are the most important. Tomatoes are the major product in the

vegetable growing sector. Cucumbers and peppers each make up approximately 3% of the Egyptian vegetable production. Despite the relatively high production quantities, Egypt's export of these products is almost negligible; for example, its exports of tomatoes amount to only 0.2% of the Dutch export of tomatoes. The main destination is Saudi Arabia. However, exports to Western European countries (mainly France, Italy and the UK) are increasing. The export of cucumbers is not worth mentioning. Although the quantity of peppers exported is also very small, the amount exported in 2000 and in 2001 was five times as large as that exported in the previous years. This is in line with market research conducted in 1996 by Harrison and El Saied (1996), who concluded that sweet peppers, among other products, have excellent market window opportunities.

These growing exports and the effort the Egyptian government is making to increase both horticultural production and the export of horticultural products comprise the main reason to conduct this study. The potentials of the Egyptian horticultural sector are addressed in the following sections. Egypt is a large-scale producer and exporter of green beans, and is emerging as an exporter of strawberries. The country's annual growth in the production of green beans represents half of the world's total growth, while the Egyptian annual production of strawberries has grown more than four times as fast as the world average.

Table 2.3 Egyptian production of various fruits and vegetables

Product	Production, 2002 (x 1000 mt)	Share in world production, 2002	Annual growth 1996-2002
Vegetables and melons	13,852	2%	5%
Tomatoes	6,329	6%	1%
Cucumbers and gherkins	355	1%	7%
Chillies and peppers	387	2%	3%
Green beans	215	4%	1%
Strawberries	68	2%	10%

Source: FAO.

3. Domestic demand

Egypt still has a system of food subsidies. Since the Nasser era, the state has made explicit its mandate to ensure basic food supplies for all Egyptians. The food provision system currently embraces four staples, namely baladi bread, baladi flour, cooking oil and sugar. In 1996/1997, food subsidies were at roughly the same level as the total earnings from tourism. Over the past 20 years, Egypt has quietly reformed its subsidy system. At the end of the 1990s, the costs had declined to around 5% of total government expenditures, from a high of 14% in 1981-1982 (Gutner, 1999).

Egyptian buying habits are changing. In the past, Egyptian consumers bought their meat and vegetables from small, neighbourhood shops. Although Egypt's open-air markets are still abuzz with vendors selling fruit, vegetables and meat, as the Egyptian economy grows and incomes rise, consumers are beginning to seek convenience and clean supermarkets. Major chains of multinational food retailers are meeting the consumers' demand (Abdi, 2001). With the increasing number of supermarkets in Cairo and of services offered in one place, high-income consumers have started to look for cleanliness, quality and a wider range of products, and thus purchase most of their requirements from supermarkets (Pomeroy, 2001). Although the market for consumer-ready food products is both new and relatively undeveloped, it is growing rapidly. The main suppliers are Europe (e.g. the Netherlands) and the USA. Local processors, independent and operating under license, account for a significant share of the market (NN, 2001).

Multinational food retailers have started to invest in Egypt. The South African retail chain 'Shoprite' currently has three outlets in Egypt and plans to open eight more. Shoprite has chosen a local partner to familiarise it with the Egyptian market. Its strategy is to offer competitive prices to attract consumers and to deal directly with manufacturers rather than distributors. The French retail chain 'Carrefour' is to open three hypermarkets in Cairo and Alexandria, while the German retail chain 'Metro' sells only to wholesalers. However, the British retail chain 'Sainsbury's' has closed its stores and left Egypt; all its outlets have been taken over by the local retail chain 'A-one market'. The only local Egyptian hypermarket is 'Alpha', which currently has three outlets but is expected to open two more quite soon. The following table provides an overview of the structure of the outlets, and reveals their small size. It is thought that the number of small grocery stores will shrink even further in the coming five years as large supermarket and hypermarket chains expand their operations. The top six retailers are locally owned (Pomeroy, 2001).

Few data are available on the domestic demand for and the consumption of vegetables. The following figures were established during our fact-finding mission to Egypt. Only nine million mid-income and four million upper-income consumers are able to purchase goods in a modern supermarket or hypermarket. The majority of Egyptians cannot afford high-quality products but accept what, by Western quality standards, are low-quality products. Due to the mediocre level of the post-harvest supply chain, quality losses occur between harvest and the moment of consumption. The price on the domestic markets can

easily compete with that on foreign markets. Because of the large number of consumers, the demand on the domestic market is rather high. The low level of exports indicates the same conclusion.

The developments on the retail markets indicate that the domestic markets are becoming more and more demanding. However, the maturity of the Egyptian food market is rather low compared to the highly developed Western European markets. This means that the products do not have the quality level required for export. A huge effort on the part of local producers will be necessary to meet the export requirements.

Table 3.1 Number of outlets

Region	Whole-salers	Super-markets	Groceries	Kiosks	Petrol stations	Total
Cairo + Giza	2,123	119	33,623	6,401	274	42,450
Alexandria	450	25	7,753	2,327	110	10,665
Total in Delta	1,917	4	23,143	5,834	336	31,234
Grand total	4,490	148	64,519	14,562	720	84,439

Source: Pomeroy (2001).

4. Supply

4.1 Production regions

As mentioned, Egypt is a very large producer of tomatoes and a medium-size producer of cucumbers and peppers. Egypt produces over 40 types of fruits and vegetables on about 800,000 ha of land. The horticultural sector has been continually expanding since 1987. Protected crops are now grown in more than 20,000 greenhouses, the average size of which is 570 m^2 (8.5 x 86 m). Egypt has approximately 1,200 ha of greenhouses, compared to Spain's 40,000+ ha. Traditionally, Egypt's exports comprise green beans, potatoes, onions and citrus fruits. In recent years, however, the country's exports of strawberries and seedless table grapes have been booming. Egypt is the world's seventh largest exporter of green beans (market share: 8%); Kenya is the largest exporter (19%), followed by Morocco (17%). Egypt is the main exporter of green beans to the Netherlands (market share: 25%), just ahead of Spain (24%) and Kenya (20%) (HEIA, 2003).

The following are Egypt's main production regions, all of which depend on water from the Nile.

- *Fayoum* - the ancient 'garden' of Cairo. Fayoum is a densely populated, natural depression located some 90 km south of Cairo. Here, agriculture is the main economic activity and the 136,000 ha of irrigated land are cultivated intensively on largely small-scale farm holdings. There are three seasons in this region, namely summer, winter and Nili (an intermediate season). The main problems in the area are water quality and quantity, salinisation and rural poverty. Fruit and vegetable production takes up 15% of the cultivated area and is strongly integrated into the existing mixed farming systems of arable crops and livestock production. In Fayoum, 90% of all farms are smaller than 2.1 ha; these small farms occupy 60% of the privately owned cultivable area. Field crops (e.g. wheat, cotton and maize) and fodder crops (e.g. clover) take up 85% of the cultivated area, while vegetables account for 10%, fruits 3% and medicinal and aromatic crops 1%. Till 1989 the total cultivated area of horticultural crops increased each year to reach a total of almost 60,000 ha, but decreased sharply in the following three years. The area stabilised and then slightly expanded to around 34,000 ha in 1995. Vegetables are the major group, followed by fruits and medicinal crops (de Jager and Koenraads, 1997). The impression acquired during the fact-finding mission is that this is a region with a traditional way of producing for the local market, despite several decades of development aid.
- *Nile Delta*. This region is of less importance for the horticultural sector. The farm structure resembles that in Fayoum. Important products are rice, milk, meat and cotton.
- *Ismailia region*, 100-150 km northeast of Cairo. The farms visited during the mission aim to export their products (tomatoes, cucumbers, peppers and strawberries). Some

of the farms have a close chain relation with Italian and German firms for the marketing of their products. This is one of the regions being stimulated by the government. The farms visited have greenhouses with heating, CO2-fertilizing and cooling facilities.

- *Region bordering the Cairo-Alexandria desert road*, 100-150 km northwest of Cairo. The development of this region started 25 years ago and has accelerated in the last five years. During our mission, we found several large-scale firms managed by academics. These farms, too, are market-oriented and focus on the export markets. Their crops are seedless table grapes, mangos, green beans and a variety of other vegetables, such as carrots and sugar snaps. Modern packinghouses and cool-storage facilities are available on the farms.
- *Sinai region and Toshka* (in southern or Upper Egypt). These regions have just started as new production locations. The General Authority for Investments and Free Zones (GAFI) provided us with some data on prices. For instance, land in the Toshka region costs euro 18/ha, and water is about euro 2 cents/m^3. These are very low prices compared with those in the Sinai region, where land costs euro 1,800-3,500/ha and water euro 10 cents/m^3 (GAFI), 2003).

4.2 Cost prices

The following figures are based on information gathered during the mission. At the time, no public information was obtainable, possibly because of the minor importance of these products for the export market. As mentioned, unemployment is rather high; the labour supply was not mentioned as being a problem. The cost of labour is approximately euro 2 a day, excluding transport costs for commuters. The availability of educated labour can be illustrated by some examples. Several firms are owned and managed by university professors. The integrated pest manager on one of the farms we visited has a PhD. The Egyptian workers are motivated and reliable, and they accept the hierarchy. The working pace is lower than that in the Netherlands, but this is compensated for by the much lower wages (Disco, 2001). Despite a literacy rate of 51.4%, Egypt's comparative advantage has been shifting from unskilled to skilled human capital, which includes large groups of skilled electronics IT workers as managerial talent.

The greenhouses are made of plastic, sometimes with heating and cooling options, but always fertigation (dribble irrigation with fertiliser in the water). The crops are grown in soil, not hydroponically. The greenhouses are disinfected by solarisation, and therefore the costs are low: they receive 50 days of solar heating in the summer, while the plastic cover is being replaced. For sweet peppers, the yield per m^2 is about 10 kg, of which 6 kg are export quality and 4 kg are for the domestic market. The total costs (all included) per m^2 are approximately euro 9. Airfreight to Europe costs approximately euro 1 per kg. The returns are approximately euro 3 per kg in Italy. The total costs are euro 15 per m^2, which means a profit margin of euro 3 (15-20%), even without the returns on 4 kg, which because of their lower quality are sold on the domestic market. GAFI (2003) mentions a 15% return on investment. More important is the price level of the sweet peppers, which is relatively high. Based on statistics from the Food and Agriculture Organization (FAO), the average

price of imported sweet peppers in the UK is just less than euro 2 per kg compared to the euro 3 of the Egyptian export to Italy. This means Egyptian sweet peppers have good quality features and a good market window. Farms that concentrate on exports are GAP certified. A British accreditation group had just audited one firm we visited.

At the moment the cost price is not the most important issue. Rather, the quality of the products has to be improved and the products must be available in quantities suited to the international market. The yields can be increased by applying more knowledge. Examples of the rather rapid adoption of new technology can be seen in strawberry growing. The latest principles of growing - including tissue propagation and the cooling of strawberry plants - are implemented within a year. Technogreen - which was established with financial support from Programma Samenwerking Opkomende Markten (PSOM; Programme for Cooperation with Emerging Markets) - has already achieved yields of 18-20 kg of sweet peppers per m^2. The company thinks that a yield of 28 kg/m^2 is within reach. These yields indicate a tremendous increase in production and, consequently, a decrease in the cost price. Technogreen's experience is that workers need good guidance in order to understand how to use the technology in a proper way. The company uses Dutch technology, seeds, equipment and advisory services (Disco, 2001). Thanks to the dry climate, the infection level is very low: there is only a little mildew (blight) and there are few problems with lice. The infection is too low to build up a biological treatment balance (Disco, 2001).

4.3 Growing seasons

HEIA leaflets (n.d.) suggest the availability of tomatoes, peppers and cucumbers all year round, courgettes not during the summer period and eggplants not during the winter period. Egypt has different growing seasons, depending on the production area, which means that its products can be on the market throughout much of the year. However, the new regions in the very south are not yet producing large quantities of crops, and transport costs are rather high. Firms to the north of Cairo mentioned the period November-April as their main growing season. According to Technogreen, this is an advantage, because during that period the Dutch production is very low. The company claims that its tomatoes are of high quality, unlike those produced in Spain. Moreover, even in the winter its greenhouses sometimes need to be shaded (Disco, 2001).

4.4 Organic farming

The potential for organic farming was mentioned several times during the mission. Consumers in Europe and the USA are interested in organic food. In Egypt, however, only 2,667 ha (a mere 0.08% of the total area of agricultural land) are cultivated organically. The Egyptian BioDynamic Association (EBDA) has experience with biodynamic fruits and vegetables. The EBDA claims to have 860 members (farmers) all over Egypt. The vast majority sell to Sekem, a company which distributes products that are grown by farming cooperatives according to strict organic methods. Sekem was founded by the EBDA. Exports provide the majority of Sekem's income. However, some organically grown products

contain excessively high levels of pesticide residues (Elamrani, 2000). This problem occurs mainly in the old regions; the transformation of their soil into organic soil is difficult, due to the high levels of chemicals present in the soil and the use of pesticides on neighbouring parcels. The new areas (see section 2.2, 'Climate, water and land reclamation') provide good opportunities to grow organically: the soil is virgin, the climate is dry and there are low levels of infectious diseases. The problem is the same as for the other vegetables, namely entering the markets with high quality standards and the value added markets.

5. Structure and strategy of firms

Little information was found about the structure and strategy of firms, although some information about the farm structure is given in Section 4. Section 3 contains some data on the structure of the retail sector. As Egypt is the world's fifth largest producer of tomatoes, numerous tomato growers and land owners are now planning to establish factories to process this crop locally. The equipment such factories require must be able to produce tomato juice and tomato paste during the summer season, and citrus juice during the winter season. There is also a demand for ketchup processing to meet the needs of the growing catering and food franchise industry. The private sector now controls 80% of Egypt's vegetable and fruit processing market. With the government's emphasis on exports, there is already an increase in demand for frozen vegetable and fruit processing machinery and for machinery for the preserved and canned vegetable sector. This sector is expected to grow by 47% in the coming three years (Strategis, 2003).

The most important wholesale market is Al Obour in Cairo, with an investment of about USD 100. 60 ha of the market's 130 ha are used as an actual market and the remainder as an industrial district. Some 1,200 agents and traders and about 4,000 vehicles access the market every day. The market mainly deals with fruit and vegetables, although there are areas for fish and frozen poultry. Cold-storage rooms are available: these rooms can store 1,000 tons of fruit and vegetables, 2000 tons of bananas and 250 tons of frozen fish (NN, 2000). Some 5-10% of the foodstuffs for domestic consumption can be held in cold storage. Producers and wholesalers can supply 60% of the demand of the 'high-price' market, but at the retail and distribution level the share is only 10% (NN, 2000). In general, there is an insufficient post-harvest capacity for cooling perishable products.

The fact-finding mission revealed some aspects of the firms' strategy. The phrase 'market windows' has been used several times in this report. Such a window is an export market on which one can use one's product specificity. The Egyptian export products have no specificity as regards quality or being unique. The most important specificity is the period in which they are on the market. For example, the export of seedless table grapes and strawberries is rather successful, because Egypt's products are on the market when others are not. The exports of strawberries increased from 1,000 tons in 1999 to 11,000 tons in 2003. The existence of different production regions in Egypt enables the possibilities of different growing seasons as well as the choice of varieties. HEIA helps farmers in the relevant decision-making processes. HEIA members can hire, at a reduced tariff, a consultant (most of whom are not from Egypt). These consultants provide technical, marketing and exporting information, as well as production input. HEIA Crop Councils develop an annual strategic plan to assist the industry to implement new technology and to improve post-harvest quality. However, a Crop Council does not yet exist for the greenhouse products tomatoes, cucumbers and peppers (HEIA, n.d.). Information about the post-harvest infrastructure was obtained from the firms visited during the mission. Because these firms are mainly focussed on export, they already have an adequate post-harvest infrastructure.

Egypt is not yet a member of the International Union for the Protection of New Varieties of Plants (UPOV), which means that the property rights related to plant breeding are not recognised.

6. Networks

6.1 Production and export improvement organisations

HEIA was established in 1997 and is supported by USAID. HEIA is the follow-up of the Agricultural Technology Utilization and Transfer (ATUT) project. The ATUT project was promoted by the Egyptian Ministry of Agriculture and financially supported by the USA, which also participated in the project (Jorna, 1997). HEIA encourages, facilitates and co-ordinates contacts and the free flow of information between its members and other agricultural subsectors. The overall objective of HEIA is to develop an international reputation for the quality of Egypt's products and to improve the agricultural labour force in order to promote a sustainable national economy. The following are some of HEIA's activities.

- Promoting integrated management systems in order to meet GAP standards. Growers can receive EUREPGAP approval from independent verification bodies coordinated by HEIA's IPM programme;
- Identifying market opportunities: HEIA collects information concerning buyers and product standards, and ensures the availability of appropriate services;
- Establishing a perishable terminal at Cairo International Airport. The terminal has been in operation since the end of 2003 and is now an important facility in the post-harvest chain to ensure the quality of export flows.

During the mission it became clear that HEIA is aiming at the higher segment of producers, which want to export their products. This will result in knowledge spill-overs, which will improve the technological and managerial level of other farms within Egypt. The members of HEIA were sometimes referred to as 'fat cats'.

The Dutch Centre for the Promotion of Imports from Developing Countries (CBI) supports HEIA in its aim to increase exports (van der Meer, 2002). The Union of Producers and Exporters of Horticultural Crops (UPEHC) was first established in 1971 and then regenerated in 2002 (UPEHC, 2003). UPEHC has a close relation with the Ministry of Agriculture (its chairman is a high officer at the Ministry). The strategic objectives of UPEHC - which are broader than those of HEIA - are to:

- Enhance the Egyptian horticultural industry;
- Develop Egyptian horticultural exports;
- Create new employment opportunities;
- Increase the national income.

UPEHC's services differ from those of HEIA, and are focused on enabling production by providing:

- Agricultural inputs;
- Climatic information;

- Spraying equipment, pesticides and packing materials;
- Packing, processing and cold storage services;
- The coordination of all types of transport and export contracts;
- An extension service, through a state-of-the-art network;
- Educational and promotional programmes.

The members are mostly small- and medium-scale farmers and cooperatives, processors and exporters. During our mission, no indication of a lack of inputs or a lack of other means of production was given.

6.2 Agricultural research organisations

The Egyptian Agricultural Research Centre (ARC) is the primary agency for technology generation within the Ministry of Agriculture (ARC, 2004). ARC's objective is to improve the technologies and services available to Egyptian agriculture through research, extension and training. The focus of future research programmes has been defined by a number of strategic (and somewhat challenging) national goals set for Egyptian agriculture, namely:
- To bridge the food gap and to increase self-reliance;
- To optimise crop returns per unit of land and water;
- To increase foreign exchange earnings from agricultural exports;
- To enhance the sustainability of agricultural resources.

Agricultural research in Egypt is supported by the government and through strong cooperation with many international organisations. In the fiscal year 1991/1992, total funding (i.e. both national and international) was approximately EUR 35 million, amounting to 1.21% of the national agricultural income in that year. Among the major foreign sponsors are the USA, various European countries, the EU, Canada, Japan, the UN Development Programme (UNDP) and the FAO.

ARC represents one of the largest and most complex infrastructures in Egypt dedicated to research and development in the agricultural sciences. It has:
- Sixteen research institutes. Two of these are the Agricultural Economics Research Institute (AERI) and the Horticultural Research Institute (HRI). The latter has a staff of 2,600, of whom 1,000 are researchers. The vegetable and the tomato research unit are just two of its departments. AERI is much smaller than the HRI: it has only 11 research departments and just over 100 research staff;
- Six central laboratories;
- Forty-six experimental research stations;
- Over 2,500 PhD researchers.

The state of the art is not known. During the mission, ARC and the University of Cairo were mentioned several times as useful sources of information. However, it was not possible to obtain information in English about cost prices or the marketing or structure of the greenhouse vegetable chain. The English-language leaflets were from 1994 and therefore outdated.

The National Research Centre (NRC) is also involved in agricultural research. However, it has far fewer researchers than ARC does. The activities of the NRC are focused on customer-oriented research aimed at addressing the national needs more effectively through scientific and technical research. Agriculture is one of the NRC's eight R&D programmes.

6.3 Equipment

Machinery for vegetable and fruit processing is generally custom-made. Each line component is obtained from a different source; hence, machinery suppliers and sources are difficult to determine. A good example is a typical potato processing line, where pealing and cutting equipment might be imported from Urshal (NL), while the freezing or frying equipment might come from Darcy (USA), and the preserving equipment from the USA, the UK or Spain (Strategis, 2003). The major suppliers of food technology equipment are Germany (market share: 29%) and Italy (22%). The main non-EU suppliers are the USA and Switzerland (NN, 2000). During the mission it became clear that also for the growers equipment and technology was sufficiently available from domestic or foreign manufacturers.

7. Government

In the period 1952-1970, Egypt - which was under the country's first president, President Nasser - had a centrally controlled economy. High tariff barriers protected the country's industry, which resulted in a low level of efficiency, low investment in the infrastructure and high deficits on the public finance balance sheet. President Sadat (1970-1981) took a new direction and the economy grew by almost 10% in the 1970s as a result of oil exports, remittances from Egyptian labourers working abroad, and the income derived from tourism and the Suez Canal.

After the price of oil dropped at the beginning of the 1980s, the Egyptian government was confronted with large deficits. A successful economic reform programme had been agreed with the IMF and the World Bank after the price of oil fell in 1985. In the first stage of the reforms (1991-1993), the government deficit was reduced, the Egyptian pound was allowed a free exchange rate (but was linked to the US dollar), and inflation was reduced to less than 10%. In addition, the subsidies given to state firms and the agricultural sector and subsides on energy use were strongly reduced, the list of import restrictions was shortened and import levies were reduced. The second reform - which focused on such structural objectives as privatising and creating a prosperous climate for the private sector - had less of an impact, as a result of the political sensitivity of the measures and the strong financial position of Egypt, which made them independent of IMF loans. At the moment, privatisation is far behind schedule.

After 1996, the economy developed rather well and Egypt became a lower-middle instead of a lower income country. However, since 1999 (and especially since 9/11) economic growth has slowed and the country's financial position has become less strong. At the moment, investments in infrastructure, transport and communications are badly needed. Egypt's ambition is to become a regional transport and distribution centre. The 20-year economic plan the Egyptian government drafted in 1997 has four major spearheads, namely:

- To develop new industrial and agricultural zones;
- To achieve an annual 7.6% growth in GDP;
- To increase the number of jobs by 550,000 annually;
- To increase industrial production by 9-11% annually (EVD, 2004).

International trade will benefit from Presidential Decree no. 106 (2000), which centralised the process of inspecting and certifying imported goods. The Decree transferred the responsibility for this to the General Authority for export and import control (GOEIC) of the Ministry of Foreign Trade; previously, it was the responsibility of five different government bodies. On 24 June 2001, the EU and Egypt signed the EU/Egypt Association Agreement, whereby import tariffs on most products (including agricultural products) will be cut substantially or eliminated over the coming 12-15 years (Abdi and El Masry, 2003).

The Agreement is expected to have a positive effect on the entire Egyptian economy as a result of, for example:

- An increase in agricultural exports to European countries. Exports could increase to over 600% of their current level if full advantage is taken of the privileges provided by the Agreement. However, this would still be a very low level compared with the Dutch vegetable exports (See section 2.3, 'Vegetable production and international trade');
- Aid directed towards improving government services to exporters;
- The simplification of import/export and custom procedures, which will enhance foreign trade.

By implementing the terms of the Agreement, Egypt has demonstrated its commitment to liberalizing the economy and to stabilizing economic policy, which will create a more attractive environment for foreign investors. The EU granted a substantial amount of aid (approximately euro 700 million in the period 1995-2000) to Egypt in the MEDA I programme (1995-1999). MEDA II - which has a budget of about euro 350 million - will run until 2006. The availability of new funds depends on how the funds provided in phase I are used, as well as on Egypt's presentation of viable projects for further funding (Serageddin, 2003). However, Madani and Olarreaga (2002) argue that Egypt's economy is overshadowed by its economic history. The developments in the last decade are still characterised by a heavy reliance on tourism, tolls for using the Suez Canal and, for example, workers' remittances. Tourism is the main source of foreign currency (28%), followed by remittances (20%). Agriculture contributes a mere 2% (Quefelec, 2002).

The EU/Egypt Association Agreement mentions the abolition of quantitative restrictions on imports and of all other restrictions with a similar effect on trade between the EU and Egypt. Ratification of the Agreement is slated for the end of 2004. Even without ratification, the terms of the Agreement have already been implemented in day-to-day practice. The Agreement is one of a series of broadly similar agreements between the EU and other countries in the region. Inspired by the 1995 Barcelona Declaration, they form the basis of a new Euro-Mediterranean Partnership covering security and economic and social relations. One of the most immediate consequences will be the creation of a Euro-Mediterranean Free Trade Area by 2010. Egypt's Ministry of Foreign Trade, however, mentioned a specific, probably short-term case, namely cut flowers. Exports of cut flowers to the EU have a quota of 3,000 tons under the following conditions: the price of the Egyptian exports to the EU must be at least 85% of the EU price for the same type of product and during the same market window (MOFT, 2004).

8. SWOT analysis

The benchmark for this SWOT analysis is the emerging countries in the Mediterranean region. An analysis with the Netherlands as the benchmark will be conducted in the overall report (Wijnands et al., 2004). Considering its high performance level in production and trade in vegetables, using the Netherlands as the benchmark at this moment would blur a good understanding of the potential of the Egyptian horticultural sector. The benchmark countries are Turkey and Morocco.

The *strengths* of the Egyptian horticultural sector are:
- Experience in horticulture and a fair knowledge infrastructure (University of Cairo, the Agricultural Research Centre, various sector organisations);
- A huge domestic market for horticultural products;
- A good knowledge of the English language, which facilitates international trade;
- Some experience of exporting to European markets, with EUREPGAP-certified products for specific market windows;
- The government stimulates horticultural development (e.g. subsidised air freight);
- The country can produce for the market in periods when others cannot;
- The dry climate allows low levels of pesticide use. Organic farming is also aiming at export. Low labour costs; short transport distances compared with Africa and South America;
- A small shift of its production to the high quality segment will lead to large - quantities suitable for exports;
- Products available in different seasons, as are those from several competitors. For the Netherlands, the sector's products are complementary.

Its *weaknesses* are:
- A low level of knowledge about growing vegetables. Only a few growers are capable of producing for the export market;
- Improvement of the post-harvest infrastructure has only just started, and capacity to produce according to the international standards is low;
- Little quantitative information;
- A need to develop foreign markets;
- The domestic market is large and pays a fair price. This reduces the incentive to export.

Its *opportunities* are:
- Markets with buying power in Europe, resulting from a liberalisation of the EU agricultural trade policy;
- Support from the USA and the EU in developing the Egyptian economy;

- It can use the Dutch knowledge of the European markets and the Dutch eagerness to do business all over the world.

The *threats* are:
None, except the very low export levels.

Success will lie in meeting the quality standards of the EU markets and reaching the appropriate market channels. At the moment, only a very few firms have experience in these fields.

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Appendix 1 Firms and organisations visited during the fact-finding mission

1. UPEHC
   Prof. Ayman F. Abou Hadid (Chairman) Mr Kalid Gomaa (IT specialist, Marketing and Technology network) Mrs Afaf El-Saghir (General Supervisor, Export Service and Technical Operation)

2. Roots (grower)
   Mr Ahmed Abo EL-Magd Ismailia

3. Foodico (grower)

4. HEIA
   Mr Wael Shinnawy
   Mr Oscar Salgado (Deputy Executive Director)

5. Belco (grower and exporter)
   Mr Sherif El Beltagy (President)
   Mrs Monda Araman (GAP/BRC project manager)

6. El Roda (grower and exporter)
   Mr B. El Baroudy (Managing Director)

7. Agricultural Economics Research Institute
   Dr Ahlam El Naggar
   Dr Mostafa Bedier
   Mr Mohamed Hassan Heikal

8. Ministry of Agriculture
   Mr Abdallah Shafie (Foreign Affairs)

9. Horticulture Research Institute (HRI)
   Prof. Assem D. Shaltout

10. Al Fayoum
    Hans Feijen (Project Leader)

11. Floramix Flowers and Plants (Helmy farm)
    Mr Mahmoed Helmy-El-Basyouny

12. Perishable Terminal, Cairo Airport