

# Competition in the Dutch Flower Markets

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**Disclaimer:** This case was prepared as a basis for class discussion rather than to illustrate either effective or ineffective handling of administrative and business situations. It frames the case in terms of a **fictional meeting** between the CIOs and the Board of the Dutch Flower Auctions for purposes of developing a decision problem and an educational case illustrating competitive strategy and the role of IT in auctions.

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## COMPETITION IN THE DUTCH FLOWER MARKETS

Intrigue abounded in the Dutch flower industry when buyers and growers learned that a special meeting of Board Associates of the Dutch Flower Auctions (DFA) had been called. What was happening? Why were the CIOs of Aalsmeer and Naaldwijk, their two largest competing auctions huddled together in conference?

The need for such a meeting was motivated by the successful emergence of the Tele Flower Auction (TFA), a relatively new competitor to the cut-flower and potted plant market. The Tele Flower Auction was enjoying rapid growth, while DFA's two major auctions were encountering slippage. About a year after TFA started operations, it could boast an estimated 100 growers and 160 buyers. In fact, for the first time in six years, DFA's two largest auctions had experienced lower turnover and lower earnings. This drop in trade motivated all the Dutch Flower Auctions, as well as the grower organizations, to review the role of auctions, especially the role of information technology.

Prior to the meeting, the Chief Information Office (CIO) of Aalsmeer (VBA) and the CIO of Naaldwijk (BVH) had been asked to prepare a report to evaluate the East African Flower Auction and its growth and inroads into the marketplace. The report was also to include a history of Information Technology (IT) in the Dutch Flower Auction, and a discussion of IT's options and potential impact on DFA's future. The Board was being pressed to find ways to stem DFA's downward trend and secure its growth in the cut-flower market.

The following material was prepared for the meeting.

### BACKGROUND

The flower industry has been one of the leading industries in the Dutch economy. Since the mid-1970s, the production and distribution of cut flowers have burgeoned. In 1995, Dutch growers produced over 8 billion blooms and the flower auctions collectively traded more than 5.4 billion guilders (about \$3.2 billion) in cut flowers and potted plants, contributing over 4 billion guilders annually to the Dutch balance of trade. [See chart]

The Dutch flower industry consists of about 11,000 growers and nearly 5,000 buyers. Growers are typically family businesses that grow flowers

in specialized greenhouses, heated and lit by the country's abundant supply of natural gas to create an ideal climate for growing flowers. Dutch growers face increasing competition for the lucrative European markets from low-cost foreign competitors such as Kenya, Spain, Israel, India, and Colombia. While Dutch growers experience increasing land costs, more environmental regulations and political trends to reduce subsidies for gas prices, the foreign competitors have lower labor costs, fewer environmental regulations and lower trade tariffs. The global diffusion of agricultural technologies and cheaper air transport make international growers more potent competitors.

In response to these economic pressures, Dutch growers are shifting their product mix to include high value-added flowers that serve year round "impulse" buyers, in contrast to just serving the "occasions" (e.g., Christmas, Valentine's Day, etc.) market. They believe that the future growth of the Dutch flower industry will come, in part, from the impulse market.

#### TRADITIONAL DUTCH AUCTION PROCESS

Buyers for various wholesalers and retailers participate daily in the Dutch flower auctions to purchase flowers which are then repackaged and resold to end-consumers or retail stores. As supermarkets and large retail store chains become outlets for flowers, individual buyers purchase larger volumes and are becoming more sophisticated in coordinating purchases across different auctions. There are also economies of scale in the purchase and distribution of flowers, leading to greater buyer concentration.

The Dutch flower auctions are key institutions in the world flower industry. They provide a setting where price is determined and where the growers' supply of flowers meets the buyers' demand. The auctions use the "Dutch" auction method for price determination. This method uses a clock, where the clock hand starts at a high price and drops until a buyer, by pressing a button, stops the clock to bid and accept (part of) the lot. The clock was invented by a Dutch cauliflower grower in the 1870s to reduce the time growers spent at markets.

The Dutch auction is very efficient. It frees growers from the price determination process and the task of bidding and allows them to focus on production. The auction also provides a central location for buyers to meet suppliers, allowing for efficiencies in the logistics of product redistribution and quality control.

There are seven flower auctions in the Netherlands. The two largest are in Aalsmeer (VBA) and Naaldwijk (BVH). The remaining auctions sell specialty flowers or have more local distribution. Aalsmeer, owned by a cooperative of about 5,000 growers, is the world's biggest flower auction. It is located near Schiphol Airport, one of Europe's largest air cargo transportation centers. The Aalsmeer auction, with one of the world's largest commercial buildings spread across the equivalent of 100 soccer fields, provides space for 2,000 buyers. Flower auctions are held in different auction rooms under thirteen different clocks, each of which can handle 1,000 transactions an hour (approximately 1 transaction in 4 seconds). On average, 15 million flowers and potted plants trade daily in 50,000 transactions, generating an annual turnover of 2.4 billion guilders.

The auctions constitute a critical part of the trading process that begins when growers harvest the flowers. Here is a typical example. Growers harvest roses for export to the United States by mid morning on any given day. By mid afternoon, machines will have sorted the roses by as many as 200 varieties, and by the length of the stems. These roses are gathered, labeled for quality, and packed in uniform plastic tubs for transport. By 10 p.m., the flowers arrive at the auction house where they are placed in cold storage overnight. The next morning at 4:30 a.m., they are transported to the collection hall, inspected, assigned lot numbers, and assembled onto "stapelwagens" or uniform carts for transport into the auction hall. The stapelwagens are then towed into the auction halls where their contents are auctioned, beginning at 6:30 in the morning in auction rooms with up to 500 buyers. The computerized auction clocks in the room provide the buyers with information on the grower, product, unit of currency, quality, and minimum purchase necessary.

Once the auction is completed, each lot of flowers is tagged with a computer print out of the sale and distributed to the buyer's area in the auction house where they are repackaged and boxed for air or land transport. Flowers exported to New York are transported on a special eight-hour flight, which departs Schiphol airport at 7:10 p.m. and arrives in New York at 8:10 p.m. local time. The cargo is then unloaded, inspected, cleared by customs and shipped to nearby warehouses or to other wholesalers for distribution the next day. Thus roses from an Aalsmeer greenhouse can be sold in New York within 48 hours after they are cut. Similarly, redistribution to other European countries by land occurs within 48 hours. Timing is crucial as the product declines in

value towards zero within 10-12 days after the harvest.

## EVALUATION OF THE DUTCH FLOWER AUCTION

The Dutch auctions provide both growers and buyers with an efficient system to trade a high variety of products. Auctions are also very efficient in determining price, enabling approximately a thousand transactions per hour. The Dutch auction eliminates haggling and related problems, and mediates and settles all buyer-grower disputes. It also enables efficient trading by operating at a high clock speed, encouraging competition among buyers, and setting a fixed time to complete a transaction before the clock goes to zero.

In a number of ways, the Dutch auction favors growers over buyers. First, the clocks move at high speeds, reducing buyer decision-making time and causing higher bid prices. Experiments have shown that higher speeds result in higher prices. Second, the service costs to buyers favors small lots over large lots. Thus no one party can purchase the entire lot without competition. It also increases buyer competition. Buyers must purchase products and adjust purchasing decisions based on multiple clock auctions. Imperfect information about available inventories can also favor growers.

Other disadvantages of the auction are that buyers must be physically present at the correct location and correct time to bid on a specific product. In addition, it is hard for buyers to simultaneously search other markets to estimate comparative prices.

The various flower auctions owned by Dutch grower cooperatives are critical institutions in the Dutch and world flower industry. Until the recent challenge by the Tele Flower Auction, international growers and buyers readily acknowledged that the Dutch flower auctions provided the best settings for determining prices in the international flower trade.

The flow of foreign cut-flowers to the Dutch Flower auctions increased by 78 percent between 1985 and 1990. In 1993, the impact of foreign rose stems to the two largest auctions reduced average prices by 40 percent during the winter season. This growth in the volume of foreign imports traded at the Dutch Auction houses illustrates the critical role of these auctions in the international flower trade. The dramatic drop in 1993 winter rose prices also illustrates the emerging effects of foreign competition on the Dutch.

Despite their vital role, the Dutch flower trade and the auctions face new challenges. First buyers for supermarkets and large retail store chains are becoming increasingly sophisticated, purchasing larger volumes and coordinating purchases across different markets and auctions. Indeed, some large retailers like Marks and Spencer are bypassing the Dutch auctions and their commissions to source directly from growers in Spain and other countries. Second, the sheer scale of transactions requires large amounts of space and generates substantial traffic to and from the auction houses. With current growth rates, traffic will be unmanageable within the decade and the auctions are close to their limits in terms of complexity and available space for expansion. Third, the auctions confront a critical challenge of coping with the influx of foreign growers, and devising appropriate access rules and pricing schemes for these growers while serving the interests of Dutch grower cooperatives that own the auctions.

#### EXPERIMENTS WITH INFORMATION TECHNOLOGY

Until the early 1990s DFA used computers in a very traditional way, limited to use only in the auction hall. Quality inspectors graded flowers as they arrived in the auction hall, and entered information on the flower type, quality, inventory, and grower into the computer. The same information was cross-indexed with bar-code numbers and affixed to each flower lot and flower cart to enable tracking through the auction hall. The computer system was also linked to the buyers' key pad and the clock. It consolidated purchases for payment purposes, and generated summary reports and transaction reports for buyers and sellers. It was also used to schedule and coordinate the many functions of this complex auction, making it run efficiently.

With the growth of volume, buyer power, foreign competition, and need for space, the Dutch Flower Auction turned to technology. In 1992, through the use of electronic data interchange (EDI), growers and auctions could communicate product, order, and transaction information to each other. Using EDI, auctions could change the trading process and separate product location from pricing, resulting in reduced logistics, costs, and physical capacity requirements.

In 1994, the Aalsmeer auction began a sample-based auction for trading potted plants. In this auction, growers sent only a sample to the auction house, with the usual data about the product. During the auction, buyers saw only the sample, but were bidding for the entire available quantity. Buyers could specify how to package the product and

when to ship it. Growers followed the packaging instructions and shipped the next day to the buyers in the auction house or to buyer warehouses. Growers, buyers and auctions used EDI to exchange all the information needed in this process, which reduced product handling, thereby increasing quality, and reducing packaging costs.

For the most part, the expectations of the parties involved were not met. Buyers and auctions expected the number of transactions to increase by separating pricing from product location. Instead, the number of transactions per hour decreased because buyers had to specify the terms of delivery. While the auction had hoped to transact 45 percent of the supply of potted plants, they transacted only 10 percent. Thus, the sample-based auction did not effectively reduce storage requirements at the auction house. Furthermore, the buyers perceived that the sample was of better quality than the rest of the lot, so they bid more for the sample and less for the remaining lot, even though it could have been the same type and quality.

In addition, incentives to buyers and growers did not materialize. Growers received no extra compensation for modifying packaging and deliveries to accommodate the buyers. Growers also perceived that they got lower prices in a slower auction. In an effort to get higher prices, more and more growers would break a large lot into different sample lots so that the same product would be priced multiple times.

There were also no incentives for buyers to transact large lots. Rather the auction maintained rules to favor small lots. In general, there were no significant benefits for buyers or growers to participate in this market and the experiment failed.

A second way of separating logistics from delivery was tested at Naaldwijk (BVH) through video auctioning, known as the Videfleur experiment. One of three auction clocks in a room was modified with video screens for product display around the clock. The product was also on display under the clock in the usual manner, giving a second visual display. An auction room solely dedicated to this experiment was not available given the limited space of the auction facilities. Thus the traditional auction was combined with the Videfleur experiment.

As product arrived at the auction, a picture was taken, digitized and stored in auction computers. These computers transferred the picture to the display screen in the auction hall. Buyers could also see and bid for the flowers on computer screens in their private auction offices.

These computers had a representation of the clock. Auctioneers expected this remote video auctioning to provide buyers with better information as they could access their own office computers for purchasing, order, sales, and local inventory information. In addition, auction officials had noticed that buyers often tended to select goods from specific sets of growers rather than inspect the product in great detail. This suggested to them that reputation played a substantial role in shaping buyer purchases.

Buyers reacted negatively to screen-based trading. First, they complained that the quality of the auction hall video display was poor. Second, they did not gain any new efficiencies. Buyers trading from their offices also perceived a major informational disadvantage. Buyers on the floor of the auction hall could observe each other and the reactions of large buyers (from supermarket chains, etc.). This non-price information was incorporated into the decision making of the buyers.

#### EMERGING CHALLENGES TO DFA DOMINATION

The Dutch flower industry is impacted by foreign growers. While buyers favor more foreign participation, Dutch growers do not. In the early 1990s, the Dutch Flower Auction felt more and more threatened by the increase of imported flowers. Matters came to a head in the 1993 selling season, when rose prices fell dramatically with the influx of foreign product. In September 1994, Dutch growers, who own the auctions, voted to ban foreign growers from participating in the summer auctions. One of DFA's motives was to reduce foreign competition. Instead, quite the opposite occurred. Their vote prompted foreign growers and buyer organizations to band together to form their own auctions. Rather than reduce foreign competition, DFA's actions actually created more competition.

Tele Flower Auction (TFA) is one such outgrowth. It was created by the East African Flower Import Organization (EAF), a leading importer of cut flowers, located in the Aalsmeer area. Founded in 1984, EAF specializes in the East African area (Kenya, Tanzania, and Uganda). The Dutch ban on imports had a negative effect on EAF. It could trade only 30 percent of its product via the Dutch auction clocks during the traditional import season, but after the ban was voted, EAF could not trade there in the summer season at all. Thus EAF was forced to find or create a new market.

EAF created TFA in December 1994, and by March 1995 it was up and running with 70 buyers. At first, TFA was initially restricted to 15 growers who were EAF's main suppliers. Then TFA and Flower Auction Aalsmeer agreed to use the same type of carts for transport, and they agreed that TFA could deliver its products to the buyers who had their facilities in the auction hall of Flower Auction Aalsmeer. After a few months, growers from other countries (for example, Spain, Colombia, France, India, and Israel) were allowed to use TFA. By the end of a year, TFA had approximately 160 buyers (about half are located in the Aalsmeer area; the rest are scattered throughout the Netherlands). In October 1995, TFA became a permanent auction market.

## TELE FLOWER AUCTION

TFA is a fully computerized operation that separates product location from pricing, yet uses the concept of the Dutch flower auction to determine pricing. No longer do buyers have to be present in the auction hall. Buyers have a personal computer (PC) which links their office or place of operation to a fully computerized auction clock. Buyers are given information on the grower, product, texture of flowers, unit of currency, quality, and minimum purchase. This is basically the same information that has traditionally been provided by the Dutch clock. Through the use of information technology, buyers are given advance information and specifics on what flower lots will be sold. Buyers do not actually see the product; they receive only a description. Buyers can designate on their computers what lots interest them and their PCs will notify them when those lots are about to be auctioned.

TFA buyers see the Dutch auction clock on the PC screen. The clock hand starts at a high price, and drops until a buyer stops the clock by pushing the space bar on the computer key board. The buyer determines how many flowers in the lot will be purchased with an open telephone connection. After the transaction, the clock is reset and the process begins for the next lot, until the remainder of the product is sold.

Distribution of flowers is substantially simpler and eliminates a lot of the handling associated with DFA. Growers send their flowers and plants to an EAF warehouse in Amstelveen where they are stored. From there, EAF transporters distribute them to the buyers, including buyers' rented facilities at VBA. The auction rules are the same as in the traditional Dutch flower auction. The role of the auctioneer is also the same. He identifies buyers and determines the minimum amount of units, thereby influencing the price.

## EVALUATION OF THE TELE FLOWER AUCTION

Overall, TFA was an overwhelming and immediate success. Buyers were impressed with the computer data, the quality of the products, and the speed of delivery after their purchases were completed. The buyers felt they had a better overview of the auction, as compared with the traditional Dutch auction.

The key to TFA's success was the buyers' trust in the quality of the flowers, since most buyers could not see the product and had to depend on the computer information. They felt they could rely on TFA. In addition, buyers who were nearby could inspect the imported flowers and about 30 percent took advantage of this. TFA established trust by assuring that flowers met or exceeded quality expectations. This was in contrast to the Aalsmeer potted plant auction; the buyers distrusted the quality of plants they could not see.

Buyers also felt comfortable with the IT innovations since they incorporated the Dutch auction clock which they had used in the past. While some buyers missed the atmosphere of the traditional auction halls, other buyers preferred to work at their computers. They felt they had better concentration and a better overview of the market. As with any new system, there was some apprehension about learning to trade on the computer, but TFA had developed a relatively user-friendly system and the cost of training was negligible. It is interesting to note that in the limited Videfleur experiment, the majority of buyers reacted negatively to a screen-based auction. In addition, one of the conclusions drawn from that experiment was that it was not acceptable to have some buyers with access to the buying floor while others did not.

TFA also came out ahead in comparison with the traditional Dutch auction. First, buyers did not have to be present in the auction house. Linked by a computer, they could trade from any convenient location. Second, much of the product handling associated with the Dutch auction was eliminated, preserving the integrity of the cut flowers. Third, speed of delivery after the completion of a sale was impressive. Some flowers reached buyer locations within a half hour of the transaction.

In addition to these advantages, TFA had none of the disadvantages of the traditional Dutch auction, such as a cooperative structure, an inability to implement IT innovations quickly, and a restriction on imports. TFA was respected not only for its success, but also for the

speed at which it achieved that success.

## SUMMARY

It didn't take long for the Dutch Flower Auctions to realize that its market share was being eroded because of TFA's successful emergence. DFA recognized that it must act swiftly to avert further losses. The first step was to bring together the CIOs of Aalsmeer and Naaldwijk, their two largest auction houses. Owned by the growers, these auctions have always competed for buyers. Now they must find ways to stem the loss of market share, and critically evaluate the role of IT in the DFA.

In the past, the Dutch auction houses, owned by the growers, favored the growers. IT innovations appear to dissipate that advantage. Buyers, especially those for supermarkets and large retail store chains, have become more powerful because they can now make larger purchases and coordinate them across different markets and auctions.

Many new technologies are emerging which can affect how the Dutch auction conducts business. First, DFA has to decide if they can radically change the way they are doing business as they respond to new competition in the marketplace. Second, they have to consider what applications will give them a competitive advantage. Will IT actually offer their auction houses an advantage or will it simply lower their costs? And third, DFA must contemplate where cooperation between their competing auction houses will give them a competitive edge.

Is information technology the answer to the problem? DFA did not have much success with it in the past. On the other hand, it accelerated TFA's marketing achievements. What strategies should the CIOs propose to their Board?

## Appendix 1: Different Auction Models

A number of different methods exist to auction and value goods exchanged between buyers and sellers. Below we provide a number of different auction techniques for the purpose of discussion. These auction models were adapted from Davis and Holt, *Experimental Economics*, Princeton University Press (1993).

### The Dutch Auction

In a Dutch auction, the auctioneer lowers the offer price sequentially until a buyer agrees to pay the offer price. Often the prices are indicated by a clock, which falls over a price scale until a buyer presses a button to stop the clock. The first buyer to do this obtains a unit at the price in effect at the time that the clock was stopped. The Dutch auction derives its name from its extensive use in wholesale agricultural markets in Holland. The following Java applet illustrates the Dutch Auction.

### The English Auction

In the English auction, different potential buyers bid for a good or service, sequentially increasing the offered price until only one active bidder remains. This auction technique is commonly used for the sale of artwork and other valuable objects.

### Offer Auction

An offer auction is an institution in which sellers can make offers sequentially, and buyers are able to accept any offer, but not to make any bids.

### Bid Auction

A bid auction refers to the opposite case in which buyers can make bids sequentially, but sellers can only indicate that a bid is accepted.

### Other Auction Models:

#### Clearinghouse Auction

In the clearinghouse auction, buyers submit bids and sellers submit offers. Once submitted, the bids are arrayed in descending order, from highest to lowest, while the offers are arrayed in ascending order, from lowest to highest. A price is then determined by a crossing of the bid and offer arrays. This two-sided institution eliminates the performance asymmetries associated with allowing only one side of the market to submit price quotes. It is perceived as a fair auction.

#### Posted-Offer Auction

In the posted-offer auction, sellers independently select a price and a maximum quantity limit. After prices and quantity limits have been

selected, the prices are displayed on the blackboard or on all traders' computer screens. Then buyers are chosen randomly from a waiting mode. The first buyer selected makes purchases from sellers at their posted prices. When a buyer has purchased all desired units, another is selected randomly and is given the same opportunity. The trading period ends when all buyers have had an opportunity to shop or when all sellers are out of stock. Then earnings are calculated, and a new period typically follows.

### Posted Bid Auction

Reversing the roles of sellers and buyers in a posted offer (i.e., allowing buyers to post bids and subsequently selecting sellers in random order to make sales decisions) implements the posted-bid auction.

### Discriminative Auction

In a discriminative auction buyers submit posted bids to a single seller, who offers a fixed number of units,  $N$ , to the highest bidders at their price. For example, if two units are offered for sale and four bidders submit bids of 15, 17, 10, and 9, then the first two bidders obtain the units at prices of 15 and 17 respectively. This auction is called discriminative since winners must pay their own bid prices, and in this sense the seller engages in "price discrimination".

### First-Price, Sealed-Bid Auction

When there is only one unit or "prize", the high bidder in the discriminative auction wins the auction and purchases it at his/her bid price, which is the highest, or "first" price. Therefore, a discriminative auction with a single unit is sometimes called a first-price, sealed-bid auction.

### Competitive Sealed-Bid Auction

In contrast to the discriminative case, it is possible to design a mechanism for selling multiple units in which all of the  $N$  highest (winning) bidders pay a uniform price. When the uniform price is specified to be the highest rejected bid, the institution is known as a competitive auction. In the previous example, with two units and bids of 15, 17, 10, and 9, the first two bidders obtain the units, but they pay the same (third) price, 10. Since all winning bidders pay the same market-clearing price, this institution can create an impression of

fairness.

### Second-Price, Sealed-Bid Auction

A second-price auction is a special case of a competitive sealed-bid auction with only one prize; the highest rejected bid is the second highest price, which is what the winning bidder must pay.

### Decentralized Negotiation

In a decentralized negotiation institution, each seller (buyer) is allowed to roam freely around the room and negotiate contracts. Each seller (buyer) had one unit that could be sold (purchased) with a cost (reservation value) listed on a card. After a contract is completed, the buyer and seller report the price to a central point, and the price is usually written on the blackboard at the time it is reported. The most striking result of the decentralized negotiation is the tendency for quantity exchanged to be too high. While centralized bid and offer information would tend to eliminate trades involving extra-marginal units, the absence of information on the bid-ask spread in decentralized markets would facilitate the consummation of more inefficient contracts.

### Double Auction

Under double auction rules, any buyer who makes a bid must raise his/her hand and be recognized. The bid is then publicly announced to the market. Sellers' offers are also publicly announced. All bids and offers are written on the blackboard as they are made. Only the most attractive bid or offer has "standing" or can be accepted. Any buyer is free at any time to accept a standing offer, and any seller can accept a standing bid. It is common practice to add an "improvement rule"; that is, that a new bid be greater than the standing bid and that a new offer be lower than the standing offer. This is a double auction in a sense that bids rise and offers fall at the same time.

## TOP TEN CUT FLOWERS

auction turnover in Dfl. 1.000.000,-

	1994	1995	94/95
1. Rose	994	992	- 0,2%
2. Dendranthema (Chrys.)	579	543	- 6,2%
3. Tulip	269	274	+ 1,9%
4. Lily	244	229	- 6,1%
5. Carnation	261	222	- 14,9%
6. Gerbera	150	149	- 0,7%
7. Freesia	138	131	- 5,1%
8. Cymbidium	110	110	0%
9. Alstroemeria	81	79	- 2,5%
10. Gypsophila	71	62	- 12,7%

Number of cut flowers: 10.177.000.000

## EXPORT CUT FLOWERS TO .....

in Dfl. 1.000.000,-

Inhabitants x 1.000.000	1994	1995	94/95
1. Germany	82 2.143	2.096	- 2,2%
2. France	57 526	601	+ 14,3%
3. United Kingdom	56 387	370	- 4,4%
4. Switzerland	7 156	161	+ 3,2%
5. Austria	8 142	159	+ 12,0%
6. Italy	58 163	136	- 16,6%
7. Belgium/Lux.	10 119	132	+ 10,9%
8. United States	259 119	117	- 1,7%
9. Denmark	5 92	104	+ 13,0%
10. Japan	123 95	97	+ 2,1%
Others	<u>436</u>	<u>496</u>	<u>+ 13,8%</u>
	4.378	4.468	+ 2,1%

## TOP TEN POT PLANTS

auction turnover in Dfl. 1.000.000,-

	1994	1995	94/95
1. Ficus	125	111	- 11,2%
2. Dracaena	64	59	- 7,8%

3. Kalanchoe	53	53	0%
4. Dendranthema (Chrys.)	46	49	+ 6,5%
5. Begonia	48	42	- 12,5%
6. Hedera	38	42	+ 10,5%
7. Rhododendron simsii (Azalea)	39	37	- 5,1%
8. Saintpaulia	36	34	- 5,6%
9. Hydrangea	31	34	+ 9,7%
10. Spathiphyllum	33	31	- 6,1%

Number of plants: 999.870.000

### EXPORT POT PLANTS TO .....

in Dfl. 1.000.000,-

Inhabitants x 1.000.000	1994	1995	94/95
1. Germany	82	951	969 + 1,9%
2. France	57	239	257 + 7,5%
3. Italy	58	165	125 - 24,2%
4. United Kingdom	56	138	133 - 3,6%
5. Belgium/Lux.	10	83	87 + 4,8%
6. Switzerland	7	76	81 + 6,6%
7. Austria	8	73	79 + 8,2%
8. Denmark	5	47	44 - 6,4%
9. Spain	39	43	43 0%
10. Sweden	9	22	26 + 18,2%
Others	<u>187</u>	<u>195</u>	<u>+ 4,3%</u>
	2.024	2.039	+ 0,7%

Exporters: 1.592

### Edition 1996

Flower Council of Holland  
 Schipholweg 1, 2316 XB Leiden, Holland  
 Sources: VBN, PVS, BvGB

### PRODUCTION

	1994	1995	94/95
Total production area under glass	10.171 ha.	10.192 ha.	+ 0,2%
Area of flowers and plants under glass	5.519 ha.	5.524 ha.	+ 0,1%
Outdoor growing area flowers and plants	2.432 ha.	2.499 ha.	+ 2,8%

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**PRODUCTION in Dfl. 1.000.000,-**

	<b>1994</b>	<b>1995</b>	<b>94/95</b>
Cut flowers and plants	6.050	6.010	- 0,7%
Flower bulbs	1.080	1.100	+ 1,9%
Nursery stock	800	950	+ 18,8%
	7.930	8.060	+ 1,6%

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**JOB OPPORTUNITIES IN FLORICULTURE**

Production	25.000
Auctions	4.500
Supply industry	6.000
Wholesalers/Exporters	13.000
Retailers	<u>22.500</u>
	71.000

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**EXPORT in Dfl. 1.000.000,-**

	<b>1994</b>	<b>1995</b>	<b>94/95</b>
Cut flowers and plants	6.420	6.507	+ 1,4%
Flower bulbs	1.300	1.320	+ 1,5%
Nursery stock	600	615	+ 2,5%

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**IMPORT in Dfl. 1.000.000,-**

	<b>1994</b>	<b>1995</b>	<b>94/95</b>
Cut flowers and plants	618	576	- 6,8%
Pot Plants	42	43	+ 2,4%
Garden Plants	10	12	+ 20,0%
	670	631	- 5,8%

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(These figures are imports via the Dutch auctions, which account for 60% of total imports.)

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**FLOWERS AND PLANTS SALES OUTLETS IN HOLLAND**

Traditional flower shops	4.700
Street and van sales	1.950
Supermarkets, department stores	2.100
Garden centres	500
Petrol stations	<u>2.000</u>
	11.250

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## **% OF WORLD EXPORT OF CUT FLOWERS**

Holland	59%
Colombia	10%
Italy	6%
Israel	4%
Spain	2%
Kenya	1%
Others	<u>18%</u>
	100%

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## **% OF WORLD EXPORT OF POT PLANTS**

Holland	48%
Denmark	16%
Belgium	10%
Germany	5%
Italy	4%
Others	<u>17%</u>
	100%

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## **Total**

### **PER CAPITA CONSUMPTION in Dfl. (1994)**

	<b>Flowers Plants</b>		
Switzerland	183	101	284
Norway	107	165	272
Austria	103	75	178
Germany	80	79	159
Sweden	64	81	145
Denmark	59	77	136
Holland	83	48	131
Finland	60	52	112
France	60	52	112
Belgium/Lux.	74	38	112
Italy	74	38	112
United States	45	49	94
Japan	73	-	73
Greece	29	24	53
Great Britain	36	13	49
Slovenia	27	15	42

Spain	25	16	41
Ireland	15	6	21
Czech	10	5	15

(Please note that currency fluctuations will have influenced the calculations of these figures.)

## AUCTIONS

### Sales of cut flowers in Dfl. 1.000.000,-

	1994	1995	94/95
1. Aalsmeer VBA (+Roelofarendsveen)	1.631	1.589	- 2,6%
2. Naaldwijk BVH	1.466	1.410	- 3,8%
3. Rijnsburg Flora	548	555	+ 1,3%
4. Grubbenvorst ZON	76	75	- 1,3%
5. Eelde BVE	46	46	0%
6. Bemmelen VON	36	36	0%
7. Vleuten U&O	32	31	- 3,1%
	<u>3.835</u>	<u>3.742</u>	- 2,5%

### 94/95

### Sales of plants in Dfl. 1.000.000,-

	1994	1995	
1. Aalsmeer VBA (+Roelofarendsveen)	839	853	+ 1,7%
2. Naaldwijk BVH (+Bleiswijk)	660	663	+ 0,5%
3. Bemmelen VON	42	41	- 2,4%
4. Grubbenvorst ZON	40	41	+ 2,5%
5. Eelde BVE	28	29	+ 3,6%
6. Rijnsburg Flora	28	27	- 3,6%
7. Vleuten U&O	16	16	0%
	<u>1.653</u>	<u>1.670</u>	+ 1,0%

### Sales of cut flowers and plants in Dfl. 1.000.000,-

	1994	1995	94/95
1. Aalsmeer VBA (+Roelofarendsveen)	2.470	2.443	- 1,1%
2. Naaldwijk BVH	2.127	2.073	- 2,5%
3. Rijnsburg Flora	576	583	+ 1,2%
4. Grubbenvorst ZON	116	116	0%
5. Bemmelen VON	79	76	- 3,8%
6. Eelde BVE	74	75	+ 1,4%

7. Vleuten U&O

47 47 0%  
5.489 5.413 - 1,4%