



agriculture, nature
and food quality

Greenhouse sector study South Korea



Final report

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For

Ministry of Agriculture, Nature and Food Quality

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Prepared by

LEI, Agricultural Economics Research Institute and consortium partners

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Prologue to greenhouse study Korea 2006

In 1992 the first horticultural sector study about South Korea from Dutch signature appeared. That study was commissioned by the department for Trade and Industry of the Ministry of Agriculture, Nature Management and Fisheries to the Agriculture Economics Research Institute (LEI). The author anticipated in those days a strong development of the sector in the years to come. Particularly the Korean government then was interested in development of the greenhouse sector, and the study therefore was directed at the opportunities in Korea for the Dutch greenhouse industry.

Now, almost 15 years later, a new study has been produced, with the same actors involved. This study evaluates the results of the greenhouse building boom of the nineties, which was mainly subsidy driven. The Korean Ministry of Agriculture and Forestry (MAF) has invested large funds in the development of the greenhouse sector of Korea. Looking back, it is observed that a strong core of greenhouse horticulture has been built up in the last decade, but that since the large governmental subsidies have been stopped due to the financial crisis in 1998, modern glass greenhouses have been hardly built. As it is concluded that the almost indiscriminate subsidy system has also led to many failures in greenhouse horticulture, the MAF is presently very hesitant in starting new subsidy schemes. The Government is more likely inclined to invest in maintenance of existing greenhouses, and encourages local governments to take the lead in new greenhouse development. As a consequence the greenhouse based horticultural sector of Korea is at cross-roads. Should one wait for new government incentives for the greenhouse sector, or should one follow up on the opportunities, which are offered by the Japanese export market. One thing is certain, the average level of production of flowers and vegetables is not sufficiently high in Korea, to allow the large investments, necessary for state-of-the-art glass greenhouses, which are built by the Dutch greenhouse industry. Korean growers therefore mostly settle for much cheaper locally built plastic covered greenhouses. The present study also deals with the latter problem. The most important question therefore is: are there opportunities for the Dutch greenhouse sector in South Korea. This study provides quite some useful information to answer that question, and the Agricultural office of the Netherlands Embassy intends to follow up on this study with a horticultural trade mission. However, the final answer has to be given by the industry, and as usual in business, there is always some risk involved.

2 May 2006, Jack Damen
Agricultural Counselor,
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Acknowledgements

This study on the horticultural sector of South Korea was requested by the Agricultural counsellor at the Royal Dutch embassy in Seoul and was organized on short notice. The project was led by ir. R. van Uffelen of the Agricultural Economics Institute (LEI) in The Hague. Mr Ha from the Dutch embassy supplied quite a lot of statistical information on the horticultural sector in South Korea. Ir. J. Hammerstein from LEI collected statistical information from trading databases on the export of horticultural products out of Korea and on the import of these products onto the Japanese market. The interviews of stakeholders in South Korea were carried out by ir. R. van Uffelen, guided by Professor Lee from Chonnam National University. Interviews among Dutch suppliers were carried out by ing. J. Nienhuis from LEI and ing. A. van den Bosch and ing. E. Beenen from PTC+ in Ede. Valuable comments on concepts of the report were made by ir. J. Damen, the agricultural counsellor of the Royal Dutch embassy in Korea, and ir. M. Stallen from LEI.

R. van Uffelen wishes to express his thanks for this co-operation, resulting in the report before you. It gives an overview of current developments in the glasshouse horticultural sector of South Korea and points out opportunities for Dutch suppliers of equipment, nursery materials, inputs and knowledge.

Dr J. Blom
Director of LEI

Summary

1. Introduction

Horticulture in Korea seems to be one of the more promising sectors, considering the fact that Korea is the only country in the world that can ship fresh vegetables and ornamental products by boat to Japan, the most important export market for these products in the region. In this perspective, the Dutch Ministry of Agriculture, Nature and Food Quality wants to assess if there are business opportunities for the Netherlands horticultural sector to invest in the Korean horticultural sector for the mutual benefit of both. Therefore a greenhouse sector study was requested of the Agricultural Economics Institute (LEI) with the aim to investigate the present situation in the South Korean horticultural sector, whether there is business potential for the Dutch horticultural sector in the Korean market and whether a trade mission can strengthen the Dutch – Korean relations.

2. Approach

In a desk study, information was collected from reports on the horticultural sector of South Korea and from databases with statistics about trade, vegetables and ornamentals. During a mission to South Korea interviews were held with stakeholders of the sector in vegetable and flower production, packaging and trade, suppliers, research, extension and training and local, provincial and national governments. Parallel interviews were held with Dutch suppliers on their business experiences and plans concerning South Korea and their view on the development of the horticultural sector. Based on desk research and interviews, a SWOT-analysis was carried out. This was done from the perspective of the Dutch suppliers who aim at a market position in supplying to the horticultural sector of South Korea. From the analysis, conclusions were made on the business potential for Dutch suppliers in South Korea and the feasibility of a trade mission. Finally, recommendations were drawn up based on the interviews.

3. Facts and figures

The production area under protective cover in South Korea is about 52,000 ha consisting of 50,000 ha single plastic tunnels; 1,700 ha multi-span plastic greenhouses and 300 ha of glass-houses. The provinces Kyonggi, Kyongsangnam, Chungchongnam, Chollabuk and Chollanam appear to be the main areas for flower production. In vegetable production the main products are tomatoes, cucumbers and strawberries; the production of sweet pepper has also been developing over the last decade. In flowers, the main products are roses and chrysanthemums. Production levels in the greenhouses in Korea are still low, compared to Dutch standards. Korea imports a lot of nursery materials. Vegetable seeds and cuttings come from Japan (pink tomatoes, strawberries) and from North Western Europe i.e. Dutch seed companies (tomato, sweet pepper, cucumber and strawberry). Korea imported in 2005 US\$ 7.7 million of flower bulbs and about US\$ 1,9 million in nursery materials for flower production, such as cuttings for carnations and chrysanthemums and cuttings with stems for roses. It is worth mentioning, however, that a larger amount of money is flowing annually to Dutch flower breeders in royalties on locally bred varieties of roses, chrysanthemums, carnations gerbera etc. This amount is presently estimated at US\$ 10 million.

South Korea started exporting its products, mostly to Japan, in 1998. While the export of tomatoes and cucumber decreased after 2001, the export of sweet peppers, other vegetables, cut flowers and foliage, cuttings and other live plants is booming.

4. A rich picture of the Korean horticultural complex

Production

Of the 52000 ha, the 1700 ha plastic multispan greenhouse and 300 ha glasshouse can be considered as modern facilities for crop growth with climate control. Because of subsidy policy in the past, growers formed associations of 3 to 5 growers to invest in production facilities. National and local governments have supported them by subsidizing part of the energy costs, improving growing systems, etc. Although the growers have learned a lot about plant physiology, climate control and operating the equipment, their knowledge still needs to be improved to yield a higher level of production with a better product quality. These are needed to increase economic profits so that their capital grows, enabling them to reinvest in greenhouses and equipment or expand their businesses.

Packaging, trade and export

Growers mostly do packaging of the product. From there it is transported to a collecting station located in the production area and subsequently to an auction or a wholesale market. There are also packing stations owned by growers or a trading company. With vegetables and flowers different products are made that also have to be transported to domestic or foreign auctions or wholesale markets. There, traders buy an assortment of products for their clients.

Suppliers

- *Technical suppliers.* The government's master plan created ten years ago resulted in the establishment of high-tech glasshouses and equipment from Western Europe (over 90% of the glasshouse equipment originated from The Netherlands). Because of strong competition too little attention was paid to instruction and after sales service. Growers had to wait a long time for repairs. They were not able to use the equipment to its fullest potential, because of their lack of knowledge. From that time on Dutch suppliers invested in agents and dealers to supply sales and after sales service. In the meantime South Korean competitors developed; the low quality – low price products have also improved.
- *Input suppliers.* Basic inputs like plastics, chemicals for nutrition and crop protection, ropes and different types of substrates are supplied by South Korean companies. More specialist products, like rock wool, are partly locally produced and partly imported. Biological crop protection agents and bumble bees, which used to be supplied by foreign companies can these days be provided by a local company specialized in the production of natural enemies, due to a generous government subsidy system (US\$ 60 million in 2006), which favors Korean products. This subsidy system is only supporting natural enemies. As for the bumble bees about 30% is still imported.
- *Suppliers of nursery materials:* South Korea is in search of varieties which are suitable to its climate, crop growing methods and market. Therefore a lot of seeds and plant material is imported. Paying for royalties to breeders has become well organized compared to some years ago, due to registration through the National Seed Management Office (NSMO).
- *Suppliers of knowledge; research, education and extension*
 - *Research.* The National Horticultural Research Institute carries out a substantial research programme every year. Experiments are executed with sweet peppers, tomatoes, roses, strawberries, etc. They investigate optimal crop growth conditions. In breeding programmes they develop varieties suitable to the Korean climate. Research results are forwarded to the Rural Development Administration, which summarizes and prioritises them for extension.
 - *Education and training:* The training facilities of Gyeongsangnam-Do Agricultural Research and Extension Services (GARES) are very modern. There is only one centre in Korea however. In 2006 they aim to attract 8000 growers to different training courses.

- *Extension:* The task of extension officers is to accompany growers in crop growth and to provide answers to their questions, and interpretations of government policy. Researchers and trainers say that their knowledge hardly reaches growers through extension. This is caused by bureaucracy and because the extension service is under the jurisdiction of counties.

Government

At the moment the subsidy policy is not clear to the different actors in the sector. The government representatives in the interviews referred to main goals for the future. They will aim at the development of horticultural clusters in 2007. The provinces will be challenged to develop the necessary plans. They will invest in education and training centres in the horticultural provinces. Effort has to be put into development of and investment in energy saving measures. Furthermore, the government wants attention to be paid to environment-friendly production. The most recent position of the national government is no direct subsidy for greenhouse building in the foreseeable future. For possibly subsidizing the development of greenhouse clusters on a provincial level, so far no applications have been received. The central government thinks more favourably, though, of supporting the renovation of existing greenhouses.

5. Dutch suppliers on the Korean market

In total 18 companies were interviewed: 3 greenhouse builders, 5 equipment suppliers, 2 suppliers of inputs, 3 knowledge providers and 5 suppliers of seeds and plants.

Experiences in South Korea: From the suppliers, 11 have 5 to 20 years' experience in South Korea; 3 have up to 5 years' experience and 5 don't have experience working in South Korea. So half of them experienced the period in which the government subsidized the development of the glasshouse horticultural sector. The government scheme was in place between 1991 and 1997 and consisted of 50% of subsidy of the total building cost, 30% of the cost in soft loans and 20% contribution from the farmers. In total about 200 ha glass greenhouse was constructed under this subsidy scheme, of which Dutch businesses built about 70 ha in turn key projects. The Gumi project fell under the same subsidy regime but was built only in 1999. Finally a large part of the glass greenhouses from that period was built by local constructors, and it turned out later that their cost but certainly also their quality was much less than the Dutch turn key projects. Some of the Dutch suppliers worked with a local dealer to overcome barriers like the language and culture. But not all of them were able to find a reliable partner who had good English-language skills, and had the same strategy for a long term relationship. From 1998 onwards, business in South Korea has been hampered for Dutch and other foreign suppliers. Hardly any new glasshouse project has been implemented since then.

South Korea as a market: The development of the sector has been depending on government subsidies. This makes the market unpredictable. When the subsidies stop, it is hard to sell greenhouses and equipment but suppliers are still obliged to carry out maintenance and repairs. The Dutch product has an image of being of good quality, reliable and expensive. In looking to achieve a high value for money, the suppliers aim at the professional growers. This is necessary because only they have the knowledge of plant physiology and plant control to reach production levels necessary for a reasonable pay back period. Most Korean growers are price oriented and have a low interest in investments, but increasing their knowledge could help to change this.

For some time, plant breeders and seed suppliers ran the risk that royalties for multiplying varieties were not paid. The subscription of Korea to the UPOV Convention in 2002 and the existence of the Korean Seed Industry Act helped to alleviate this problem.

Competition: "The high prices of Dutch products are an issue; but they go hand in hand with high quality". In general the suppliers face limited competition on the South Korean market

Mostly they compete with Western European companies, especially from the Netherlands and France. On specific products some other countries are strong in the Korean market, such as rock wool from Denmark, screens from Sweden and irrigation systems from Israel. The South Korean horticultural suppliers have grown rapidly over the last 10 to 15 years, supplying low-quality products such as glasshouses, plastic houses, substrates and chemicals at low prices. At present, however there is no Korean builder of glass greenhouses left.

Vision of future developments: According to Dutch suppliers the horticultural sector in South Korea has potential. Exports to Japan and the South East Asian region are growing and they are exploring new export markets in countries such as the USA. It is important that South Korea develops a clear quality policy for export purposes. The domestic market is developing higher quality standards for higher prices. These developments require investments by the horticultural firms and they offer opportunities for higher profits.

Regarding the government, one supplier said: “We have heard that a lot of plans are being made for development of the sector by the regional, provincial and national governments. Many of these plans just need the final go ahead. Dutch suppliers believe the horticultural sector in South Korea needs economies of scale and professionalizing. In reality there is one concrete plan for development of 20-30 ha glass greenhouse at Kwangyang City in Chollanam Province. The conditions for this development are that Dutch builders will build, but also finance the project and will operate and maintain it; the City will provide the land. No other subsidy is involved. As the investment in this project amounts to US\$ 20-30 million, it is unclear whether Kwangyang City will be able to find an investor.

Dutch suppliers think that a clear government policy, in increasing the level of knowledge on crop growth, co-operation among growers and attention for energy saving, are prerequisites for a good perspective for the sector.

6. Opportunities for the Dutch suppliers in South Korea

A SWOT-analysis highlights the opportunities of the Dutch suppliers on the South Korean market, namely the horticultural sector. The opportunities and threats have been drawn from the interviews with Korean stakeholders and Dutch suppliers. The strength and weaknesses were derived from the interviews with the Dutch suppliers.

To be able to respond to the opportunities, doing business in the future requires:

- Establishing a good relationship with the government, offering advice and solutions for growers' demands, i.e. establishing clusters and a training centre, which would help the Dutch into the role of preferred supplier in the future.
- Co-operation in or division of projects between Dutch suppliers in order to be able to keep promises and make a profit. This should lead to a friendly interaction with the Koreans and proper instruction, maintenance and repairs,

Reliable partners are important to be able to move quickly into the market. Suppliers should inform each other or should be assisted, i.e. by the Dutch Embassy.

To diminish the threats, doing business in the future requires the following steps:

- The suppliers should embrace Dutch knowledge transfer and training and the development of training centres in South Korea; it is a prerequisite to Dutch sales in South Korea.
- Dutch companies should work with a few consortia that develop into preferred supplier. This might be a solution for the ‘high competition / low profit’ dilemma.
- The Dutch have to make a clear case for how their product, by Korean experienced as expensive, may be not so expensive if the cost and yields are divided by the period of use.
- After sales services like instruction, maintenance and repairs should be properly organized.

7. Conclusions and recommendations

Conclusions

Because of the improved market perspective and government plans for clusters and training centres, there seem to be more opportunities for Dutch suppliers and advisers in the near future. South Korea needs experience to develop the sector. The sector will have to become mature and market driven and independent of subsidies.

From the desk study, the interviews, and the analysis the consultant came to the conclusion that there is sufficient evidence to organize a trade mission of Dutch horticultural suppliers to South Korea. A trade mission should have the goal of presenting 'Holland Horti BV' as a partner of the South Korean horticultural sector.

Recommendations

The Dutch suppliers believe that the Netherlands needs to develop strategies to have a stronger relationship with South Korea – a country with a high-value glasshouse horticultural sector. Suppliers expect the Dutch Embassy to make a strategy in presenting and supporting Dutch suppliers in South Korea. The following aspects can be taken into account:

- *Partner search:* In the interviews with Dutch suppliers it has become clear that they are more effective in a consortium or when working with a reliable local representative. About half of them are still searching for a local partner. A trade mission should address this demand.
- *Promotion:* Exhibitions and fairs are good opportunities for a joint Dutch presentation.
- *Demo:* There is a demand for facilities in South Korea, where modern crop growth techniques, nursery materials, combined with knowledge transfer and practical training, can be demonstrated. Several Dutch suppliers are interested in developing such sites.
- *Suggestions for organising a trade mission:* "A trade mission should be selectively composed with enough focus. Present a long-term strategy for co-operation. Aim at horticultural supply companies: hardware, nursery materials and knowledge as a coherent package. Choose the chain approach and use sound examples".
- *Participation in a trade mission:* Of the 19 interviewed suppliers, 7 were interested in a trade mission immediately and 3 were not sure yet. Nine (9) of the companies did not show any interest because they already do business in South Korea.

By this study and a possible sector trade mission as a result of it, the Agricultural bureau of the Dutch embassy in South Korea is taking steps to meet the demands of Dutch horticultural suppliers.

1. Introduction

1.1. Rationale for the greenhouse sector study

South Korea is a strongly industrialized country, in which the agricultural sector has a decreasing significance. The area of land used for agricultural production is roughly one third of the country's total area, which is about 2 million ha. This area is mainly used for small-scale traditional rice growing. Production costs are 3-4 times higher than the average world market prices. The overall government agricultural policy is directed toward appeasing the approximately one million rice growers, by giving them uninterrupted support and by allowing, through negotiations with the WTO, only minor access into the country for rice from the world market.

In view of the limited area of fertile and flat land, the future of agriculture in Korea lies in land consolidation and intensification of the production patterns. Horticulture seems to be one of the more promising sectors, in part because Korea is the only country in the world that can ship fresh vegetables and ornamental products by boat to Japan, the most important export market for these products in the region.

There is a need to more closely investigate what the present situation in the Korean horticultural sector is, and whether there is business potential for the Dutch horticultural sector in the Korean market. Therefore a greenhouse sector study was requested by the Ministry of Agriculture, Nature and Food Quality in order to assess business opportunities for the Netherlands' horticultural sector to invest in the Korean horticultural sector for the mutual benefit of both. The Agricultural Economics Institute (LEI) conducted this study and the findings are presented in this report.

1.2. Current state of affairs in the greenhouse sector in South Korea

Currently the South Korean greenhouse sector is characterised by smallholdings; family-operated companies; and a low level of mechanization. It is generally individually organized and production oriented rather than market oriented. However, this is likely to change in the near future. Modern technologies such as improved varieties, new greenhouses, sophisticated climate control equipment and ICT-based applications for growth control are being implemented by the Korean growers with support from the South Korean government. A relevant element of this modernization process is the ongoing training of South Korean growers at PTC+ Ede, the Netherlands. Farmers get hands-on training in modern greenhouse management and learn how to operate a modern greenhouse production firm.

Diversification of the sector and export of a broader range of vegetable products should be part of the strategy to make South Korea more competitive in the region. Increasingly importers ask for a comprehensive package of products and are less interested when only one or two commodities can be delivered.

Crop growing under cover is an agricultural development that started already decades ago in South Korea. It continues to generally involve rather low-tech solutions consisting of simple low frames with a plastic cover that has to be renewed almost every year.

In the 1990's, however, a grand government incentive programme triggered a building boom of modern glass greenhouses. Foreign greenhouse constructors designed and built the

greenhouses. Local companies were established, which were capable of copying and building similar greenhouses as the foreign ones, albeit of much lower quality.

At the beginning of the 21st century a total area of approximately 200 ha was under modern glass greenhouses, which were mostly used for vegetables, particularly paprika (73 ha), tomato (25 ha) and cucumber, and to a lesser extent for flower growing (90 ha).

After the government subsidy scheme stopped, due to the economic crisis in Asia starting in 1998, the construction of new glass greenhouses also stopped almost completely. The newly established local greenhouse building companies, which had thrived on the subsidy scheme, went bankrupt and disappeared altogether. After 2000 considerably fewer investments were made in greenhouse construction and then only for locally designed and constructed plastic ones. No new subsidy allocation can presently be expected from the central government, but some local provincial governments do occasionally provide investment support.

In general this means that there is still interest in South Korea in modern glass greenhouses designed and built by Dutch companies, but the cost of these greenhouses are beyond the investment capacity of the average horticultural grower in Korea.

1.3 Objectives

The objectives of this study are to:

1. Obtain an overview of the structure and state of affairs of the Korean horticultural sector;
2. Provide an outlook on the near future and long-term prospects of the horticultural sector in Korea;
3. Determine whether there are opportunities for Dutch companies from the horticultural sector to start or to expand their business in Korea;
4. Determine whether a horticultural trade mission, to be held in 2006, can strengthen the business relations in this sector between the Netherlands and Korea.

1.4. Guidelines for the reader

In chapter 2 the scope, approach and methodology of the study are summarized. In chapter 3 and 4 the results are described. First the results of the interviews in South Korea are presented. Subsequently the findings of the interviews with the Dutch suppliers are put into perspective. Chapter 5 consists of the SWOT-analysis from which a strategy is derived for the Dutch suppliers aiming at the South Korean market. The final chapter presents the conclusion on conducting a trade mission. Furthermore, some recommendations based on the interviews are given.

2. Approach and methodology

The scope of this project was to conduct a comprehensive greenhouse study, by examining existing reports and statistics and carrying out interviews with the stakeholders of the horticultural sector in South Korea, as well as with Dutch suppliers interested in doing business in South Korea.

The activities and deliverables, as formulated in the following paragraphs, are closely related to the four objectives listed in section 1.3. The following steps can be distinguished:

A. Existing reports. Reports and information on the horticultural sector of South Korea were studied. The most important and interesting factors are summarized in chapter 3.

B. Market (export and local) analysis for vegetables, fruits and ornamentals. From Eurostat and other databases that provide statistics about the trade of vegetables and ornamentals information was gathered to describe:

- the development of agricultural production in South Korea
- the development of South Korea's export sector with a focus on Japan as the main destination
- South Korea exports in relation to their most important competitors.

C. Interviews in the horticultural sector of South Korea

During a mission to South Korea in December 2005, interviews were conducted with government (policy) officials at regional, provincial and national levels, scientists, extension officers, trainers, growers, traders and suppliers. The following figure gives an overview of actors in the horticultural sector. Interviews with these stakeholders have been categorized and the results are presented in this report per category. This gives an overview of the present situation in horticultural production in greenhouses, technical developments, the exchange of knowledge, government policies, etc.

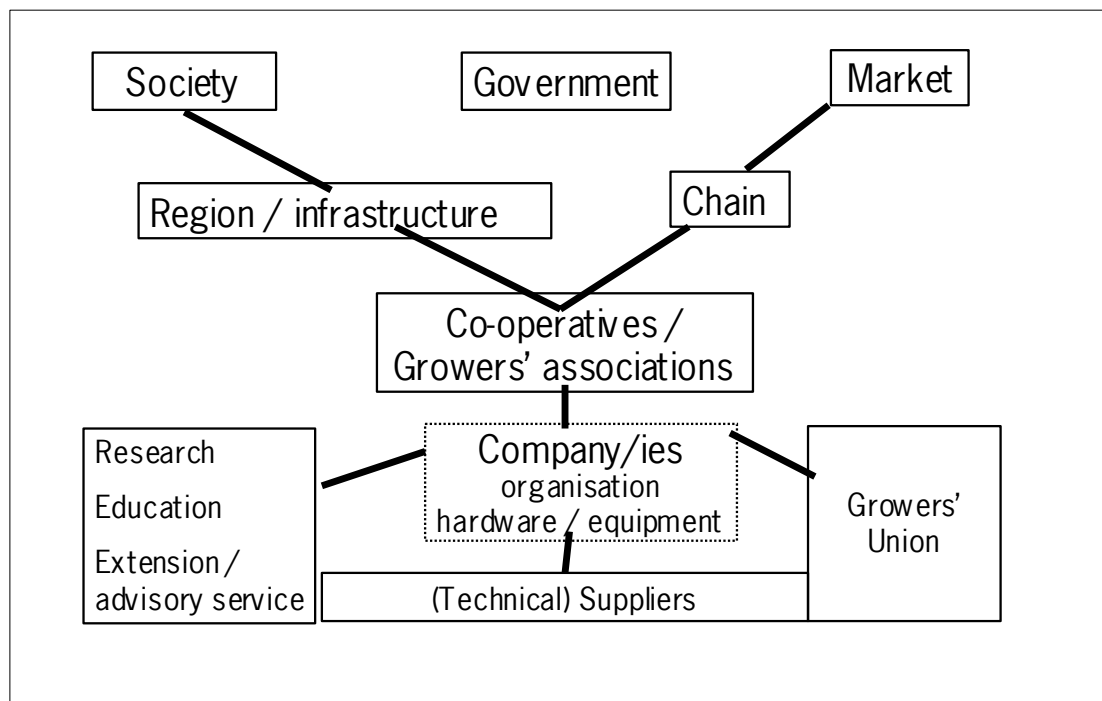


Figure 1. An overview of the actors in the horticultural sector and their relations

D. Interviews with the Dutch suppliers

In the Netherlands interviews were conducted with suppliers of knowledge, technical equipment, inputs and nursery materials and seeds. The suppliers were interviewed with the help of a questionnaire (see appendix 2). The main topics of this questionnaire were:

- Description of the supplier's type of product;
- The supplier's experience in South Korea;
- The company's plans in South Korea;
- The supplier's vision on developments in the greenhouse sector of South Korea;
- The company's interests in South Korea.

E. SWOT-analysis

Based on the interview results and the desk research, a SWOT-analysis was carried out. This was done from the perspective of the Dutch suppliers who aim at obtaining a market position in supplying the horticultural sector of South Korea. With respect to data collection and analysis, LEI pursued the following logical framework:

- The primary goal of Dutch suppliers is to do or expand business in the South Korean glasshouse horticultural sector (=their market); this includes greenhouses and equipment, inputs, nursery materials and knowledge.
- This can be achieved if South Korean growers can invest in expansion of their glasshouse sector, or if they need maintenance and services. In terms of the market as a whole this means that extra greenhouses (or parts), extra equipment (or parts) and extra inputs would be needed.
- Market demand for horticultural supplies is influenced by several factors:
 - Level of production and development in cost price as well as how they are influenced by equipment, inputs, planting materials and knowledge. Suppliers, research, extension and training may also play a role in improving production levels.
 - Product margin: i.e. the difference between the product's price and cost price on the domestic or export market. Development in markets, market volume, market prices of vegetables and cut flowers.
 - Whether the sector will be stimulated to expand because of regional, provincial and national government policies and subsidies.

In the interview results the strength and weaknesses of the Dutch suppliers were established, as well as the opportunities and threats posed by the South Korean market for horticultural supplies (see figure 2). The consultant categorized these different aspects into three categories. The most important strengths, weaknesses, opportunities and threats were put in a confrontation matrix (see figure 3). Conclusions were translated into the most important steps Dutch suppliers can take to improve their position on the South Korean market of horticultural supplies.

F. Conclusions

From the previous analysis conclusions were drawn with respect to:

- The business potential for Dutch suppliers of knowledge, technical equipment (i.e. greenhouse construction), planting material and seeds, inputs and knowledge
- The feasibility of a trade mission of Dutch horticultural suppliers to South Korea.

G. Recommendations

From the interviews recommendations will be derived.

From the perspective of Dutch suppliers

Status & trends

external factors

- Markets; supply & demand
- Markets; consumer needs & trends
- Competition
- Distribution chains
- Macro economic developments

Status & trends

internal factors

- Market share, marketing strategy
- Customers
- Product portfolio, competitive edge
- Production, systems, management
- Distribution, chain partners
- Financial results

SWOT steps:

- 1) Actual developments in the South Korean horticultural sector
- 2) Needs of the sector in order to be competitive
- 3) Barriers for Dutch suppliers to improve their market position

Figure 2. Collection of data for analysing strength, weakness opportunity and threats

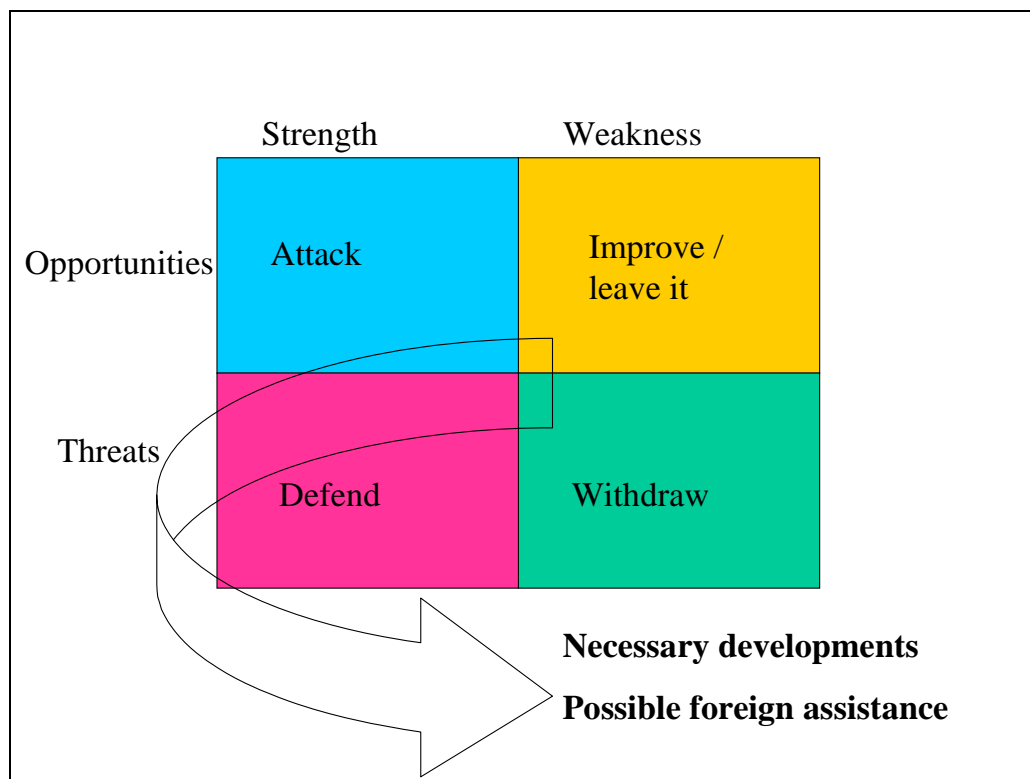


Figure 3. Confrontation matrix of the SWOT-analysis

3. Facts and figures of the Korean horticultural complex

This chapter presents the results of a desk study of the South Korean horticultural sector. Section 3.1 describes the production areas, important vegetable and flower crops, and production levels. The nursery materials that South Korea imports for this production are discussed in section 3.2. The vegetables and flowers that South Korea produces are distributed to domestic and export markets. Section 3.3 focuses on export products. More general facts can be found in appendix 2.

3.1 Production

The production area under protective cover in South Korea is about 52,000 ha. This area is roughly divided into three types of cultivation: 50,000 ha of single plastic tunnels; 1,700 ha of multi-span plastic greenhouses and 300 ha of glasshouses.

The main edible products are tomatoes, cucumbers and strawberries, while the production of sweet peppers has also increased substantially over the last decade. Tomatoes are the biggest crop for the greenhouse sector in Korea. The main flower crops are roses and chrysanthemums. Table 1 shows the development of the production areas of different crops..

Table 1. Production areas in South Korea under built up greenhouse

Year	Sweet pepper Hectares greenhouse ²	Tomatoes Hectares greenhouse ²	Cucumbers Hectares greenhouse ²	Flowers ¹ Hectares greenhouse
1995	1	--	--	
1996	--	3828	4996	
2000	110	4746	5843	
2001	133	3218	5412	
2002	135	3353	5494	
2003	145	3971	5351	
2004	180	5624	4747	3384
2005	215	--	--	--

² Includes cultivation in glasshouses for sweet pepper (70 ha), tomato (30 ha) and cucumber (10 ha).

(Personal communication, Agricultural Bureau Royal Dutch Embassy, 2005)

Production levels in greenhouses in South Korea are still low compared to Dutch standards. For example, while Dutch growers produce 28 kg/m² of sweet pepper (paprika), South Korean growers reach about 20 kg/m² in the glasshouses and about 10 kg/m² in the plastic greenhouses. The differences in production levels between types of greenhouses in South Korea are largely due to insufficient heating systems and lower light penetration in the plastic greenhouses. However, it is known that some growers with glasshouses reach about the same level as in the Netherlands. They have access to the latest technology, and receive regular input from Dutch and Belgian crop advisors.

South Korean tomato growers, who want to produce for the export market, make a great effort to grow Japanese varieties, despite the difficulties experienced in growing Japanese varieties such as Momotaro. Until 1998 few tomato growers succeeded. However, South Korean tomato growers rapidly acquired the necessary skills and the number of tomato growers

growing Japanese varieties has increased considerably since 2000 (personal communication Dutch Embassy, 2005)

As table 2 indicates, rose and chrysanthemum are the most important flower crops for South Korea in 2004. Table 3 gives insight into the major flower farming areas in South Korea.

Table 2. The relative importance of various flower crops in South Korea

	2004		
	Farm size (ha)	Sales quantity stems	Sales amount
Rose	764	725	176,312
Chrysanthemum	766	507	100,039
Lily	231	74	30,645
Carnation	113	115	30,683
Gypsophilia	119	22	26,036
Gerbera	72	57	15,449
Freesia	63	44	6,763
Gladiolus	41	44	5,878

(Personal communication, Agricultural Bureau Royal Dutch Embassy, 2005)

Table 3. Major flower farming areas

Province	No. of farms	Total flower farming area (ha)	Production area with glass greenhouses (ha)	Production area with plastic greenhouses (ha)
Kyonggi	4,302	1,782	15	1,068
Kyongsangnam	1,710	1,219	5	574
Seoul	659	275	0	143
Chungchongnam	1,434	694	8	242
Chollabuk	1,083	1,021	20	164
Chollanam	1,394	827	4	233
Pusan	615	226	1	216
Kyongsangbuk	300	335	22	76
Total	11,497	1,782	75	2,716

(Personal communication, Agricultural Bureau Royal Dutch Embassy, 2005)

3.2 Import of nursery materials

Vegetables

It is estimated that Dutch varieties of tomatoes are grown in only 100 ha of greenhouses in South Korea. South Korean consumers have a strong preference for pink tomatoes, while most Dutch varieties are red (Personal communication Royal Dutch Embassy, 2005). The seeds for sweet peppers originate from Dutch seed companies and a total of about 215 ha of sweet peppers are grown in South Korea. Strawberry varieties come from Japan as well as from north-western Europe.

Flowers

South Korea imports quite a large volume of nursery materials for flower production, such as cuttings for carnations and chrysanthemums and cuttings with stems for roses and bulbs.

From The Netherlands Dutch growers are only exporting key nursery stocks to Korean contract farms. These farms are propagating the imported nursery stocks and are selling the cuttings to Korean flower growers. In 1997 a significant decline in imports was observed, caused by the economic crisis in Asia and a sharp devaluation of the South Korean Won. Since then, imports have increased consistently each year, with some products even returning to nearly their original levels. The import volumes of roses and carnations are still at relatively low levels.

Table 4. Import of nursery materials of main flower crops

Planting materials					Flower bulbsper species				
Year	Carnation 1000 US\$	Rose 1000 US\$	Chrysan themum 1000 US\$	Flower bulbs 1000 US\$	Lily 1000 US\$	Tulip 1000 US\$	Gladiolus 1000 US\$	Iris 1000 US\$	Hyacinth 1000 US\$
1990	202			4229		981	750		
1991	211			4571		1093	786		
1992	488			4732		1141	652		
1993	794			5594	1822	1427	680	725	
1994	872			8051	3169	1797	740	1482	1482
1995	1149			8486	3948	1432	974	1232	1232
1996	1890	411	66	7774	4074	1386	725	1090	1090
1997	1411	235	28	7790	3707	1337	685	1106	1106
1998	124	41	3	2443	1063	301	401	281	281
1999	376	78	19	3712	1685	731	419	515	515
2000	433	59	59	5407	3221	540	435	594	594
2001	313	106	22	6533	3536	1029	321	890	890
2002	421	90	22	6587	3531	851	340	654	654
2003	523	90	36	6252	3731	720	366	378	378
2004	633	32	62	6851	4246	828	381	523	523
2005	--	--	--	--					

Source, Dutch embassy 2005)

(Personal communication, Agricultural Bureau Royal Dutch Embassy, 2005)

As illustrated in table 5, the Netherlands is the biggest supplier of nursery materials for flower production in South Korea. This is mainly because Dutch suppliers are specialized in high-quality nursery materials for bulbs and roses. Spain and Israel are also large suppliers of carnation plants, and the USA and New Zealand are also important producers and sellers of bulbs.

Table 5. Korea import of flowers nursery stock per country

Countries imported from in 2004				
From	Carnation 1000 US\$	Rose 1000 US\$	Chrysanthemum 1000 US\$	Flower bulbs 1000 US\$
Netherlands	276	28	21	6575
Spain	121			
Israel	104			
USA				85
China	22			40
New Zealand				59
Uganda			10	
Japan				49
Vietnam			20	3
France	9	4		
Taiwan				12
Kenya			11	
Others	101			28
Total	633	32	62	6851

(Personal communication, Agricultural Bureau Royal Dutch Embassy, 2005)

3.3 Export of horticultural products

Vegetables

Sweet pepper is a very important export product for South Korea. About 99% of the total export of this product is shipped to the Japanese market. South Korea began exporting sweet peppers in the second half of the 1990s and since 1998 it has been the Netherlands' biggest competitor in this niche market.. South Korea even took over the position of largest supplier in 2001 (see figure 4.). Since 2001, South Korea has been making an effort to diversify its export markets and has been exporting a small quantity of sweet peppers to Taiwan.

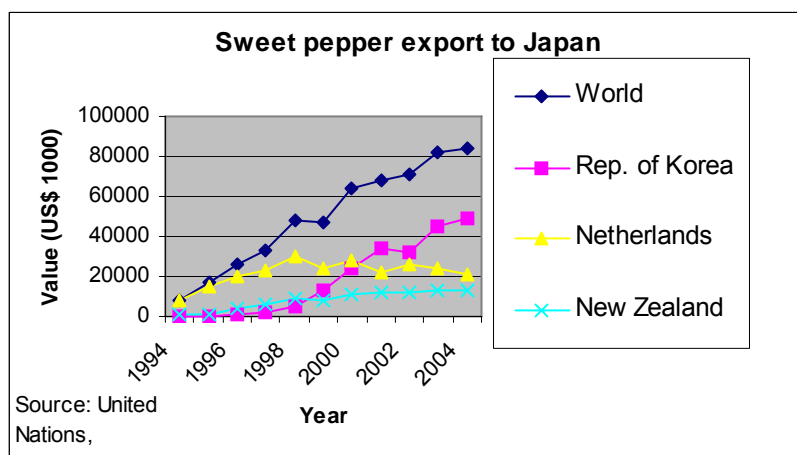


Figure 4. Export of sweet peppers to Japan from South Korea and other countries
(Source: United Nations Comtrade)

Until 1997 South Korea did not export large quantities of tomatoes, because most of the tomatoes were sold on the domestic market. But when the South Korean currency was sharply devaluated at the end of 1997, the export to Japan increased rapidly (Dutch embassy, 2005). Currently, 99% of the tomatoes produced in South Korea are exported to Japan (see figure 5).

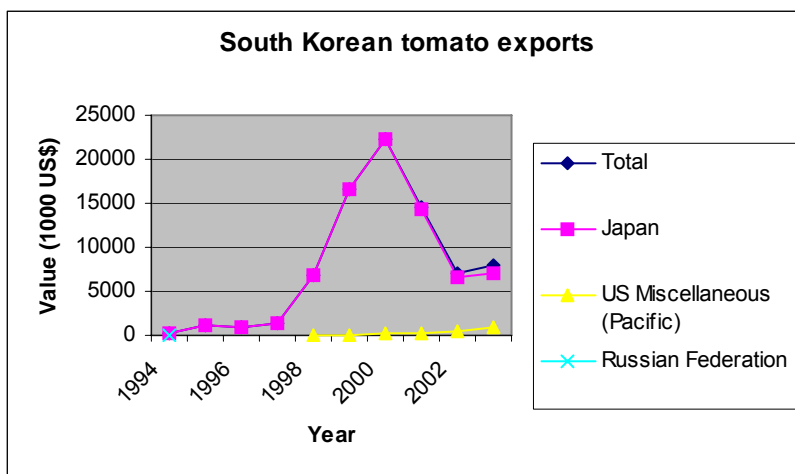


Figure 5. Export of tomatoes from South Korea to Japan and other countries
(Source: United Nations Comtrade)

South Korea is the only country that exports cucumbers to Japan. Thanks to the South Korean government’s subsidies for the sea transport, 99% of the country’s cucumber production is exported to Japan. The export value follows the same pattern as the export of tomatoes

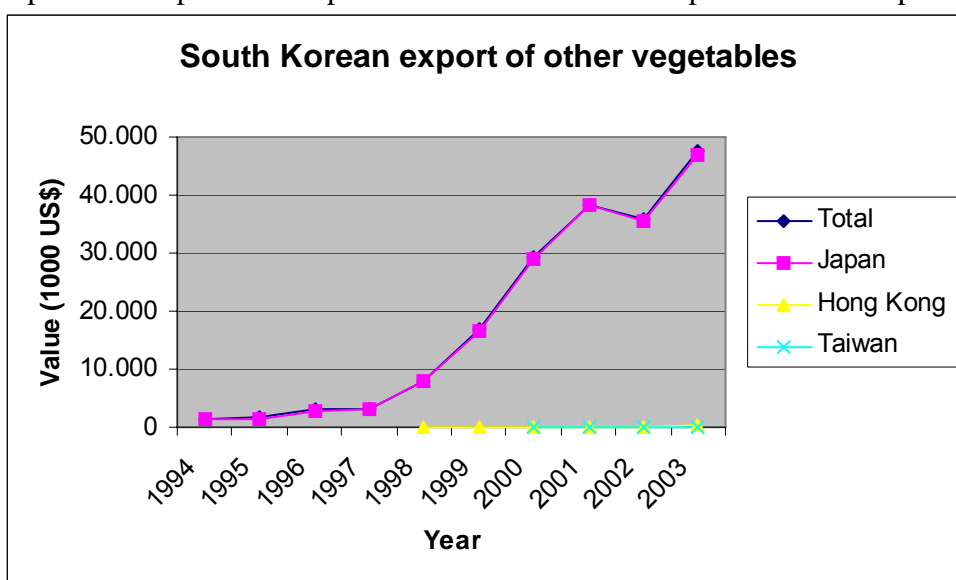


Figure 6. Export of other vegetables from South Korea to Japan and other countries
(Source: United Nations Comtrade)

Figure 6 illustrates that the export of vegetables other than sweet peppers, tomatoes, cucumbers and lettuce, has steadily increased in the past decade. South Korea has a strong competitive advantage in exporting to Japan because of the short distance, relatively cheap products, and the capability of its growers to produce products with the necessary quality. Moreover, thanks to the absence of the Mediterranean fruit fly and blue mould, South Korea is free to export to Japan and Taiwan (Personal communication, Royal Dutch embassy, 2005).

Flowers

Flowers have been grown in South Korea for decades, and for much of that time they have been sold through local auctions and outlets on the domestic market. The export of South Korean flowers to Japan has increased almost steadily since the second half of the 1990s by about 5 million dollars per year (see figure 7).

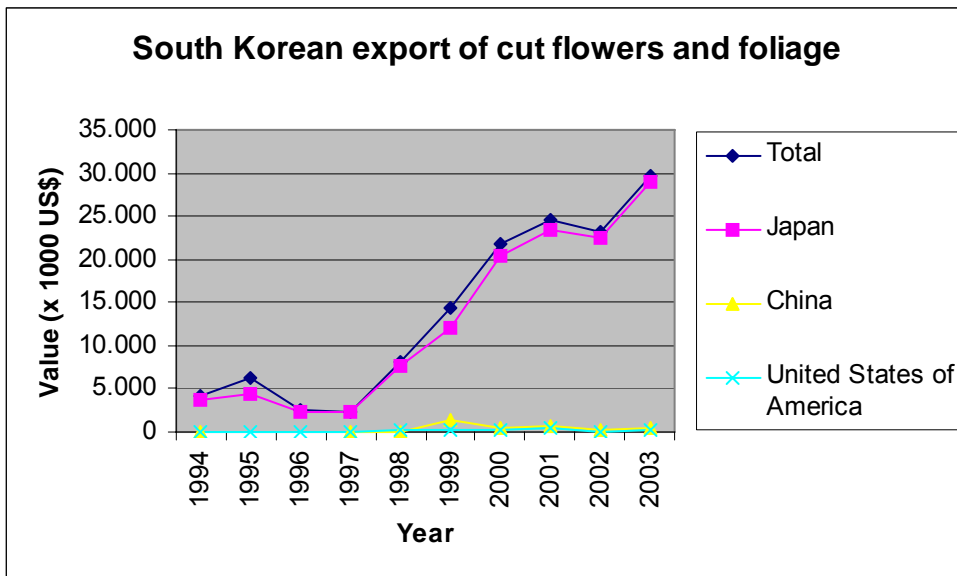


Figure 7. Export of cut flowers and foliage from South Korea to Japan and other countries (Source: United Nations Comtrade)

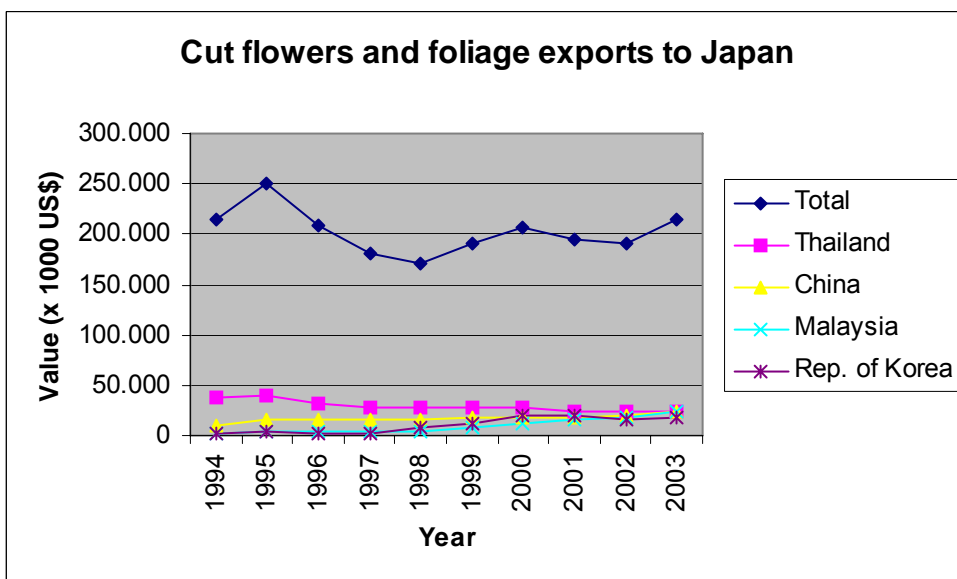


Figure 8. Export of cut flowers and foliage to Japan from South Korea and other countries (Source: United Nations Comtrade)

Developments related to the export of cut flowers and foliage to Japan are depicted in figure 8. Apart from a slight decrease during the Asian economic crisis in the second half of the 1990s, the market has been quite stable over the last decade. However, there has been a shift in flower suppliers. The value of flowers supplied by the Netherlands and Thailand has decreased, whereas exports from South Korea, Malaysia and China have increased.

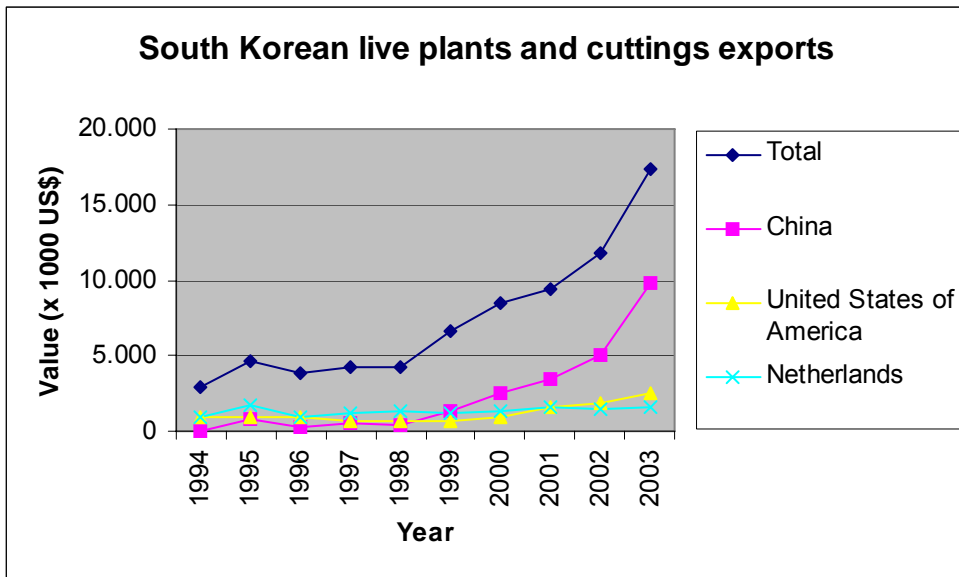


Figure 9. Export of live plants and cuttings from South Korea to China and other countries (Source: United Nations Comtrade)

Figure 9 illustrates that South Korea has consistently increased its exports of live plants and cuttings since 1998. Most of these are currently exported to China. Considering that the trade import value of cuttings into Japan is 60 to 90 million US dollars, there is considerable potential in this market for South Korea.

4. A rich picture of the South Korean horticultural sector

The Republic of (South) Korea is situated between northern latitudes i 34 and 38 and it spans a distance of about 500 km from north to south and 250 km from east to west. The country is a mountainous peninsula, surrounded by about 3,600 small islands. Its climate is characterised by hot, moist summers and cold winters. Growing under protective cover is necessary to create a suitable climate for crops. Heating systems in the winter and screens in the summer are needed for climate control.

4.1 Production

Current situation

In South Korea, about **51.200 ha** of land is used for the cultivation of horticultural products under protective cover. Glasshouses are used on about 318 ha of this area. About 5400 ha is covered with multi-span plastic houses. The remaining 46.000 ha are cultivated using single plastic tunnels.

The main production areas are situated in the provinces Gyeongsangnam-do (10,488 ha), Gyeongsangbug-do (9,403ha), Gyeonggi-do area (7,104 ha) Chungcheongnam-do (7,405ha), Jeollanam-do (4,747ha), and Jeollabuk-do (3,838 ha). From these figures of MAFF per 2005 it appears that the glasshouse horticultural sector is spread mainly in eight provinces.

The most **important** vegetable **crops** in South Korea are tomatoes (5624 ha), cucumber (4747 ha), sweet pepper (180 ha) and strawberry. Rose (764 ha) and chrysanthemum (766 ha) are the main flower products (see figures for 2004 in tables 1 and 2 in section 3.1). Apart from some orchids, the production of potted plants is very limited. Potted plants and asparagus are seen as products that have a good export potential in the future.

According to extension workers, about **20%** of the growers are **professional**. They have equipment from the Netherlands and other European countries for greenhouses and sophisticated systems for climate control, heating and water supply. Growers with glasshouses and multi-span plastic houses have the best production facilities.

Growers' associations mostly consist of a maximum of five growers, such as the sweet pepper growers' association (which produces the brand 'With You') in Jeollanam-do. The producers in such associations have usually invested in modern production facilities. The packaging and trade are mostly left to other parties. These associations are compliant to

government policy. Growers in South Korea can only get a subsidy if they are members of an association consisting of a minimum of five growers, and have a sound plan. This has resulted in lots of small growers' associations.



Photograph 1. Glasshouses of the Chamsam growers' association (which produces sweet peppers)

Compared to Dutch growers (Kwin, 2005), South Korean growers on average have **low production levels**. Even those with modern facilities have production levels that are about 40 to 65% of Dutch production levels. This is because the average grower in South Korea lacks:

- knowledge of plant physiology and plant control opportunities;
- knowledge about operating modern Western European climate control equipment;
- command of the English language (instruction and operation of most Western European equipment is still in English);
- plant varieties that are optimized for the South Korean climate and production circumstances;
- energy use efficiency;
- re-investments to continually improve productivity and quality.

Furthermore, growers have to cope with the local climate, in particular the rainy monsoon season and the high temperatures and corresponding high humidity in the summer season.

4.2 Packaging, trade and export

The national and provincial governments have supported the horticultural sector with regional **collecting stations** for horticultural products. Growers bring their products in standard boxes to small warehouses. Unfortunately, these warehouses have poor logistics and no cooling facilities. In these stations the products are not processed, but only prepared for transport to the big cities. The products of different growers are graded according to size and weight using grading units produced by domestic companies or by hand.

Some growers have joined forces in **grading and packaging stations** in Chollabuk, Chollanam and Kyonsangnam. For instance, 25 growers have invested in **Nongsam Trade Company**. Sweet peppers are sorted, graded and packed into different types of products, such as 5 kg boxes of sorted products, but also different types of flow packed products; all under the brand name 'Whimori' (Whistle in the morning). The boxes with these products are stowed on pallets and stored in cooling facilities, until they are transported to overseas markets.



Photographs 2 and 3. Packing sweet peppers at Nongsam Trade

A similar situation is found in the flower sector. **Rosepia** is owned by about 25 rose growers. About 80 varieties of spray and single flower roses are collected and immediately cooled down to temperatures of 2 to 4 degrees Celsius. These two rose types are processed differently; single flower roses are sorted by length by machines made in the Netherlands. The spray type is sorted by hand. The graded product is put into printed cardboard boxes containing 50 roses, and is then ready to be exported or sold on the domestic market.

Flowers and vegetables intended mainly for the domestic market are also auctioned in the Seoul area. Table 6 shows that the domestic market for cut flowers has increased threefold over the last 15 years.

Table 6. Development in the domestic cut flower market (note: 1 euro = 1230 Won)

Year	1990	1997	1999	2001	2002	2003	2004
Per capita purchases (Won)	5,646	12,611	12,731	14,829	16,567	16,779	18,647

Produce designated for Japan is shipped from ports in Pusan, Masan and Gwanyang to Japanese importers. Several traders are involved in trading vegetables and flowers to Japan. For example 'Nongsam trade' has a good relationship with importer Dole Japan. The Japanese importers also bring the South Korean produce to an auction. This means that South Korean growers and traders are not in touch with their end-buyers and consumers.

The Agro & fisheries trading corporation (AT Centre in Seoul), which is a semi-governmental organisation, has market and export teams. They keep records of the foreign trade, conduct market studies and promote South Korean products. They also stimulate and support the development of South Korean product brands, like Whimori.

Since 2001, South Korea has taken over the Netherlands' role as the primary supplier of sweet peppers to Japan. South Korea now also considers China as a potential competitor, but it is presently expected that due to phytosanitary reasons Japan will not allow Chinese fruit vegetables to be imported in the next few years. The flower market is a different issue. Malaysia and Vietnam are joining Taiwan as new competitors on the Japanese flower market.

4.3 Suppliers of equipment, inputs, nursery materials

Technical supplies

About fifteen years ago there was hardly any high-tech glasshouse horticulture in South Korea. At that time, the government initiated a master plan and subsidized the development of this sector. As a result a large volume of glasshouses and equipment were imported, mainly from the Netherlands, into South Korea, thereby increasing competition between foreign suppliers and reducing prices.. Glasshouses were sold for low prices, so hardly any margins were left for after-sales service and maintenance contracts.

After this period of subsidies, and the Asian financial crisis, investments drastically declined. Now that the sector has been built up again, , Dutch suppliers of greenhouses and equipment have organized themselves through dealers and agents. They sell Dutch products and parts, keep an eye on the market, organize product training courses, etc. MIFKO, for example, is a dealer of products made by Koppert, Grodan, Van der Hoeven, Priva and Enza. With these products they aim at the top end among the growers. Dealers also introduced repair services for these products, albeit at a capacity that is still too low.

In the meantime South Korean suppliers of technical equipment have developed alternatives for Dutch greenhouse technologies (e.g. glass, plastic multi-span, heating systems, water supply and disinfection, climate control system). The prices are low compared to those of European suppliers (33 - 66%), as is the quality. Glasshouse growers complain that the cheaper South Korean products can eventually be more expensive than the Dutch ones, because they need more maintenance, replacements and repairs. Nevertheless, South Korean glasshouse technologies have improved in an ongoing process over the years. The manufacturers would like to learn more from their Dutch competitors and because economies are booming in Asia, there is ample room for development of the sector.

Supplies of inputs

Most inputs for crop growth come from South Korean suppliers. These include energy (sticky oil or coals), agricultural chemicals, knowledge (from crop protection agency) and plastics. Substrates like perlite and cocopeat are imported from the Asian region. The more specialized horticultural inputs are imported from Western Europe, the Netherlands in particular. Examples are rockwool substrates from Grodan and biological pest control for reduction of the use of agrichemical agents, and bees for improving fruit set from Koppert. Since a few years South Korea has its own large scale producer of biological pest control insects, Sesil, which mainly took over the supply of natural enemies to the horticultural sector from Koppert in Korea.

Supplies of plant materials

Glasshouse vegetable plants are grown from seeds. According to a rough estimate Korea produces about 80% of its vegetable seeds itself. The remaining 20% is imported, of which Japan has by far the largest share (40%). After China and Italy, The Netherlands is the fourth largest exporter of vegetable seeds to Korea. Its share is about 2% of the total seed requirement. Seeds from the Netherlands are mainly sweet pepper, of which The Netherlands exports over 95% of the total seed requirement, and tomato seed, of which only a small part of the Korean requirement is covered. The main Dutch seed suppliers in the Korean market are Rijk Zwaan, De Ruiter, Enza, etc. The plants are grown by specialist plant growers, as well as by general growers themselves. The latter use a greenhouse compartment for growing young plants. For strawberries Japanese and South Korean varieties are used. For roses and chrysanthemum the cuttings are produced in South Korea itself under licence of Dutch and German companies like Schreurs, Kordes and Fides.

Although the situation regarding plant breeders' rights and royalties has greatly improved in



South Korea, European suppliers are still cautious. South Korea, on the other hand, is in search of varieties which are suitable for their climate conditions throughout the year and this gives incentives for seed and cutting suppliers to develop varieties in South Korea. Furthermore, South Korea has developed research programmes for crops like roses and strawberries to develop new varieties.

Photograph 4. Trails of new strawberry varieties at the National Horticultural Research Institute in Pusan

4.4 Research, extension, education and training

Research

The National Horticultural Research Institute (NHRI) is the central organization for horticultural research. Its headquarters are in Suwon and another centre is located near Pusan. The institute employs about 160 researchers, who are specialized in crop growth, water supply and nutrients, crop protection and climate control. It does not, however, have a department of economics and management for the horticultural sector.

Generally speaking, the facilities in Pusan are modern. They encompass a wide range of greenhouse constructions including different types of plastic houses (both single and multi-span). In the second half of December 2005, a new glasshouse was under construction.

The institute conducts experiments on the main South Korean export crops: sweet pepper, strawberry, tomato, roses, chrysanthemums, etc. The main focus of research is to improve production and quality through optimizing crop growth. The institute also has breeding programmes for strawberries and roses aimed at developing varieties which are adjusted to the South Korean climate. For this purpose NHRI co-operates with Plant Research International from Wageningen UR in the Netherlands. With their own varieties, paying for royalties is no longer necessary. Research results are applicable only for the top level of growers, since more than 90% of the growers have poor facilities and poor access to knowledge compared to in the Netherlands.

Research results always include an estimate of their economic impact. NHRI forwards its results to the Rural Development Administration (RDA), which summarizes them. RDA extension specialists evaluate the results once or twice a year. It is the task of the extension officers (working for counties) to disseminate the knowledge among the growers in the fields. The effect is that most of the research results hardly ever reach growers, but also that researchers are interrupted in their work by too many calls from growers asking for help with problems, because they rarely get solutions from the extension service.



Photographs 5 and 6. Trails of a rose variety and building of a new glasshouse for experiments (NHRI in Pusan)

Education and training

For the education and training of growers, South Korea offers a regular programme through the provincial Agricultural Research and Extension Service (ARES). The Gyeongsangnam-Do ARES also has a very professional training facility and training programmes recently developed for regional growers. They have an ambitious objective to ‘focus on cost reduction, quality improvement, marketing and environment-friendly agriculture’. This centre works in close co-operation with PTC+ in Ede, the Netherlands, as well as with expertise from the Netherlands.



Photographs 7 and 8. Training facilities at the Gyeongsangnam-Do Agricultural Research and Extension Services

Extension

The extension services used to be part of MAFF through the Rural Development Administration. Nowadays the extension services fall under the jurisdiction of the counties. At county level they do not always acknowledge the fact that extension officers need to be in the fields to visit growers and improve their knowledge in the horticultural sector. Because growers hardly see extension officers, they try to get in contact with researchers directly. Furthermore, the MAFF has little knowledge of whether research results are relevant to growers and are applied at the farms.

There are also private advisory agencies in South Korea. For instance, Substratus Korea is a local branch of a worldwide crop growth advisory agency. It has 3 advisors and about 80 clients throughout South Korea. It aims at the top level of growers.

4.5 Regional, provincial and national governments

Province level

When visiting the Jellonam-do Province house, it became clear that the province supports the horticultural sector, from an economic point of view. Continuous development and growth of the sector will improve economic growth of the province and offer employment opportunities. Primarily the province develops the infrastructure for the sector, i.e. roads, collecting facilities, etc., in the major horticultural areas. Secondly, it helps arrange subsidies from the national government (MAFF) for growers, which constitute 50% of the capital invested in glass or plastic greenhouses. Thirdly, the province is interested in regional product brands for the domestic and export markets that refer to the province. At the moment, it is not clear how MAFF's subsidy policy will develop with respect to the glasshouse horticultural sector. The provinces do not have a clear view of how long the 50%-subsidy arrangement will continue, due to WTO restrictions. Furthermore, they do not know whether other developments will be subsidized for the sector.

Ministry of Agriculture

Due to WTO regulations, the rice growers in South Korea will have to accept the long term (5-10 year) world market prices for their product. In the years to come Korea has to import an increasing quatum of rice from the world market up to 8 % of the national production in 2014. A larger part of the cheap foreign rice has to be sold directly to consumers. Gradually this development will reduce the income of the rice farmers to a level that will make it totally unattractive to continue rice growing. MAFF, however, does not subsidize the transition from rice growing to greenhouse horticulture; the sector has to make this move on its own. Furthermore, the interview with representatives of the Ministry of Agriculture, Forestry and Fisheries (MAFF) made it clear that MAFF does not have any investment subsidy available for greenhouse growers.



Photograph 9. Part of the central Government complex in Gwacheong, a suburb of Seoul

In its agricultural policy, MAFF established four main goals for the next four years.

1) Cluster complexes 2007

MAFF wants to give incentives (through co-financing) for cluster development in each horticultural province. A cluster is 30-50 ha of greenhouses together with facilities. The ministry expects each province to make a clear plan that includes infrastructure and a marketing plan for overseas export. For the development of such clusters, MAFF will give

a subsidy of 50% of the invested capital. The provinces, but mainly the growers will have to invest the rest.

2) Energy saving

South Korea, as well as the Netherlands, feels the effects of developments in the global oil market. The fuel price for the heating of greenhouses has risen over the last couple of years. This influences the product cost price and the competitive edge of South Korean growers. Therefore, MAFF wants to stimulate energy saving in the greenhouse sector. It is therefore interested in the regulations and the energy investment subsidy system (EIA), established in the Netherlands.

3) Practical training centres

MAFF wants to stimulate the improvement of product quality, production and good agricultural practice. Therefore, it wants to stimulate education and training by establishing three practical training centres. MAFF has increased the budget threefold for 2006, to support growers in improving their incomes by transferring knowledge on practical techniques. Furthermore, MAFF wants the Gyeongsangnam-Do training centre to expand. Concrete plans are currently being implemented to expand with 1 ha of glasshouse for demonstration and instruction purposes.

4) Improving the environment

MAFF has adopted the worldwide trend of improving the environmental, social and economic sustainability of agriculture; also called the triple P-concept of Planet, People and Profit. MAFF has started by stimulating competitive environment-friendly production in the agricultural sector. According to MAFF, environment-friendly production can increase farm household income, preserve the environment and ensure the safety of agricultural products by introducing certification schemes, supporting distribution of certified products to domestic niche markets and restoring harmony between agriculture and the environment.

In order to conserve the national environment, MAFF has defined four levels of fresh products in greenhouse horticulture: 1) organic agricultural products, 2) conversion-organic products 3) non-chemical agricultural products and 4) low-chemical agricultural products. In 2004, the total output of certified environment-friendly products was 461,000 tons, accounting for 2.5 % of the total agricultural production in South Korea. The area cultivated by agricultural households certified for environment-friendly farming was 28,000 ha.

Other aspects

The Ministry of Agriculture commented that in order to improve exports of produce, food safety of the products needs to be improved. Regulations and inspections focused on this aspect could be intensified. At the moment, the National Agricultural Quality Management Service carries out the inspections. The MAFF does not intend to become more involved with respect to phytosanitary measures. The products simply have to meet the requirements of the port in the land of the buyer, i.e. Japan.

MAFF also plans to create Self Help Funds for growers in the greenhouse horticultural sector (comparable to Dutch Product board for Horticulture) to use for increasing product consumption developing overseas markets and improving production and product quality. In the interview, the ministry representatives also mentioned a personal experience with Dutch suppliers, which was not so positive. While interested in the building of new glasshouses, a certain supplier did not give any explanation about constructing them or operating special equipment.

4.6 Consultant's view on the development of the South Korean horticultural sector

Based on the interviews with stakeholders of the South Korean horticultural sector, the consultant has the following view on the development of the actors in the sector and the necessary improvements.

Production

2000 of the 52000 ha of greenhouses can be considered to hold modern facilities in which the climate can be (partly) controlled for optimum crop development under various outside climate conditions. But in the 1700 ha of plastic multi-span greenhouses and 300 ha of glasshouses, growers do not make enough money to reinvest. To improve their income, the growers should improve the level of production and product quality. Therefore they have several needs. They need to improve their knowledge of plant physiology and the operation of the equipment. With simplified technologies, more growers would be able to control the greenhouse as they see fit. Furthermore, plant varieties which are optimally adjusted to the South Korean climate and the crop production facilities will also contribute to improving production and product quality.

Packaging, trade and export

The consultant established that South Korea is very dependent on its exports to Japan. The horticultural sector should have a portfolio of countries to export to, in order to spread the risk. Based on the interviews with trading companies, there seems to be room for adding value to products on the domestic and export markets. This leaves room for expansion of the number of packing stations and distribution centres.

Furthermore the economies of scale could be improved in packing, branding and selling. The stations could be able to process the product of a larger number of growers (more capital available) and more types of products could be handled by these stations, which means they would be able to compose assortments of vegetables or flowers. This would make it possible to become the direct supplier for supermarket chains, and increase the market share of the South Korean products, i.e. in Japan and other important South East Asian markets.

Suppliers

Technical suppliers

In the consultants' opinion the requirements of importers of Dutch supplies for their clients are:

1) products with instructions and operation in the Korean language; 2) instructions adjusted to local knowledge of plant physiology; 3) solutions for better after sales service. In general, education and training on plant physiology, plant control and how to operate the equipment seem to be a prerequisite for using the technical equipment. Furthermore South Korean technical suppliers are interested in co-operation with Dutch producers to be able to improve their products.

Inputs suppliers

South Korean companies supply cheap, basic inputs, like crop protection chemicals and nutrients. Special inputs, with either high-quality product or more sophisticated inputs, are imported from other countries including the Netherlands.

Suppliers of nursery materials

The problems with the payment of royalties for plant varieties have been solved. South Korea has organized a payment structure, which is well arranged with reliable royalties

for South Korean growers. By developing varieties of their own, South Koreans won't have to pay royalties to other countries.

South Korea is interested in varieties that are suitable for local conditions: both the outside climate and greenhouse facilities (i.e. climate conditions in greenhouses with limited climate control equipment). For these reasons South Korea is interested in more testing of seed-based plants under South Korean circumstances by European breeders. For nursery materials like cuttings of special varieties, South Korea is interested in co-operation with Dutch breeders and researchers.

Supply of knowledge: research, education and extension

- *Research*: The consultant believes there are two solutions for improving varieties. If South Korean researchers could co-operate with the seed suppliers in comparing different varieties, they would be able to find the most suitable varieties for the South Korean growers. For floricultural crops they could co-operate with Western European breeding researchers. Another aspect in research is that they are lacking a department to study the economics and management on South Korean holdings, in order to establish the feasibility level of investments or required production levels. Furthermore, a better structural knowledge transfer to extension specialists and growers (conferences, magazines, websites, etc.) should be organized. They could use a hand in transferring results and knowledge to a majority of the growers.

- *Education and training*: The training centre in Gyeongsangnam-Do has revealed that it needs more knowledge about training programmes. South Korea could really take a step forward if it had more of these centres, so that a larger number of South Korean growers could attend education and training courses on plant physiology, plant control and operating the equipment. Up until now, business economics is lacking in the training programmes.

- *Extension*: The consultant believes the extension service is not fulfilling its primary role, namely to transfer knowledge to growers. This is very unfortunate in a sector development stage in which production and quality can still be significantly improved. This is necessary to improve the economic performance of the sector and to build up capital to improve greenhouse facilities or to enlarge the production scale. It is not possible to change the current structure in which the extension service is not directed by the ministry but is under the supervision of individual provinces, which are setting their own priorities. However, the knowledge transfer (circulation) between research and extension could be improved through more coordinated and more frequent discussions between researchers and extension officers about research results and practical experiences. The extension officers should also make sure that existing knowledge is adjusted and aimed specifically at various target groups with different levels of knowledge of plant physiology and plant control in different facilities (types of greenhouse).

Government:

Concerning the government's four focal points for the years to come, the consultant's views are as follows:

- 1) The consultant believes that developing clusters can be a good incentive to show the sector the advantages of producing on a larger scale, and participating in larger production and packaging co-operatives. It probably will lead to improved professionalism in production, packing, trading and exporting of the product. A 'centre function' (efficient, stimulating) will be created by this. The provincial governments could use technical, organizational and marketing experience in setting up clusters.

- 2) If the development of more training centres is subsidized, more growers will be able to follow training and education courses. It will raise the average level of knowledge in the sector on plant physiology and operating the equipment. The provincial government in Gyeongsangnam-Do has experience with this. However, the province still needs to disseminate more knowledge in training programmes about crop growth management, chain management and economic aspects of greenhouse horticulture in particular.
- 3) Because energy is becoming a significant cost factor as a result of rising fuel prices, stimulating energy-saving measures will decrease the product cost price and the economic performance of the sector. In the consultant's view, more knowledge is needed on energy-saving equipment, how to operate it and the economics of energy saving.
- 4) Subsidizing environment-friendly production will improve the South Korean environment for its citizens. It is a challenge to decrease production costs at the same time. This is necessary for a sector that makes very intensive use of production factors. The consultant believes that more knowledge and experience are needed in this field.

Summary of perspectives for the South Korean horticultural sector

In 2000 ha of modern horticultural production facilities, growers produce mainly commodity products for the domestic and export markets. Because of the level of production, quality and the product price they make hardly enough money to invest in new equipment. This economic situation slows down the development of the horticultural sector in times when the government is not willing to subsidize investments on a large-scale.

To increase the available capital of horticultural firms, the difference between yield and cost will have to be enlarged. The following pre-requisites would have to be met for this to be possible:

- Increased production and product quality through knowledge transfer from research and extension to growers on plant physiology and climate control;
- Decreased cost price either through a higher input efficiency (which would require additional knowledge) or economies of scale (which would require investments in larger production facilities).
- Increased product price. Rather than competing with China on cost price and quantities, South Korea should distinguish itself. The strategy should be to move from commodities to premium products that are safe, traceable and environment-friendly. The following options are available:
 - o The product price on export markets is higher than on the domestic market; so increasing the amount of exports will contribute to higher profits. This requires that the product has an export quality. If South Korea is able to export more to other South East Asian markets, it will decrease its dependence on the Japanese market.
 - o Another option is to add value to the product like packaging and distribution centres do. With more of these centres a larger proportion of the product can be sold for higher prices. This requires co-operation among growers and knowledge of the demands of the retail and direct trading markets.

The government's plan to invest in the development of three education and training centres and in the development of clusters (including distribution centres) represents a good step in the right direction. Development of distribution centres and the export market requires co-operation among growers and traders. Because of the culture this will take quite some time and effort.

In summary the perspective of the South Korean horticultural sector can be characterized as promising if the government adopts a clear subsidy policy for further investments and if co-operation improves.

5. Dutch suppliers on the South Korean market

Dutch suppliers were also interviewed for this study. Several of them have or have had experience in South Korea. Others are interested in the Asian region and South Korea in particular. In total 18 companies were interviewed by LEI and PTC+: 3 greenhouses builders, 5 equipment suppliers of which 3 computer suppliers, 2 suppliers of inputs, 3 knowledge providers and 5 suppliers of seeds and plants. In the interviews the following subjects were addressed: 1) the suppliers' experiences in South Korea, 2) their perception of South Korea as a market, 3) the competition they have, 4) their vision of future developments of the local horticultural sector and 5) general implications of a trade mission to South Korea. In this section we will elaborate on these 5 subjects and give an overview of the answers (see also appendix 1).

5.1. Experience

Of the suppliers interviewed, 11 said they had had 5 to 20 years' experience of doing business in South Korea; 3 had up to 5 years' experience and 5 didn't have any experience in South Korea. About half of the interviewed Dutch suppliers had worked in South Korea since 1990. At that time the government launched a master plan to develop the glasshouse horticultural sector, including granting subsidies to growers that were used to build greenhouses, invest in modern equipment (climate control, water supply and heating systems), and buy seeds or plant material of modern varieties. A Dutch supplier characterized this period as the 'era of the golden mountains' in South Korea. To the suppliers, doing business in South Korea was a great adventure that promised considerable monetary awards.

As one supplier said, Dutch companies were involved in the development of about 350 ha of glasshouse horticulture in that period. Mostly this was for growers, but glasshouses were also built for provincial organizations like research and training groups. The Dutch type of glasshouse is suitable for the South Korean market, and an improvement over the single tunnels with plastic covers. They are also strong enough to resist typhoons in the region. For all the supplies the same products were used as in the Netherlands, but small adjustments were made for the South Korean climate, circumstances and (level of) crop growth methods. Varieties were also chosen that fit best the local Asian market.

Many Dutch suppliers work with a dealer or local agent (office) in South Korea. These partner companies are very good at overcoming barriers like language and culture, they know the market and are well known in South Korea. But not all suppliers have been able to find a reliable partner company that has good English-language skills and follows the same strategy for a long-term relationship. Some are still looking for this type of partner in order to achieve a better market position. The suppliers of equipment prefer to work in projects and to sell their products as part of a consortium.

Many of the suppliers made a good profit until 1998, when the Asian economic crises started and subsidies were no longer available. Since then, the South Korean market for Dutch horticultural suppliers has declined and few new glasshouse projects have been initiated. The market for plastic greenhouses, however, expanded moderately and remained stable in the years 2003 and 2004. The suppliers that still do business in South Korea got the impression in 2005, while visiting on behalf of new research and extension projects, that the government might be willing to subsidize the sector again. Dutch companies that have partners in South

Korea (dealers, agents, or offices) normally visit the country two to four times a year for relationship management.

5.2 South Korea as a market

In general

South Korea is a small market with potential. It has a quite developed glasshouse horticultural sector in comparison to neighbouring countries; but this development has been thriving on government subsidies, making the market unpredictable. When the subsidies stop, it becomes difficult to sell new greenhouses and equipment even though suppliers are still obliged to carry out maintenance and repairs. Suppliers of inputs, services and knowledge characterize the South Korean market at the moment as small and stable, with good growth potential. Exports to Japan, for example, have been growing over the last 10 years; and there is still no end in sight. The horticultural sector in Japan itself is declining, in part because many young people are not interested in taking over their aging parents' businesses. Exports to the South East Region are also expected to increase, for example to Singapore, Beijing and Shanghai.

The domestic market is currently experiencing stable growth. It is developing higher quality standards and this will enhance the development towards modern production facilities.

Product

Most South Korean growers have a low investment attitude and hence the rate of quality improvement and value for money is not growing each year. Copies of horticultural products were considered a smarter solution during the developmental period. Innovation capacity in the horticultural sector is very limited, but the introduction of heating pipes, double screens, higher gutter height and climate control systems would improve production enormously.

Dutch products are considered to be of good quality, reliable and expensive. This is due in part to the exchange rate between the won and the euro. The suppliers aim to sell their products to professional growers because they are the only ones who can use the products in such a way that they can achieve an optimum yield and thereby get a high value for money. For some equipment and inputs the price-quality ratio is too high compared to local competitors. As long as the government has no environmental impact demands, the Dutch firms will continue to lose this battle.

Local knowledge

In general the growers lack the knowledge needed to improve crop production, quality and food safety at farm level. They do not know enough about plant physiology, plant control, or the operation of advanced equipment to optimally utilize the Dutch products

Culture

In general South Korea is a good location for Dutch companies to do business. The country's language and culture are important barriers, however, which can in most cases be overcome by working through local dealers or agents.

Suppliers sometimes encounter payment problems. Plant breeders and seed suppliers, for example, ran the risk for a long time of not being paid the royalties due to them for multiplying varieties. Recently a UPOV-agreement was made, which allows them to sue growers and organizations that do not comply with the rules.

Prerequisites

Based on their experiences and knowledge of the market, the suppliers came up with the following prerequisites for doing business in South Korea:

- The market must be stable;
- Subsidies should be available. This is controversial, since most experienced growers see that large subsidies won't lead to a strong sector in the long run. In the short term subsidies will provide money to growers to invest;
- The market has to be price oriented. Even with extra quality and service only a small difference in price compared to local products will be accepted;
- After sales service should be arranged to avoid problems and irritations. It is preferable to work with local dealers who can help overcome the barriers of language and culture;
- Dutch technology should be combined with training and advisory services so that the growers learn to use the equipment to its full potential;
- Growers and advisors need sufficient knowledge of crop management. Studying at training centres i.e. in The Netherlands is therefore recommended. Price is not necessarily the most important consideration; if they want to reach the same production levels as in Holland, growers will have to experience that it takes time;
- Instructions for the use of equipment and machinery have to be in Korean;
- A supplier would need to find a local partner / dealer / representative which is reliable knowledgeable and sustainable as a company. This partner would have to share the supplier's vision on how to supply the market and have built up credibility among growers as potential clients;
- A good investment climate for foreign companies is also important for companies that want to invest in South Korea.

5.3 Competition

One supplier put it as follows: "There is always competition (in growth markets); but there is also a difference in value for money." The high prices of Dutch products are an issue; but they go along with high quality.

In general, suppliers face limited competition on the South Korean market. Mostly they find themselves in competition with Western European companies, especially those from the Netherlands. This is the case for glasshouses, climate control computers and nursery materials. Competition from Western countries is fragmented, i.e. **glasshouses** come mostly from the Netherlands and Japan and plastic houses from France and Israel. In **process computers** there are about six competitors in the market, including one or two local players. The sorting and grading machines on the South Korean market come from the Netherlands, Italy and Japan. Plants and seeds come from breeders around the world, but **vegetable seeds** come primarily from the Netherlands. **Flowers**, i.e. roses and Phalaenopsis, also come from different breeders around the world. Sometimes the bigger players use a stay-out pricing-strategy to prevent newcomers from entering the market. There are also companies that supply **specialist goods**, such as soil and substrate analysis and fertilizing advice. Irregardless of their prices, they hardly have any competition.

The South Korean people are eager to learn how products are made and this may explain why South Korean horticultural suppliers have grown rapidly over the last 10 to 15 years. Mostly they supply low-quality products at low prices, which can be 33% to 66% lower than the price of the corresponding Dutch products. They are able to build glasshouses and plastic houses and supply (natural) substrates. According to a Dutch supplier, South Korean glasshouses are

25% cheaper, but their productivity is 50% less due to bad design and realization. South Korean competitors don't have vegetable seeds yet, but they are breeding roses. The local market also copies products and concepts. Sometimes they even export them to Japan. One supplier of technical equipment reported that illegal copying of their product was now less of a problem than it used to be.

The Dutch suppliers are satisfied with delivery times and after sales service. Sometimes the PR efforts made by the agent or dealer on behalf of their companies could be better, but not all Dutch companies have the experience that giving lectures and demonstrations, for example, leads to more business.

South Koreans will be more willing to buy Dutch products if:

- computer products have a good after sales service and a helpdesk that is open 7/24;
- the Dutch company has an office for sales and customer service in South Korea ;
- instructions on the operating system are written in Korean.

Cases in which these points were neglected in the past led to a distrust of foreign suppliers.

Some Dutch suppliers see an increase in clientele among growers with plastic houses. They buy inputs, advice etc., although they cannot afford a glasshouse.

5.4 Future perspectives for the South Korean horticultural sector

The horticultural sector in South Korea has potential, according to the Dutch suppliers. The growing volume of exports to Japan and the South East Asian Region mentioned above as well as the ongoing search for new export markets in countries such as the USA are important developments. To support this expansion, the South Korean government and the horticultural sector should together develop a clear quality policy for export purposes, while the domestic market continues to move towards higher quality standards. These developments will need, but also strengthen, the investment power of the Korean horticultural companies.

One spokesperson from a Dutch computer supply company said: "The government wants to give the glasshouse horticultural sector an upgrade. We have heard that a lot of plans have been made at regional, provincial and national government levels, and many of these plans just need the final go ahead". It appears, based on the suppliers' comments that the South Korean government is working on a development policy for the greenhouse sector. One of the greenhouse builders said: "In the past the market for Dutch products in South Korea was built on subsidies. I hope they will do it in a smarter way this time, such as by stimulating successful growers. Many of the companies that received those subsidies have gone bankrupt. Older facilities with primitive heating systems need to disappear and be replaced by modern facilities. The government needs to focus on this development." Another supplier gave additional advice: "The South Korean government should be advised by Dutch experts concerning the policy for stimulating and subsidizing the greenhouse sector". In addition, it needs to realize that the investment climate should be improved for companies, many of which now go to China.

The Dutch suppliers believe the horticultural sector in South Korea has to develop by increasing its scale and by professionalizing. "This won't be easy because the growers are not so co-operation minded". Also the Dutch concepts need to be applied well; they are now partly applied, or not adjusted well enough to suit the local circumstances. Sub-optimal production levels are the result.

A chain approach is important for improving and strengthening the marketing of a product. The whole process needs to be professionalized because at the moment there is no management or adjustments to fit the market with respect to organization and logistics. “The retail market in Seoul is a mess”, according to one of the Dutch suppliers. Thus, in South Korea more attention has to be paid to a chain approach and chain aspects: quality, grading, packing, traceability, standards. As one supplier said: “These chain concepts should be developed and put into practice in co-operation with the Dutch .” Clustering of activities is important in marketing and promotion, according to a greenhouse builder.

Dutch suppliers think that the larger firms will be the most successful in South Korea in the future. But the management of these expanding firms need improvement. Companies that have 1 to or 4 ha will be the best suited to compete internationally based on their production and efficient way of working. The government is looking for ways to help these companies; They are leaning heavily towards paying subsidies and politics certainly play an important role in this debate.

The Dutch suppliers concluded that the level of knowledge of South Korean growers is too low. Because they lack knowledge on crop growth, they cannot profit to the fullest extent from the high-tech Dutch equipment. As one supplier explained: “They still make fatal mistakes with respect to crop protection”. Thus, the consultant believes that knowledge transfer is an important key to enlarging the market in the near future.

The recent energy price development (up 60%) is another important aspect that requires attention; otherwise the glasshouse sector will decline. The growers will need glass or plastic houses that have energy-saving and production-improving equipment. This is an opportunity for the Netherlands, where a lot of knowledge and equipment have been developed over the last 20 years as a result of the energy saving policy of the Dutch Ministry of Agriculture.

Dutch suppliers should play into this new demand in a realistic way; there are no golden mountains any more – just a small, steady market with its own specific demands. Some of the interviewed suppliers (DRS, Lucel) are interested in investing in South Korea in a production facility, office or a joint venture. Introduction of high-quality plastic houses would be an interesting option to pursue.

6. Opportunities for the Dutch suppliers in South Korea

A SWOT-analysis was conducted to highlight the opportunities for Dutch suppliers on the South Korean market, namely in the horticultural sector. The first picture was to be drawn up based on all aspects mentioned in the interviews. The opportunities and threats were drawn from the interviews conducted with South Korean stakeholders of the horticultural sector and with the 22 Dutch suppliers. The strengths and weaknesses were derived from the interviews with the Dutch suppliers and emphasized in the text. They were put in one list to provide an overview. The results of this analysis are presented in appendix 1. To point out the most important actions to be taken by the Dutch suppliers a so-called confrontation matrix was made. This juxtaposes the strengths and weaknesses of the Dutch suppliers with the opportunities and threats of the South Korean market (connections or interactions between aspects are coloured). The confrontation matrix can be found in paragraph 6.1.

6.1 Taking advantage of opportunities

The main opportunities for the Dutch suppliers lie in the following factors. On the market side, the increased export to Japan and the South East Asian region can be considered a growth opportunity for South Korean horticultural production. At the same time, developments on the domestic market are pushing the sector in the direction of higher quality standards. From the government side, the Ministry of Agriculture and Forestry (MAF) is working on a policy to stimulate the development of clusters in the (four) horticultural provinces. Provinces will be asked to make plans for the clusters, infrastructure and marketing of the products. MAFF also sees that improving the level of knowledge of growers is a key to achieving higher productivity and a higher quality. This will also contribute to the South Korean economy. Furthermore, energy as a cost factor needs more attention from growers and the government, because it has become more important (if not threatening) to the horticultural sector.

Weaknesses of the Dutch suppliers also need to be taken into account, however. The subsidies of MAFF's master plan in the 1990s led to high competition and low profits for the Dutch companies. Due to the lower margins, the South Korean clients complain, the Dutch companies did not have time for proper instructions and servicing and they were not very open about construction and equipment.

In addition, South Koreans believe the after sales services (instruction, maintenance and repairs) could be improved. It now takes too long before repairs are carried out due to manpower shortages. This problem has damaged the Dutch companies' image of being good and reliable partners. On the other hand, many Dutch companies that do business in South Korea, or are interested in doing so, have a hard time finding reliable partners who can communicate in English adequately and who have the same strategy and are interested in a long-term relationship.

**Confrontation matrix: From the perspective of Dutch suppliers aiming at the South Korean market.
(concerning supplies in techniques, plants, inputs and knowledge).**

	Strengths				Weaknesses					
	Dutch suppliers are known for experience in SK	Dutch suppliers have agents and dealers	Image of good quality, reliable	Know how+ experience on energy saving	Subsidy 1990s: high competition / low profit	Dutch product is expensive	Sales are low in SK	Dutch image was damaged in nineties	Hard to find reliable SK partners	Koreans: after sales problem; repairs take long
Opportunities										
Increased export gives room for added value										
Domestic SK-market demands higher quality standards	Attack							Improve		
MAFF wants development of clusters in 2007										
MAFF wants to develop training centres in every province										
Education and training is a prerequisite to sell techniques.										
Energy price requires attention of government and growers										
Threats										
Asia crisis affected SK economy										
MAFF is not clear about their sector subsidy policy										
Dependence on subsidies makes market unpredictable										
growers have low investment capacity due to low production										
SK-Market is price-oriented										
Korean competitors sell low price / low quality	Defend							Stay out		
Growers lack knowledge of crop growth management and operating equipment										
Knowledge transfer in SK of research results is not effective.										
Language and culture have to be paid attention to in business.										

Figure 10. Confrontation matrix of SWOT-analysis

Thus, to take advantage of available opportunities, doing business in the future requires the following steps:

- A good relationship has to be established with national and provincial governments, in which the Dutch companies offer advice and help find solutions for their demands. Establishing clusters and training centres would help the Dutch to obtain the role of preferred supplier in the future.
- Better co-operation or division of projects between Dutch suppliers has to be established in order to be able to live up to expectations and make a profit. This should lead to friendly interaction with the South Koreans and proper instruction, maintenance and repairs.
- It is important to find reliable partners to be able to move quickly in the market. Suppliers should inform each other in a network construction or should be helped, i.e. by the Dutch Embassy.

These steps should be taken into account in a trade mission.

6.2 Coping with threats

The main threats for the Dutch suppliers lie in the following factors. Due to the Asian economic crisis the period of investments, government subsidies and high profits for growers came to an end. So the investment capacity of the sector dropped. Because of continuing low production levels, the market for Dutch suppliers still depends on subsidies. At the moment, the government is not clear about its subsidy policy to the different stakeholders in the sector. The market for horticultural supplies is a price market, probably due to the low investment capacity of growers. During the evolution of glasshouse horticulture over the last 15 years, South Korean competitors have entered the market with low-priced goods. The goods are low quality compared to Dutch standards.

Another threat is the lack of knowledge of South Korean growers about plant physiology, plant control and operating (Dutch) equipment. They are thus not able to reach a high level of production, which would be necessary to repay the investment of relatively expensive Dutch products. Furthermore, the knowledge transfer of South Korean research results via extension officers to growers is not effective. There is a modern training centre in South Korea but since it is the only one, its capacity, in a country with over 50,000 ha of covered cultivation, is relatively low.

Finally, doing business is doomed, if little or no attention is paid to the Korean language and culture.

Because of their strengths, the Dutch suppliers might be able to turn threats in opportunities. As soon as growers have money to invest because either they earned it through expanding markets or the government has become clear about its subsidy policies, the Dutch suppliers are ready to move and sales will go up. They have the equipment, experience and contacts necessary to sell techniques, nursery materials, inputs and knowledge.

The price orientation and the South Korean competitors also need to be taken seriously. This can only be overcome if the Dutch can make it clear that the cheaper product is more expensive in the end because of more troubles that have to be fixed, shorter product life, or negative effects on crop growth and production.

Improving the level of knowledge among South Korean growers might be the most important prerequisite for more sales of glasshouse horticultural projects in South Korea. It will lead to higher production, which is important for allowing the growers to achieve a substantial return on investment. Knowledge dissemination, transfer and training are also strong points of the Dutch.

Weaknesses of the Dutch suppliers that have to be addressed concern the following threats. Once the MAFF makes a clear policy to stimulate the sector, Dutch companies have to avoid the situation that developed 15 years ago. There has to be a smarter way of operating rather than working very competitively for low profits. It should be done in such a way that the companies do not give the impression that they are ‘making a quick buck and then leaving’. This image has to be changed into one of a “reliable and open partner” which supplies (total) solutions. This also holds true for the impression that repairs are not organized well. The fact that growers have to wait several weeks for the repairs to be carried out has a negative effect on the image of the Dutch product. This should be taken care of. The fact that the Dutch product is seen as being expensive needs also be to alleviated.

Language and cultural barriers can be avoided for the Dutch by facilitating the companies in finding reliable partners that share their strategy. Various suppliers have succeeded in finding such partners. Networking of Dutch suppliers among each other, together with the Dutch embassy might facilitate the search for the right partners.

Thus, to be able to diminish the threats derived from the weak and strong points, doing business in the future requires the following prerequisites:

- The suppliers should embrace Dutch (support of) knowledge transfer, education and training and the development of training centres in South Korea.
- Working with a few consortia that develop themselves to preferred supplier, might be a solution against the “high competition / low profit”- experience
- The Dutch have to sell the case to the South Koreans that their products may be not so expensive if the cost and yields are divided over the period of use.
- Organize ways to facilitate Dutch suppliers in finding their reliable local partners.
- After sales service like instruction (in Korean), maintenance and repairs should be properly organized.

These points should be taken into account in a trade mission.

6.3 Overview of needs of South Korean horticulture in relation to Dutch suppliers

If the needs, which were mentioned by the different interviewees in South Korea, are combined with types of suppliers that can provide solutions, the following overview can be composed:

Table 7. Overview of the type of suppliers that can provide solutions in South Korea

Type of actor	Need mentioned in South Korea	Type of supplier
Organizational adviser	Government wants to stimulate greenhouse horticultural clusters 10-50 ha (50% co-finance). Provinces have to make a plan (incl. marketing).	Advisory: feasibility studies cluster development including organizational and marketing advice
Knowledge – supplier	Education and training in plant physiology, operating technology (as a pre-requisite for Dutch involvement) - More knowledge of training programmes (i.e. knowledge of operating technology, crop growth, chain management, economics) - Business economics is lacking in the programmes - Government will possibly subsidize training / demo facilities	Teachers / trainers Trainers business economics Technical suppliers
	Knowledge (and equipment) on energy saving needs to be developed	Research, technical suppliers.
Technology supplier	Simplified technology (i.e. for plastic multi-spans)	Producers of equipment and greenhouses
	Korean operating instructions	Producers of equipment and greenhouses
	Improved after sales service (repairs in particular)	Producers of equipment and greenhouses
	Product instruction adjusted to local knowledge+ English level	Technical suppliers
	South Korean producers want co-operation with Dutch producers to improve their products	Technical suppliers under which conditions is possible
	<i>Need for new products: rising of greenhouses for more air buffer</i>	Technical service suppliers
Nursery materials supplier	Plant varieties adjusted to Korean climate, greenhouses (limited climate control); free of royalties by testing of breeders / breeding at the National Horticultural Research Institute	Breeders / research
Producers	Government and others want room for Dutch growers aiming for Japanese market, probably as an engine or example for the region	Dutch growers (associations)

In the opinion of the consultant the following additional topics should be taken into account by South Korea in order to boost the development of the horticultural sector concerning covered cultivation.

Table 8. Suggested additional type of suppliers that can provide solutions in South Korea

Type of actor	Opinion of Consultant	Type of supplier
Knowledge supplier	Improving the knowledge transfer structure in South Korea from research to extension/advice to growers (target groups in knowledge of plant physiology and level of facilities) - Structural interaction between research and extension - Media (magazines, websites, etc. organized per crop)	Organizational adviser in structure of agricultural sectors
Organizational adviser	Enlargement of growers' associations, more growers (knowledge, capital, task division); = economies of scale in packing, branding and trading - More growers attached to a packing station - More types of product handled by a packing station	Organizational adviser Architect / design packing stations
Marketing adviser	Selling assortments in vegetables and flowers to end buyers	Marketing / branding advice / research

7. Conclusion and recommendations

7.1. Conclusion

From the desk study, the interviews, and the analysis the consultant concludes that there is sufficient reason to organize a trade mission of Dutch horticultural suppliers to South Korea. Because of the improved market perspectives and government plans for clusters and training centres, there are ample opportunities for Dutch suppliers and advisers. South Korea needs experience to develop the sector in such a way that it eventually becomes market driven instead of subsidy driven. The sector will have to become mature and independent of subsidies. A trade mission should have the goal of presenting ‘Holland Agro BV’ as a partner of the South Korean horticultural sector. The position as adviser can open the road for the suppliers of knowledge, techniques, nursery materials and inputs to become preferred suppliers later on when the clusters and training centres have to be developed. Later, specific matchmaking events in smaller groups should be facilitated as a follow up.

7.2. Recommendations

Introduction

In the interviews in South Korea as well as in the Netherlands, the interviewees gave their opinions and suggestions for a trade mission. These have been categorized as outlined below for use by the Dutch Ministry of Agriculture.

Suppliers stated that since the situation with regard to subsidies is expected to be revised by the South Korean government, Dutch expertise is necessary to support the policy for successful development of the horticultural sector by the South Korean government. The representative of one of the equipment suppliers even said “Dutch expertise is expected to help in this process”. The embassy should support the Dutch suppliers to become preferred suppliers for South Korea: “Developing joint activities for development of the sector”.

The Dutch suppliers said that the Netherlands needs to develop strategies to strengthen its relationship with South Korea – a country with a high-value glasshouse/horticultural sector. Suppliers expect the Dutch Embassy to make a strategy in presenting and supporting Dutch suppliers in South Korea. According to one of the suppliers, Dutch technical assistance should be based on combining technology and training and on stimulating knowledge transfer and grower study groups. One of the suppliers warned: “We have to operate carefully; the Netherlands cannot afford to make mistakes anymore”, referring to what happened in the 1990s.

Partner search

In the interviews with Dutch suppliers it became clear that they operate more effectively in a consortium or with a reliable local representative. About half of the interviewees are still searching for local partners. They suggested that the Dutch embassy should play a more active role in generating transparency in the market for Dutch suppliers, promoting Dutch suppliers and screening of possible Korean partners. Thus, a trade mission should bring potential Dutch and Korean partners in contact with each other.

(Joint) promotion

In November 2006 the SIEMSTA Fair will be held in Seoul, which is the most interesting for Dutch horticultural suppliers. A joint presentation was mentioned as a possibility. Some suppliers and their agents are already involved in preparations for this fair. Furthermore, Dutch suppliers want to participate in such a promotion-activity with product presentations,

workshops, practical training, demo materials, brochures etc. A joint Dutch presentation could be as successful as it was four years ago.

Demo

One of the suppliers indicated that there is a demand for demo facilities in South Korea, where modern crop growth techniques, modern nursery materials, combined with knowledge transfer, and practical training could be demonstrated. Several Dutch suppliers are interested in developing such demonstration sites. This offers them a stage to show what the Dutch are capable of with respect to innovative glasshouses, but also high-quality multi-span plastic houses. They think a good place to do this is at a regional research and demo centre.

One supplier came up with the idea of developing a hybrid type of cost-efficient, glass or plastic greenhouse that combines Dutch and local technology. They think of a greenhouse with a local substructure, Venlo type glasshouse and other Dutch and South Korean techniques. Last year PPO initiated a demo model about an energy saving greenhouse, which should be seriously considered.

Suggestions for a trade mission from the interviews

A trade mission should be selectively composed with enough focus. Aim at horticultural supply companies: hardware, nursery materials and knowledge as a coherent package. Choose the chain approach and use good examples:

- Reputable and respectable companies should participate,
- Select companies chain-wide. (On the other hand one supplier stated: “Trade missions often are too broadly organized; there is too little focus.
- Encourage Dutch companies interested in forming a consortium to operate in Korea.
- Present a long-term strategy for co-operation.
- Work on a joint presentation to be given at a professional fair in South Korea, i.e. at the end of April.
- Go see the practice and talk to growers to learn about their demands. To get a complete picture, go see modern as well as old(er) companies.
- Don't organize too many courtesy discussions with the government; expect practical bottlenecks in trade with South Korea like customs, phytosanitary measures, corruption, etc.
- Potential agents are welcome.
- Organize an efficient trip without sightseeing.

Participation

Of the 19 interviewed suppliers, 7 were interested in a trade mission immediately and 3 were not sure yet. Nine (9) of the companies did not show any interest. These figures can be explained as follows:

- These 9 companies that expressed no interest already know their way around in South Korea. They have been doing business for 10 to 20 years in South Korea. Although business has not been that flourishing the last couple of years, they visit a few times every year. Mostly they have a good representative (dealer or agent). Although they would benefit from a Dutch presentation, it would not be worth their effort, or they will attend only if they were in the neighbourhood, or if the programme was interesting.
- The 7 companies that are willing to join a trade mission, generally speaking, are those that have been trying to find partners but have not been successful; those that have been doing business only for a few years, and those that are interested in starting to do business with South Korea. “It offers a good opportunity to get in contact with suppliers of glasshouses and to gain knowledge about their network”.

Appendix 0 Used abbreviations

ARES	Agricultural Research and Extension Service in South Korea
Eurostat	European bureau for statistics
GARES	Gyeongsangnam-Do Agricultural Research and Extension Service
LEI	Agricultural Economics Institute, located in The Hague, The Netherlands
MAFF	Ministry of Agriculture, Forestry and Fisheries
NHRI	National Horticultural Research Institute in South Korea
NMSO	National Seed Management Office in South Korea
PPO	Research Station for glasshouse horticulture in The Netherlands
PTC+	Practical Training Centre, located in Ede, The Netherlands
RDA	Rural Development Administration in South Korea
SK	South Korea
SWOT-analysis	Strengths, Weaknesses, Opportunities and Threats-analysis
UPOV	International Union for the Protection of New Varieties of Plants
WTO	World Trade Organisation

Appendix 1 Programme Visit to South Korea 18-22 December 2005

Sunday, 18 December 2005

- Crop growth; Art Farm, Sweet pepper grower; Meong, Dong Ju
- Advisory; Substratus Korea, Crop consultant; Lee, Jeong Pil (PhD)

Monday, 19 December 2005

- Government; Gangjin County Jollanam-do, mayor; Hwang, Ju-Hong (PhD)
- Crop growth; Art farm, Sweet pepper grower Kim Jong-Un
- Crop growth; 'With you' Sweet pepper grower Association (Sweet pepper grower); Kim Jeong-Un and Meong, Dong Ju
- Trade; Chonnam agricultural products trader.
- Government; Jeollanam-do Provincial Government
 - o Environmental-friendly Agriculture Division; Chief Jang, Dong-ho
 - o Division of Economy and Trade; Kim, Joon-Sung (PhD)
- Packer / Trader; Nongsan trading co., (packing station) ltd., The Organization of Korean Paprika self-help foundation, President Cho, Gi-Sim
- Advisory; Substratus, CEO & Crop consultant; Sang Don Lee

Tuesday, 20 December 2005

- Trader; Nongsan trading co., (packing station) ltd., President Gi Sim Cho
- Crop growth; Strawberry grower
- Packer / trader; Rosepia, Director Jeong, Hoa Young
- Crop growth; Rose grower
- Supplier; Dae Yong Green Service; Doo-Jhik, Bae
- Education; Gyeongsang National University, College of Agriculture and Life Sciences, Laboratory of Protected Horticulture; Prof. Jeong-Choon Park (PhD)

Wednesday, 21-December 2005

- Training; Gyeongsangnam-Dio Agricultural Research and Extension Services;
 - o Deputy manager of Education Training Division, Cho Hyung-Hong
 - o Director of Education Training Division; Park Chan-Shik
- Research; National Horticultural Research Institute
 - o Director of Experiment Station Young-Hah, Choi (PhD)
 - o Researcher Joon-Kook Kwon (PhD)

Thursday, 22 December 2005

- Government; Ministry of Agriculture & Forestry
 - o Deputy Director Fruits and Flowers Division; Jae-Ang, Kim
 - o Deputy Director Vegetables and Special Crops, Lee, Jeong-Sam, (PhD)
- Trade; AT Centre, Korean Agro-Fischeries Trade Corp.
 - o Teamleader Horticultural export team; Young-Chul Lee
 - o Staff Export Consulting Team; Sung-Jin Kim
- Supplies; MIFKO co. ltd
 - o Director; Yung Wook Ra
 - o Greenhouse Material Department Young, Han.

Appendix 2 Questionnaire for Dutch suppliers about their activities in South Korea

A. General

What type of products does the supplier sell?

B. Experience in South Korea

- Do they have experience exporting to South Korea? At the moment – In the past; What successes and failures has the supplier had?
- What is the amount of exported product (Pieces – US Dollars) ?
- Does this concern the same type of product or more simple - cheaper ones?

C. Plans for the future concerning South Korea

- Why South Korea, what makes it interesting?
- Will the supplier make further investments in South Korea in the years to come?
- What are necessary conditions to have South Korean customers?
 - Amount of cash, profit, loans, certain interest rate, subsidies
 - Stability of South Korea as a market
 - Simple type of product
 - Level of knowledge to build (by contractor) or to use by growers
 - Possibility of establishing joint ventures

D. Vision on developments in greenhouse sector in South Korea

- How does the supplier think the South Korea greenhouse sector will develop in the coming years?

E. Contacts

- Does the supplier have any contacts we should visit / go see in South Korea?

Appendix 3 Fact sheet for South Korea (source: Dutch Ministry of Agriculture)



Provinces:

- [Cheju-do](#)
- [Chollanam-do](#)
- [Chollabuk-do](#)
- [Chungchongnam-do](#)
- [Chungchongbuk-do](#)
- [Kangwon-do](#)
- [Kyonggi-do](#)
- [Kyongsangnam-do](#)
- [Kyongsangbuk-do](#)

Autonomous cities:

- [Incheon](#)
- [Kwangju](#)
- [Pusan](#)
- [Seoul](#)
- [Taegu](#)
- [Taejon](#)
- [Ulsan](#)

<p>Basic data</p> <p>a. land size</p> <p>b. capital</p> <p>c. total population</p> <p>d.. annual increase in population</p> <p>e. religion</p> <p>f. type of governance</p> <p>g. next presidential election</p> <p>h. language</p> <p>i. climate</p>	<p>99,617 km² (2.36 times bigger than the Netherlands), 219,800 km² including North Korea</p> <p>Seoul 48.4 million</p> <p>0.44 % was the total fertility rate of South Koreans in 2004, 1.16 is lowest in the world. Approx. 53 % of the people who are older than 15 years practice one of the following religions. Buddhism; 12.2 million Protestant; 9.6 million Catholic: 3.6 million Presidential system December of 2007 Korean</p> <p>Average temperature is quite similar to that of the Netherlands, approx. 2 centigrade higher during the summertime. Annual rainfall: 1,283 mm. Approx. 70 % of rainfall is concentrated from June – Sept.</p>																						
<p>2. Economic data</p> <p>a. GDP</p> <p>b. per capita GDP</p> <p>c. economic growth rate</p> <p>d. inflation rate</p> <p>e. exchange rate</p> <p>f. total imports</p> <p>g. total exports</p> <p>h. total imports from NL</p> <p>i. total exports from South Korea to NL</p>	<p>US\$ 679,674 million in 2004 (11th largest in the world, slightly smaller than India (10th, US\$ 691,876 million) and bigger than Mexico (12th, US\$ 676,497), Australia (13th) and Brazil (14th) and NL (16th, US\$ 577,260 million), 5.8% of US (1st) and 14.7% of Japan (2nd).</p> <p>US\$ 14,178 (49th in the world) in 2004</p> <p>3.7 % in 2004</p> <p>3.61 %</p> <p>Euro = 1243 won on 27 September 2005</p> <p>US\$ 224 US\$ billion in 2004</p> <p>US\$ 254 billion in 2004</p> <p>US\$ 1,729 million in 2004</p> <p>US\$ 3,007 in 2004</p>																						
<p>3. agricultural economic data</p> <p>a. present position of NL in South Korea</p>	<p>Imports of agricultural products into South Korea in 2004</p> <table border="1" data-bbox="772 1451 1369 1861"> <thead> <tr> <th></th> <th>US\$ million (CIF)</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td>11,205.0</td> </tr> <tr> <td>US</td> <td>2,744.7</td> </tr> <tr> <td>China</td> <td>1,499.1</td> </tr> <tr> <td>Australia</td> <td>1,199.4</td> </tr> <tr> <td>Brazil</td> <td>673.2</td> </tr> <tr> <td>New Zealand</td> <td>623.4</td> </tr> <tr> <td>India</td> <td>390.0</td> </tr> <tr> <td>Chile</td> <td>110.7</td> </tr> <tr> <td>EU</td> <td>1,247.8</td> </tr> <tr> <td>NL</td> <td>162.5</td> </tr> </tbody> </table>		US\$ million (CIF)	Total	11,205.0	US	2,744.7	China	1,499.1	Australia	1,199.4	Brazil	673.2	New Zealand	623.4	India	390.0	Chile	110.7	EU	1,247.8	NL	162.5
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Chile	110.7																						
EU	1,247.8																						
NL	162.5																						

b. total agricultural imports	During Jan.- Aug. of 2005 China exported US\$ 1,471 million of agricultural products to South Korea while the US exported US\$ 1,448 million worth of agricultural products to South Korea. So it is expected that China and the US will compete for the position of the largest exporting country with South Korea in 2005.
c. agricultural population	Mentioned in the above table In 2004: 3.5 million (1.24 million farm households), 63.3 % is full-time, the rest is part-time farmers.
d. % of total agricultural production in GDP note: major agricultural sectors in South Korea	In 2004: 4.9 % (incl. forestry, excl. fisheries) rice: 26.7 % of total agricultural production in value with 1 million ha of rice farms, vegetable & fruit-vegetable: 20.5 %, fruit: 7.8 %, flower: 2.4 %, pig: 9.9 % with 9 million heads of pig, beef cattle: 7.8 % with 1.7 million heads of beef cattle, poultry: 5,2 % with 107 million heads of chicken, dairy: 4.7 % with 0.5 million heads of dairy cattle, forestry: 3.0 %
e. total agricultural imports from NL	Mentioned in the above table NL exports approx. US\$ 20 – 30 million worth of farm equipment and farm materials to South Korea annually in addition to the above-mentioned exports of agricultural products.
f. major agricultural products exported from NL to South Korea	In 2004 Pork: US\$ 24 million, milk powder: US\$ 26 million, cocoa products: US\$ 19 million, potato starch; US\$ 15 million, feed ingredients: US\$ 10 million, butter: US\$ 4 million US\$ 8.3 million in 2004
g. total agricultural exports from South Korea to NL	In 2004 Instant noodles: US\$ 1 million, cactus: US\$ 1 million, vegetable seed: US\$ 1 million,
h. major agricultural products exported from South Korea to NL	confectionery products: US\$ 0.7 million

Appendix 4 SWOT–overviews; perspective of Dutch suppliers (see chapter 2)

Opportunities		Threats	
Market for equipment and supplies			
+	2000 ha with modern facilities, of which 300 ha of glasshouses.	-	The market for equipment and supplies has been thriving on subsidies; makes it unpredictable.
+	Stable but small market with specific demands; the glasshouse sector is relatively developed in the region.	--	There is a small market for glasshouses; due to low productivity, most growers lack the capital to invest in modern glasshouses.
++	The market for (quality) plastic houses is much bigger than for glasshouses.	--	Market is price-oriented; most South Korean growers are less concerned about 'quality' and value for money.
+	Dutch suppliers see an increase of clientele in growers with plastic houses.	-	Dutch companies have the experience that giving lectures and demonstrations hardly leads to business due to the fact that the growers lack capital.
+	Quite large research organization(s) have a need for modern facilities.	-	Image of Dutch suppliers is incorrect.
Consumer trends; Market for horticultural products of South Korea			
+++	The perspective of market growth for the Dutch suppliers is good because of growing exports to Japan and the South East Asian Region of South Korean horticultural product.	-	South Korean traders bring their products to domestic and foreign auctions; no relation with end-buyer.
+	Increased export to Japan leaves room for processing added value.		
++	Increased export of South Korean products to Japan leaves room for more or bigger packing stations / distribution centres for transporting assortments of products.		
+	South Korea is searching for new export markets like the USA in fresh vegetables.		
++	The domestic market is developing higher quality standards, which require modern production facilities.		
Consumers trends: Growers and their firms			
++	Economies of scale and level of professionalism of South Korean horticultural firms needs to grow in order to be able to follow market opportunities	-	Korean growers are not very cooperative among each other.
+	There are growers who demand high-quality special inputs for crop growth.	-	There is a demand for simplified technology.

Opportunities		Threats	
Competition			
+	Dutch suppliers find limited competition in South Korea; mostly from Western EU countries	-	South Korean suppliers have developed over the last 10-15 years; they sell low-price, low-quality goods, i.e. greenhouses, fertilizer, irrigation systems.
		-	South Korean suppliers want to learn and copy products to sell them cheaply. Sometimes products are illegally copied.
		-	For simple products (inputs) competitors have developed in South Korea.
Developments in horticultural sector			
- Technical			
+	South Korea has experience with demonstration sites at stations for research and extension.		
- Nursery materials			
+	Growers and researchers are interested in finding varieties of all crops adjusted to the Korean climate.		
++	There is still a need for varieties which are optimally adjusted to the South Korean crop growth management and market.		
+	For South Korea it is not easy to breed seed-based vegetables that attain the quality level reached in Western Europe.	--	In research stations they breed new varieties of plants, including roses and strawberries.
+	South Korea does not produce vegetable seeds / varieties of roses, strawberries and sweet pepper yet.	-	Research organizations have breeding programmes for strawberries and roses among others aimed at Korean circumstances.
+	Royalty problem for using varieties seems solved with UPOV-agreement.	--	It is not sure if paying royalties in South Korea is arranged well, due to high prices of royalties for Korean growers.
- Knowledge: research, extension, training			
+	There is a high requirement of knowledge in practice. Applicable knowledge of plant physiology and operation of the equipment in practice is lacking.	---	Growers lack knowledge of crop growth management and operating equipment; they cannot use Dutch products to their full extent, which is necessary to make (enough) profit.
+	Research on economics and management is lacking at research stations.		
+	Lack of effective extension leaves an open door to (foreign) training and knowledge suppliers and advisors.	-	Knowledge out of research hardly reaches growers through extension because of bureaucracy and priority setting by counties.

Opportunities		Threats	
++	Education and training is a prerequisite for selling techniques.	-	Knowledge transfer through extension officers is not very effective.
+	In South Korea there is still a need for more information on training programmes.	-	There is only one training centre in South Korea for training / instructing growers to handle the equipment.
+	(Business) economics is lacking in the training programmes		
++	MAFF wants training centres to be developed in three horticultural provinces; no money has been reserved yet.		.
Macro-economical environment			
+++	MAFF developed a policy to support cluster development in 2007 with plans made by provinces.	---	At the moment, the South Korean government is not clear about their subsidy policy for the sector; the government will have to come up with a more clear overview of the sector.
++	MAFF is going to stimulate research and introduction of energy saving equipment. Due to the raise of the energy price by 60% this requires attention from the government and growers.	-	Language and culture are barriers to doing business.
+	MAFF wants to draw attention to environmental production,	--	South Korean government does not have high environmental demands yet, (Dutch product is ready, but expensive.)
+++	“We have heard that a lot of plans are made by the government, regional, provincial and national, waiting for a ‘go’	-	The investment climate for foreign companies seems to be better in China.
		-	Sometimes trouble with payments

Strength		Weakness	
Market share, strategy, experience			
+	> 50% of interviewees had 10 to 20 years' experience in South Korea	-	The master plan of 1990 was so promising, all suppliers went on their own competing with each other
+	The Dutch have been involved in about 350 ha of glasshouses for growers as well as the (provincial) government.	-	The subsidy has led to strong competition between Dutch suppliers (individually); it made the adventure not so profitable.
+	Suppliers that do business in South Korea have got the feeling the government is willing to subsidise the sector again.	--	Since the Asia economic crisis started, hardly any glasshouse projects were sold.
Product, competitive edge			
++	The Dutch product has an image of being of good quality, reliable	-	The Dutch image of being reliable was damaged by their (competitive) behaviour in the nineties

Strength		Weakness	
+	Dutch glasshouses are typhoon proof	--	The Dutch product has an image of being expensive.
+?	Dutch suppliers are convinced they don't have any problems on delivery times, after sales service and PR for company	-	South Koreans mention that Dutch suppliers have problems with after sales: i.e. repairs take long
+	The Dutch have experience and equipment concerning energy saving.		
Distribution, chain partners			
++	Dutch suppliers have found agents and dealers to sell, instruct, maintain and repair their products. They visit 2 to 4 times per year.	--	It is not easy to find a reliable partner, with good skills in English who has the same strategy, for a long term relationship.
++	Suppliers work with local representative for sales in order to overcome problems with language and culture.		
Financial results			
+	The Dutch greenhouse builders and suppliers have made money in the beginning of the nineties.	--	The Dutch greenhouse builders and suppliers have kept investing low profile in South Korea as a market, because of the economic situation.