
// Competitiveness

*Flora industry clustering efforts in the Netherlands**

**The opinions expressed are those of the authors, the consultancy Competitiveness (www.competitiveness.com).*

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1. Objectives of the case studies

*“Clusters and, more generally, regional agglomerations are often at the core of innovative development. It is widely recognised that new firms thrive in the proximity with other companies, investors, educational institutions and research centres afforded by clusters particularly in the presence of world class academic institutions. Mobility can be maximised when there is a local labour market that allows regular flows of people from one situation to another, with accompanying diffusion of knowledge. As well as the greater opportunity range it is clear that barriers such as the need to move house or schooling for families are removed. However, it also emphasizes that minimising such barriers more generally will create a more functional society. **It is important to ensure that clusters are defined in terms of the new market and knowledge relationships needed for emerging sectors to thrive.** It is even counter-productive to reinforce traditional sectoral clusters as these may inhibit the necessary mobility. Firms in traditional sectors are far **more likely to find innovative growth by forming new linkages and applying new technology to their existing products and services.** This can be facilitated by opening the clusters to cooperation with and learning from other clusters in the same or other sectors.”¹*

Why the Dutch flora industry clustering efforts can be a useful example

The development of the Dutch flora cluster is an example of how a country with little sun and even less suitable land can succeed in flower business, thanks to specialisation, international auctions, investments in physical infrastructure – but especially due to the capacity to face new challenges such as severe local soil pollution or increasingly sophisticated demand and competition.

In fact, the global powerhouse that is the Dutch flora industry relies on 21st century logistics resting atop a mastery of horticulture and foreign commerce dating back four centuries. By creating new benchmarks for everything from freshness and environmental quality control, to horticultural science, to supply chain efficiency, the Netherlands has become the sine qua non of a new global flora industry,

¹ http://ec.europa.eu/invest-in-research/action/2006_ahogroup_en.htm

Flora industry clustering efforts in the Netherlands

being currently the global biggest exporter providing more than 50% of all flora products sold in the world.

2. Have clustering efforts driven innovation in the Dutch flora industry?

Contribution to the development of lead markets

The Dutch flora industry has evolved during several centuries. Today, it is the global leader. From the early days of flower auctions nearly two centuries ago, Dutch companies have enjoyed dynamic and productive infrastructure, increasing their competitiveness².

Struggling with soil contamination and bad weather, the Dutch flora cluster became responsive to the requirements of the markets and to pressures coming from competitors. Innovation and advanced cultivation techniques helped the cluster to achieve competitive advantage in quality and product variety. To keep its competitive position in the flora industry, the Netherlands established such specific norms and standards as bucket dimensions or environmental certification, further adopted worldwide.

Moreover, the Dutch grower cooperatives formed a concentration of demand and supply at an international marketplace. They revolutionised the industry in general: before, the Dutch were in the seasonal flower cultivation business and now they are leaders in an all-the-year-round industry³, which is offering additional services such as handling facilities logistics that in fact constitute one of the Dutch cluster's greatest sustainable competitive advantages.

² The cluster companies are specialised in all aspects of flowers: breeding, growing, cutting and preserving, packaging, and air shipping. They offer a wide and varied assortment of products all year round: more than 16.000 products in total. This provides traders with a one-stop shop. The payment is direct.

³ In the past, cut flowers were grown near market places and now they can be transported to and from all over the world.

Help in focusing R+D+I resources

Most growers of the Dutch flora cluster are members of The Dutch Flower Council and the Association of Dutch Flower Growers' Research Groups, which have taken on other functions such as applied research and marketing. In addition to that, the Dutch flora industry has always benefited from the world class research capabilities of the leading Dutch universities in agriculture. Moreover, the cluster is integrating technologies and best practices from other sectors, too.

The Dutch flora industry lacks conventional comparative advantage such as abundant land and good weather that are associated with successful flora production. Such disadvantages have forced the cluster to innovate throughout the value chain: it has increased resource productivity and created efficient technologies.

Thus, facing strict environmental regulations, the Dutch flora industry has been forced to innovate and search for solutions to adjust to new requirements. A good example of that are the recent developments in energy saving technologies, which may in fact completely change the paradigm of the greenhouses being huge energy consumers today and possibly becoming producers of energy tomorrow⁴.

Improvement of human, financial and knowledge mobility

The "closed greenhouse" solution demonstrates not only a cost-saving innovation but also the intersectoral knowledge mobility: in this particular case, the heat exchanger integrates technologies developed in oil and chemical sectors, also strong in the Netherlands. Noteworthy, knowledge and technologies have been transferred throughout the flora cluster's evolution history for example when the Dutch farmers have developed many plantations and related jobs all over the world, including countries like Ethiopia, Tanzania or Colombia.

⁴ According to the umbrella organization of the cooperative floricultural auctions, VBN, the traditional greenhouses do not use more than the 4% of the energy accumulated for heating the plants, the rest is released back to the air. New "closed greenhouses" should be able to capture that heat, pump it into the ground and use it to heat plants and nearby housing as well. The Dutch flora industry intends to become independent of fossil fuels by 2020, bringing 65% energy savings.

This kind of mobility is seen in the services sector, too. Though its days of mercantile empire are gone, the Dutch know-how in what we would now call logistics still is a core capability. In fact, the Dutch flora industry would not even exist without the land and air logistics networks⁵. Holland is an excellent logistic hub shifting 65% of the world flora trade with a few days shelf live⁶ coming from all over the world from Ecuador and Africa to all over Europe from Portugal to Siberia. Almost every international logistics services provider that offers warehousing, transportation and value added services on a European scale can be found in The Netherlands, but 75% of all in-bound logistics for flora are handled by a single company, probably the most efficient in the world in that activity.

⁵ The country has become the gateway to Europe for incoming and outgoing shipments, highlighted by the Port of Rotterdam (by far the biggest seaport in Europe) and the airport of Amsterdam (4th largest cargo airport of Europe). It also boasts excellent road, rail and waterways connecting to the rest of Europe.

⁶ The success of the flower auctions in the Netherlands is largely determined by their logistics organisation: day-fresh products sold at the auction must be processed and transported to the point-of-sale as soon as possible, requiring customized transport facilities.

3. **Successes and failures of the clustering efforts in the Dutch flora industry**

In defining the perimeter for the clustering effort

Demonstrating successful performance the Dutch economy addresses currently questions of competitiveness and innovation. Being a country with tradition industrial policy the perimeter of the clustering efforts is shifted to the area of science and technology. The cluster-based development places greater emphasis on research and development to reorient the industry towards 'creating a competitive and dynamic economy.

The increased level of collaboration between government, business and universities offers favourable business conditions in terms of competitions, quality of legislation and infrastructure. Increased investment in R&D strengthens business capabilities and cooperation with public knowledge institutions.

In setting the strategies to build a sustainable competitive advantage

The undertaken actions contributed positively into the Dutch economy providing stable growth rates and sustainable job generation. Having a long history the cluster in the Netherlands reached its successful model through holding down wages and keeping costs low to form efficient business conditions in the Netherlands.

To retain global leading positions the Dutch flora industry is undertaking more aggressive steps in the direction of innovation coupled with dynamic business model that will insure long-term success and forefront position in the business.

In managing the clustering efforts jointly

The clustering process in the Netherlands has been driven by the national programmes targeting different industries and contributing into overall cluster policy.

The programmes carried innovative emphasis and paid attention to the demand orientation and public-private cooperation. Focusing on the strengths of the Dutch economy the national support contributes to the establishment of an internationally competitive knowledge economy and enhances knowledge creation in different business areas including flora industry.

In applying the learning to the whole economy

The old model of competing on the bases of low cost inputs is less successful nowadays. The current economic development moves production to the lower wage and lower cost locations with plenty of new business opportunities.

Having reached full employments the Netherlands focused on creating competitive environment in the leading sectors of economy through skills and technology.

4. Learning from the Dutch flora clustering process

Implications for the regional and national institutions

Being a famous international hub, the Dutch flora industry currently focuses on the competitive capabilities. The Dutch economy offers a favourable business climate providing 12% in the total world area and 42% share in the world production of flowers where the production intensity is achieved through greenhouses. Several factors contribute into competitive position of the Dutch flora industry: capital availability, developed logistics system, and a big home market.

Worldwide, the Dutch horticulture sector has an excellent reputation. It has built up and maintained this reputation by always taking the lead in innovation. But product innovations alone are not enough; the sector also needs to realize more ambitious renewal, that takes account of developments in other sectors or other countries.

In 2002 the Dutch report “Naar een Tuinbouwcluster Academie” introduced the idea of meeting point for innovative entrepreneurs in the horticulture cluster that includes flora sector. The objective is to rise awareness of developments, businesses and entrepreneurs outside the sector that can in turn inspire renewal in the horticulture sector.

The Horticulture Cluster Academy, organized in 2002, plays important role in the modernisation process of the industry setting out mission, goals, working methods and target groups.

This initiative has international scope and carries out concept of learning from the outside by opening up the cluster for influences exerted by society, other sectors, markets, technology and international development.

5. Appendix I: The clustering efforts in the flora industry of the Netherlands

A - The flora industry

The definition of *floricultural* / *flora industry* includes cultivation (outdoors or in greenhouses) of flowering plants, ornamental plants, as well as production of bedding plants, bulbs, shrubbery, or flower and vegetable seeds and sod.

In order to grow, flowers and plants require good land, lots of sun and rain. The scarce Dutch soil certainly gets lots of rain, but only a little sunshine. Nevertheless, the Dutch flora growers dominate the global cut-flower business. Indeed, the tiny Netherlands controls 75% of the cut-flower business in the Western Europe, and holds a 65% share of the world flower trade, 40% in plants. This domination is related to intelligent infrastructure building and positive clustering effects.

The Dutch flora industry has a long history, dating back to the 16th century when the cultivation of imported tulips was started. The industry developed due to demanding nearby markets despite of the limited land area and weather conditions. Three regions participated in the establishment of the flora industry in the Netherlands: northern and southern parts of Amsterdam, Rotterdam area and the Hague, which specialized respectively in vegetables, trees, or vegetables and flower bulbs. The first auction started in 1887 at Broek op Langedijk to protect vegetable growers against wholesalers. Soon, other auctions emerged in the Westlands and around Aalsmeer.

The Dutch industry has expanded continuously. After the World War II, it demonstrated exceptional growth supported by the public investments in physical infrastructure: roads, waterways and rails. In 2006, the Netherlands was the global biggest flower exporter providing 52% of all flora products sold in the world. The second position was occupied by Columbia with 11% market share followed by Kenya and Ecuador (See Figure 1 on page 10).

Flora industry clustering efforts in the Netherlands

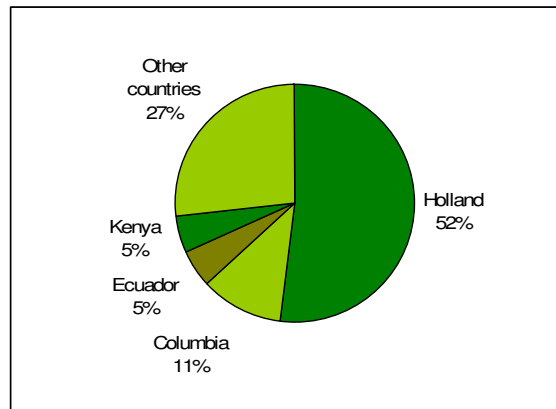


Figure 1 Estimated global flora market, 2006

Additionally, Holland occupies the leading position in all European flora markets providing 66% of the **imports of ornamental flowers and plants** in Europe. More than 90% of the flora imports in Germany, France, Denmark, Finland, Hungary, Slovenia and the Baltic states comes from Holland. This allows the importers be efficient in logistics and offer low costs (See Figure 2).

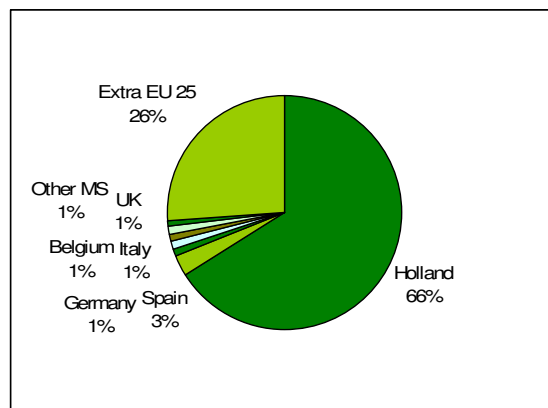


Figure 2 EU flora market, 2004 (Sources: Comext, Eurostat)

B - The Dutch flora cluster

The Dutch flora business is one of the first clusters identified by Michael Porter. It includes companies specialising in all aspects of flowers, such as: **breeding, growing, cutting** as well as **preserving, packaging, or air shipping**. This kind of dynamic, productive infrastructure has made Dutch companies much more competitive.

The cultivation of flowers and plants is highly concentrated in the Netherlands and accounts for only around 4% of horticultural land use in the country. The **floriculture** constitutes some 69% of the flora area⁷. In 2004, the flora industry, which employs some 50,000 people⁸, generated around 3.560.000.000 €, meaning half of the total production value of Dutch horticulture.

The granularity of the clustering efforts is quite different from the size of a statistical cluster category or geographical NUTS-2 area used in the European Cluster Observatory, but it is interesting to attempt to link the Dutch flora clustering efforts to their corresponding statistical cluster category and geographical areas where they have taken place. See the following table⁹.

NUTS II Region	Cluster Category	Employees	Size	Specialisation	Focus	Stars
West-Nederland	Agriculture	20 973	2,51%	1,44	0,65%	1
West-Nederland	Transportation	125 749	2,04%	1,17	3,91%	2
West-Nederland	Distribution	15 330	0,94%	0,54	0,48%	1

Figure 3 Statistical employment analysis (Source: European Cluster Observatory)

⁷ The total service area of greenhouses for floricultural products is 5,713 hectares, divided by more than 6,000 companies. An additional 2,528 hectares of land are used for the open-air production of floricultural products.

⁸ The figure does not include trading, seed suppliers, greenhouse builders nor other suppliers.

⁹ A word of caution is necessary to avoid extracting any conclusions from this table, other than that the statistical analysis captures the existence of employment in that area and location, and that further study is necessary.

Excellent distribution network and logistics system

The Netherlands holds a *central geographical position* within Europe: it is located in the centre of Western European markets such as Germany, France and the UK. Easy access is therefore guaranteed to commercial and industrial centers in the region like London, Paris, Brussels, Frankfurt and Hamburg, along with Germany's Ruhr valley. This implies proximity to a *big consumption area*: within a radius of 500 km a market of approx. 170 million consumers can be reached¹⁰. If increased to 1000 km one has access to a market of approx. 250 million consumers.

The country has long been considered the ideal site in which to base pan-European logistics operations, and it has become the gateway to Europe for incoming and outgoing shipments¹¹. The Port of Rotterdam (by far the biggest seaport in Europe) and the airport of Amsterdam (4th largest (cargo) airport of Europe) permit to maintain this status, and its excellent logistics opportunities by road, rail and waterways connect the Netherlands to the rest of Europe.

In addition to professional Dutch companies, many international logistics companies from other European countries and from the USA, Japan and Australia are well represented. In fact, almost every international logistics services provider offering complementary extensive services to warehousing or transportation on a European scale is present in the Netherlands.

Natural for international business

The Dutch flora cluster can count on *skilled labour force*, which has a flexible attitude and high productivity. The country's *flexible legislation*, the *businesslike attitude* of the Dutch customs and tax authorities, together with the cooperative, pro-business and stable government, promote entrepreneurship. The cluster enjoys also of a sophisticated financial sector and a stimulating environment for R&D¹².

¹⁰ Representing a population density three times higher than that of the metropolitan areas of Tokyo or New York.

¹¹ To date, 7,000 foreign companies have decided that the Netherlands is the best location from which to penetrate markets throughout Europe, the Middle East, Africa and beyond and have established operations there for that purpose.

¹² Most growers are members of The Dutch Flower Council and the Association of Dutch Flower Growers' Research Groups, working on applied research and marketing.

Indeed, at least 80% of Dutch production is exported, in particular to Germany, the United Kingdom and France or Italy, Belgium, Switzerland and Austria. The Eastern European markets are also expanding. Dutch exporters also serve remote destinations such as the United States¹³, Japan and the Middle East.

The Dutch Flora cluster demonstrates continues growth: the total exports increased from 5,7 billion in 2002 to 6,28 billion euro in 2006. They are predicted to grow 45% in the next 10 years. The forecast grounds on the growing demand in Europe including Russia. The exported products consist mainly of **cut flowers and pot plants** that force out other floral production. In 2006, cut flowers was cluster's major export item worth 3,23 billion euro. See Figure 4.

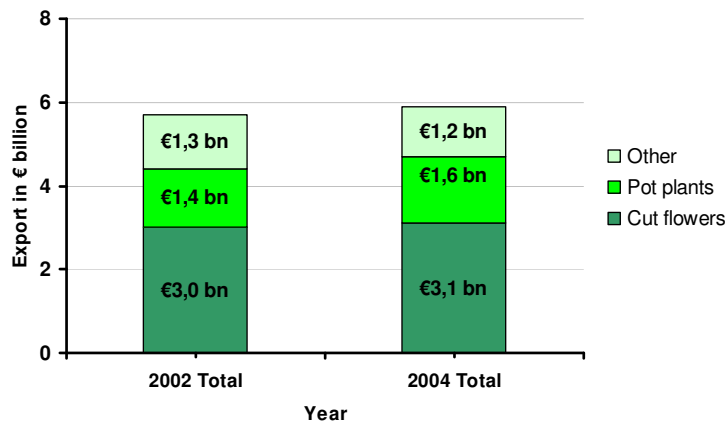


Figure 4 Dutch flora industry: export composition, 2006

¹³ For example, Holland ships flowers to the Disney World in Florida.

C - The challenges of the Dutch flora industry

In the past, intense flower cultivation and the extensive use of pesticides and fertilizers created a serious environmental problem in Holland. Under the pressure of arising environmental regulations, the industry had to find new innovative solutions. For example, in the 1990s, the growers introduced a closed-loop system for flower cultivation, lowering the necessity for fertilizers and pesticides¹⁴. The solution improved not only the environmental situation but also lowered production costs and enhanced product quality.

Today, the Dutch flora industry continues growing and faces new challenges on the road of sustainable competitiveness. Being the main flower producer in EU, the Dutch flora industry is challenged by growing demand coming from the new EU member countries. Emerging flower markets push the Dutch flora industry to find new solutions to reduce costs and to maintain the leading position in markets. The latest solutions have come from the innovative technologies in greenhouses.

Expanding markets require even better logistics and more efficient networking between operators who should provide constant level of service and offering sustainable solutions throughout the value chain. In fact, there will probably be changes in the cut-flower value chain controlled today by large European mass-market retailers such as Sainsbury, Tesco and Marks&Spencer. These sophisticated retailers are gradually taking away purchasing power from wholesalers and the Dutch auction system. The shift might bring the following modifications in the flora industry:

- Supermarkets will have more power in dictating quality standards that might be more strict than current industry standards
- Supermarkets will seek for single purchasing points and will focus more on quality, delivery efficiency and traceability of products rather than on price, unlike in the Dutch auction system
- The cost of the global partnership for safe and sustainable agriculture (EureGap) and supermarket's standards will affect small and medium scale growers

¹⁴ Flowers grow in water and rock wool, a light fibrous material used as an insulator.

D - The Dutch flora cluster reinforcement efforts

The auction system versus direct sales

The role of the **auctions**¹⁵, cooperatives in which breeders organise their sales jointly¹⁶, has been significant in the evolution of the Dutch flora industry. The auction system serves the following purposes:

- Creating links between growers and retailers
- Concentrating supply and demand
- Providing transparency in pricing

Most growers in the Netherlands do not sell their products directly, but are affiliated to one of the flora auctions¹⁷. This provides traders with a one-stop shop, and the payments are direct¹⁸. The specialised flora auctions and handling facilities built by the Dutch grower cooperatives allow the cluster to offer a wide and varied assortment of products all year round. In fact, they constitute one of the cluster's greatest competitive advantages.

The scope of the flora auctions has changed significantly during the past decades: whereas in 1950 there were 158 fruit & vegetable auctions in the Netherlands and 16 flower auctions, in 2003 there were only seven flora auctions left: 3 fruit & vegetable and 4 flower auctions¹⁹.

Today, some 17 million stems are sold daily at Aalsmeer (VBA²⁰) and FloraHolland, the two largest auctions in the country and at the same

¹⁵ Concentration of demand & supply in an international marketplace including service providers

¹⁶ Breeders generally have to sell their entire production through their own auction. This rule forms the basis of the auction system in the Netherlands.

¹⁷ Only 8% of Dutch production is sold directly by growers to traders. Every day, approximately 10,000 specialised breeders deliver their products to the auctions. From this readily available supply, approximately 5,000 buyers can make their choice.

¹⁸ A minimum price is set for each product. If a batch is not sold, it is withdrawn (and destroyed). This leads to a stable pricing system, which in turn promotes a stable supply and demand.

¹⁹ Fish has not experienced this change: in 1950 there were 18 fish auctions in the Netherlands, and 13 of them were still active in 2000.

²⁰ VBA was opened in 1972 and is currently owned by a cooperative of 5,000 growers covering an area of 188ha. It is famous for its largest commercial building in the world.

time in Europe (See Figure 5). Approximately 100,000 transactions are handled each day in these international marketplaces.

Today, imports (mainly from Kenya, Israel and Zimbabwe) constitute approximately 15% of the supply “by the clock”. In fact, approximately 65% of the total international cut flower trade is handled by the Dutch auctions, which therefore have a pivotal role in the international trade of flowers and plants.

The Aalsmeer auction only sells on average 22 million flowers and pot plants every day worth of 6.6 million euros with peaks on Valentine day, Mother’s day, and Christmas. Out of the total amount of the flowers and plants auctioned at Aalsmeer, some 85 % is exported to other European countries.

Company	Country	Type	Turnover in Million €
Flora Holland	NL	Auction	1,909
Aalsmeer	NL	Auction	1,630
Oost Nederland	NL	Auction	60
Vleuten	NL	Auction	25
NBV/UGA	D	Auction	808
Hamburg	D	Wholesale market	102
Dortmund 2001	D	Wholesale market	46
Frankfurt	D	Wholesale market	18
Düsseldorf	D	Wholesale market	37
Berlin	D	Wholesale market	31
Mannheim	D	Wholesale market	32
Pescia	I	Wholesale market	94
Blumenbörse Zürich	CH	Wholesale market	26

Figure 5 Turnover of auctions and wholesales markets in Europe 2004-2005

In 2006, the two auctions FloraHolland and Aalsmeer announced their intention to join forces in order to cut costs through the merger and to strengthen Dutch global position in the flora market. The merger is expected to be carried out early 2008, and the new company should continue the activity under the name of “FloraHolland”.

But not all flora products are sold “by the clock” in auctions. In the recent years, direct sales between sellers and buyers, breeders and traders have, in fact, become increasingly important: whereas by-the-clock-sales have to comply with all the regulations regarding quality, grading, packaging, etc., direct sales are tailor made, preferred by big wholesalers and supermarkets, and used also for particular products like special bouquets.

In fact, experts forecast further decrease in auction related sales and growth in direct sales. For cut flowers the shift towards direct sales will lower the use of the Dutch marketplace till 85% in 2010 whereas for pot plants the number will fall till 65% in the same time frame. The wholesale trader in the Netherlands will also demonstrate shift to foreign retailers.

Efficient logistics

Further on, the success of the Dutch flora cluster is largely determined by the efficiency of the *related logistics*²¹: day-fresh products sold at auctions must be processed and transported to the point-of-sales as soon as possible. Uniformity and standardisation of packaging material are essential for that purpose: in 2002, 90% of all transport packaging at the auctions was of uniform design²².

Public support

The Dutch government provides considerable support for the flora industry in Holland. The support aims to secure political and economical stability in the country as well as fight against corruption in the society. In addition to that, the European Union tries to increase flora consumption among all European countries, for example by supporting 15 currently running promotion programmes²³ with a total EU contribution of 9,4 Meuro or by paying special attention to the development of the external flower, plant and tree markets²⁴ with a total EU contribution of 2,5 Meuro.

²¹ Including facilities, trays, containers, boxes, etc.

²² All packaging certified by the VBN (auction association) for flowers and plants carry a unique VBN packaging code, helping communication between suppliers, auctions and customers.

²³ These programmes last from 1 to 3 years in 9 member countries.

²⁴ These programmes last 3 years each, managed by Italian or Dutch consortium leaders.

E - Present situation

Holland occupies the leading position in all European markets providing 66% of the imports of ornamental flowers and plants in Europe. More than 90% of the flora imports in Germany, France, Denmark, Finland, Hungary, Slovenia and the Baltic states come from Holland. Such flows allow the traders create efficient logistics and offer low costs. Besides the European markets, Dutch exporters also serve remote destinations such as the United States, Japan and the Middle East.

The Dutch cluster also dominates the raw material markets. Repackaged exotic products coming from the Middle East, South America and East Africa constitute 30 % of the Dutch flora export. Despite the remote location, products are redirected to the Netherlands and sent further to other countries using the Dutch logistics expertise gained through centuries.

At present, as the Dutch flora cluster continues growing and is taking measures to retain its competitive position, the clustering strategy seems highly effective. This makes it quite unlikely that the Dutch flora industry would be challenged in its supremacy anytime soon.

But, with new competitors emerging across the world the Netherlands' flora companies need to find new ways to compete with better prices and increased integrated services:

- The main threat comes from Dubai where the state financed "Dubai Flower centre" was opened in July 2006. It has capabilities to handle 180,000 tons of perishable goods per year and has potential to attract considerable portion of international shippers and wholesalers. At least, it aims to cut shipping costs to and from Dubai and expand activities to Latin American countries, Middle East, India, Asia and Russia²⁵.
- Tel Aviv and Iran have also announced increase in flower production and are expected to contribute into the new allocation of flora industry resources worldwide.

²⁵ Dubai may have its chances in these markets since Ecuador, the 4th major global exporter, have not signed the free trade agreement with the US and is therefore unable to operate there.

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