



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



CA

Econ. WP-69

**AGRICULTURAL DEVELOPMENT SYSTEMS**  
**EGYPT PROJECT**

**UNIVERSITY OF CALIFORNIA, DAVIS**

POTENTIALS FOR EXPORTING CUT FLOWERS FROM EGYPT

By

Leon Garoyan

Jerry Foytik

Samuel C. Palmer

University of California, Davis

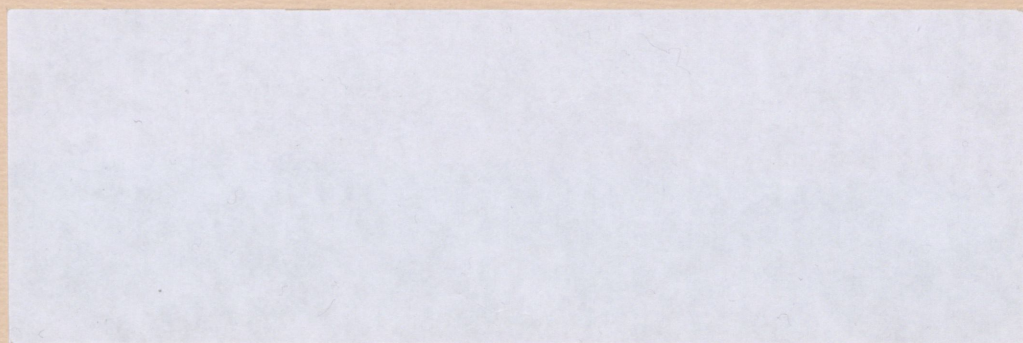
GIANNINI FOUNDATION OF  
AGRICULTURAL ECONOMICS  
LIBRARY

NOV 29 1982

**WORKING PAPER**

US/EGYPT 





**POTENTIALS FOR EXPORTING CUT FLOWERS FROM EGYPT**

**By**

**Leon Garoyan  
Jerry Foytik  
Samuel C. Palmer  
University of California, Davis**

**Economics  
Working Paper Series  
No. 69**

**Note:** The Research Reports of the Agricultural Development Systems: Egypt Project, University of California, Davis, are preliminary materials circulated to invite discussion and critical comment. These papers may be freely circulated but to protect their tentative character, they are not to be quoted without the permission of the author(s).

**May, 1982**

**Agricultural Development Systems:  
Egypt Project  
University of California  
Davis, Ca 95616**



## POTENTIALS FOR EXPORTING CUT FLOWERS FROM EGYPT

by

Leon Garoyan, Jerry Foytik, and Samuel C. Palmer<sup>1</sup>

Purchase of cut flowers is a year-around European tradition. During the months of November - May, large quantities of flowers are imported into major European population centers to supplement flowers produced for commercial markets under heated "glass" houses in Europe.

For the period 1970-78, purchases of floricultural products (including trees, pot plants, cut flowers, and bulbs) increased by the following percentages: West Germany, 90 percent; Switzerland, 110 percent; France, 60 percent; Sweden, 88 percent; England, 20 percent; and Holland, 103 percent.

Major sources of off-season cut flowers for the European market include Thailand (orchids), Columbia (carnations), Kenya (carnations, spray carnations, iris, and strelitzia) and Israel (roses, carnations, spray carnations, etc.) and Canary Islands (roses). In recent years, imports from Israel have increased substantially, as shown in statistics in a later section. The wholesale trade has accepted the concept of imported cut flowers during the European "off-season", but growers are generally opposed to imports, particularly during recent years when Israeli carnation exports have been large, and Holland tulip prices were low due to large Holland production. As a result, various governments through the European Economic Community developed a surveillance system that includes voluntary restraints on continued cut flower production for European exports from Israel.

---

<sup>1</sup>Leon Garoyan is an economist, Cooperative Extension Service, University of California and on the Giannini Foundation. Jerry Foytik is Emeritus Professor of Agricultural Economics, University of California, Davis, and Emeritus, Giannini Foundation. Samuel Palmer is an undergraduate student in the Department of Agricultural Economics, Davis.



Data were collected from the Aalsmeer flower auction in Holland, the Zentrale flower market in Frankfurt, Germany, and the wholesale flower market at Rungis, (Paris) France. In addition, wholesale firms, market authorities, government agencies, and importers provided information.

Limited information was also obtained from the Egyptian Ministry of Agriculture on flower exports from Egypt to middle Eastern nations and Eastern Europe.

A description of these wholesale flower markets, and the volumes of trade in cut flowers follows.

#### Holland

Verenigde Bloemenveilingen Aalsmeer, near Amsterdam, is the largest cut and pot flower market in Europe. It serves Holland growers, and is also the largest import market for cut flowers in Europe. However a substantial part of total supplies of Holland and imported flowers are re-exported to other countries on the continent. Aalsmeer is the hub of the European (continental) wholesale cut flower market. Therefore, Aalsmeer reflects market demands and preferences of both the Holland consumers, and also, those of neighboring countries to which flowers are exported.

Aalsmeer is a cooperative auction, where all flowers are offered for sale in a negative progression pricing scheme. Thus, there is no fixed market price for a given grade and type of cut flower; each lot of flowers most frequently has a distinct price, even for flowers from the identical lot.

#### Imports

Imports of cut flower into Holland reflect the diversity of supply available to European consumers, and the competition that might be expected by



Egyptian flower producers looking to Europe for a market. Statistics in Table 1 show sources of cut flower imports for the years 1974-78.

Imports from Israel into Holland have risen nearly fivefold in the five year period, while value of their shipments has increased at a slightly lower rate. A few other nations have had even a more dramatic increase, but their volume base is much smaller.

Data for the relevant period when cut flowers could be exported from Egypt (November - May) are not available. However, for this period, statistics are available on the number of pieces of imported flowers auctioned at the Aalsmeer Market, for the years 1973-74 through 1978-79. These statistics are shown in Table 2. These data show the dominance of Israel imports in this auction, representing 73 percent of the supply in the off-season. Other important sources are Argentina, France, South Africa, Singapore, and Thailand. Imports from Kenya have fluctuated substantially during these years, while Israel's exports have risen steadily from 7.7 million flowers in 1973-74, to 43.6 million flowers in 1978-79, an increase of 570 percent.

#### Exports

Statistics on exports of flowers and floricultural products from Holland are significant because Holland re-exports large quantities of cut flowers imported into that country. Cut flowers and bulbs represent the major horticultural products exported, accounting for 53.8 and 26.1 percent of the total in 1978, and were fairly constant for the five year period (Table 3).

West Germany was the main importer of floricultural products from Holland, receiving nearly 57 percent of the value of exports in 1978. France was next, with 10.3 percent, and Sweden, with 5 percent. In total, 13 nations imported flowers and bulbs from Holland, but cut flower exports are mainly



TABLE 1  
Cut Flower Imports into Holland  
1974-78, by Origin

	1974		1975		1976		1977		1978	
	1,000 kg	1,000 gld	1,000 kg	1,000 gld	1,000 kg	1,000 gld	1,000 kg	1,000 gld	1,000 kg	1,000 gld
Australia	13	537	13	525	15	617	29	969	22	696
Colombia	67	656	77	673	114	1,488	206	2,237	275	2,833
W. Germany	115	588	240	2,101	810	6,110	299	2,918	235	2,304
England	420	1,266	555	1,634	539	2,593	627	3,069	601	3,488
France	463	3,061	651	4,844	440	3,456	350	2,605	176	1,273
Israel	1,375	8,303	1,683	12,303	2,005	15,999	2,992	24,989	5,109	36,506
Italy	296	1,186	471	2,534	715	3,032	355	2,233	584	4,638
Kenya	23	123	33	204	73	505	194	1,842	45	325
Malasia	2	32	5	89	18	381	59	1,047	92	1,617
Singapore	116	1,332	184	3,604	246	5,623	254	5,154	204	3,676
Spain, Canary Is.	209	2,090	205	1,947	149	1,576	265	1,947	161	1,305
Thailand	99	2,505	149	3,750	230	5,616	335	6,538	445	7,825
South Africa	286	1,913	313	2,407	434	3,423	531	4,075	552	4,195
Other	162	1,535	130	1,249	95	1,114	84	1,142	129	1,630
Total	3,646	26,127	4,709	37,864	5,883	51,533	6,580	60,765	8,630	72,311

Source: Ministry of Agriculture



TABLE 2

AUCTIONED IMPORTS AT AALSMEER BY ORIGIN  
SEASON NOVEMBER-MAY, 1973-74 THROUGH 1978-79

Country	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79
Argentina			20,650	39,560		
Belgium			1,255,907	1,962,997	2,058,783	2,321,198
Columbia			98,342	184,622	593,355	792,286
Denmark				34,396	231,716	28,209
England			3,461	1,192	9,192	27,243
France			3,639,107	2,647,780	2,518,588	2,202,435
Italy			661,692	723,879	896,020	993,580
Spain			1,597,803	656,666	923,846	758,233
South Africa		9,200,000	1,964,886	2,873,628	3,360,026	2,857,079
Australia	6,000,000			60,941		
U.S.A.			464,548	1,088,716	1,366,749	1,028,499
Brazil				11,491	33,633	47,452
Indonesia				3,299		
Ivory Coast			357,635	254,999	322,077	219,892
Kenya			1,108,450	201,829	258,464	689,049
Malaysia			274,548	1,134,736	585,230	237,081
Singapore				1,741,193	2,127,188	1,809,666
West Germany			3,634	23,750	2,548	499,470
Greece			18,949			
Thailand			907,446	1,563,821	1,298,300	1,156,704
Portugal			115,953	282,495	321,913	300,620
Israel	7,689,400	13,200,000	17,282,182	28,965,286	37,073,040	43,568,826
Israel il.					82,905	23,523
Total	13,689,400	22,400,000	29,775,193	44,457,276	54,063,570	59,511,045

All numbers reflect flowers or stems imported  
Source: Aalsmeer Flower Auction

TABLE 3  
EXPORT OF FLORICULTURAL PRODUCTS  
HOLLAND, 1974-78  
1,000 Guilders<sup>a/</sup>

	<u>1974</u>		<u>1975</u>		<u>1976</u>		<u>1977</u>		<u>1978</u>	
	%		%		%		%		%	
Bulbs	419,021	27.8	416,149	25.7	484,777	26.3	518,172	25.7	581,064	26.1
Cut Flowers	834,745	55.3	928,096	57.2	1,924,885	55.7	1,117,387	55.4	1,198,486	53.8
Pot Plants	107,454	7.1	127,877	7.9	162,921	8.9	197,092	9.8	250,052	11.2
Trees	148,340	9.8	149,180	9.2	167,100	9.1	183,677	9.1	197,125	8.9

<sup>a/</sup> In constant Guilders

to nearby countries. The fact that Holland's wholesale flower trade operates so widely reflects the need to consider Holland, and particularly Aalsmeer, as a prime market for Europe for flowers produced in Egypt.

#### Holland Flower Production

There is virtually no vertical integration in the Holland flower industry, including contract production. Dealers and growers prefer not to make a market commitment, preferring instead, the auction system.

In recent years, cut flower production has increased by 5 percent annually in Holland, while pot plants production has increased at a rate of 15 percent annually. In 1978, three-fourths of the EEC production of cut flowers and pot plants had an origin in Holland, reflecting both the volume of production and imports to Holland.

#### Energy Costs

Economic factors have had a serious impact on Dutch flower growers since 1974. High energy costs have been experienced, even though energy costs are negotiated on behalf of flower growers, resulting in preferential energy (natural gas) rates. Species of flowers vary in their thermal requirements, so that the full impact of higher energy costs cannot be spread uniformly. For example, carnations have lower thermal requirements than glads or roses. It is expected that energy costs will continue to increase throughout Europe, causing greenhouse flower producers to seek energy saving production methods, more government intervention in costs or subsidies, more efficient production techniques, and selection of varieties so as to reduce thermal needs. It is this potential that makes off-season imports to Europe appear feasible. That is, when high energy costs, plus its priority utilization (availability) make production of some flower species uneconomical, such flowers can be produced in a warmer climate and incur transportation costs and duty into the northern



European market. Although higher energy costs reportedly have reduced growers' incomes, they are not yet the major cost component of flower production in Holland.

For most flowers, energy costs are one-fourth of production costs (except carnations, where energy costs are only 10 percent). The most expensive cost component is labor. Since floricultural production occurs in Western Holland, which is the industrialized region, floriculture must compete with industry wages, believed to be the highest floricultural wage in the world.

For some crops, such as carnations, costs of transportation from Israel, 6.6 cents per unit, are twice that of heating costs of three cents in Holland. Thus, countries able to produce cut flowers in open fields or in unheated or lowly heated greenhouses may have some opportunity to compete with Holland producers if they give careful selection to raising flowers with high thermal needs, and low weight relative to value. For example, glads require more heat than carnations, but the weight of glad stems far exceeds the weight of carnation stems.

#### Other Economic Factors

Inflation and the economic recession throughout the world have affected flower purchases, as consumers attempt to cope with rising living costs, by reducing expenditures for lesser essentials. Thus, even when market supplies of cut flowers was lower than usual in the winter months of 1979 (January - March), due to weather and transportation difficulties, flower prices declined because of lower consumer purchases.

Another factor affecting Holland flower production is imports from outside EEC. Holland produces a large quantity of cut tulips during winter months. When Israeli spray carnation supplies are large, and prices are

reduced, it is believed that the two compete in sales, but no cross elasticity analyses have been made.

Price competition at the retail level with flower imports is a major issue. It is recognized by policy makers that Holland wholesalers need an assortment of flower types to meet diverse consumer demands, so that imports are necessary. The question being asked is, what quantity of imports should be allowed into Holland and EEC? The rapid increase in flower imports into Holland led that country to propose to EEC ways to regulate imports.

In 1978, a compromise was reached, which imposed no quotas on imports, with the 17 percent duty remaining intact.<sup>1</sup> When market supplies become excessive and prices decline accordingly, a "safeguard clause" would be invoked, with authority to limit imports or to stop them completely. This has been considered a short-run solution to a long-run problem.

A licensing scheme was developed for all importers in the EEC to facilitate the safeguard clause, and to provide surveillance on imports. Under that program, each flower importer was licensed by the ministries of agriculture of member states for a period of three months, and each licensee was required to report monthly on import volumes. Because importers believed that quotas would be established from monthly report data, unreliable data was provided to EEC. Attempts to obtain net imports of flowers on a daily basis were not acceptable to some member countries. Thus, the license period was reduced to a six weeks period, and a monitoring system set up for actual import quantities and prices. The purpose for this is to judge whether market disturbances are caused by local or imported products.

---

<sup>1</sup>The duty for Kenya and Israel is 10 percent.

A structural solution for imports is being sought, particularly with Israel's rapid expansion of production. Voluntary reductions in volume of production (acres) would be sought through influence of the Israeli government to reduce the rate of expansion in that country.

Price effects of imports are being monitored with "signal" prices (three year averages) correlated with production and acreage for EEC member countries. In addition, EEC is studying the Netherland's energy costs to determine impact on costs and profits.

Despite the big growth, there is not an unlimited market for cut flowers in Europe in the long-run, continued expansion at the rate experienced since 1974 may cause Holland's growers to seek sanctions from EEC. This becomes particularly apparent with the potential entry into EEC of Spain, with its potentials for increased flower production.

#### Germany

Of the German markets for flowers, Frankfurt's international flower market is the most active, according to industry spokesmen. In addition to the international market, a central flower market exists for local growers who maintain inventories and who make sales at this market. Because Frankfurt is a distribution point for imported fruits, vegetables, and flowers within Hessen, but is not a re-export market, it is a much smaller market than the Aalsmeer auction.

Germany is a large importer of cut flowers, and in 1977, imports totaled 111,000 tons, an increase of 40 percent since 1973. Major cut flowers sold are roses, carnations, chrysanthemums, and tulips. Nearly 90 percent of German imports are from EEC member countries, including, as previously described, imports of cut flowers from Holland which are themselves, imports into Holland.



Holland auction markets may be the easiest entry into the German market for small scale or developing Egyptian exporters. Besides established distribution channels, Holland's auction markets provide facilities for receiving, storage, and display of cut flowers to the wholesale trade. However, since a considerable portion of the German imports are from Holland, savings in market fees and transportation may result for Egyptian exporters having sufficient scale of operations to provide needed volume and facilities for the German market directly. In other words, it is considered more difficult to enter the German wholesale market at a small scale than the Holland auction markets, but if possible to enter the German markets directly with adequate volume and distribution facilities, profits should be proportionately greater.

Carnations represented 26 percent of the total quantity of imports into Germany in 1977; roses, 16 percent; and chrysanthemums, glads, and tulips comprising the bulk of the remaining 58 percent.

German production of cut flowers under glass is quite nominal when compared to its imports. Table 4 gives hectares under glass for the major cut flowers for 1975 and 1978. These data show roses and chrysanthemums occupying most of the glass coverage. Total hectares under glass for the four flower crops declined from 795 hectares in 1975, to 778 in 1978, or a reduction of 2 percent.

#### Imports

Data showing imports of major cut flowers were available for roses and carnations during the months of November 1 - May 31 for the years 1975-78, by origin (Tables 5 and 6). Total imports of cut roses increased from 102,908 (100 kg.) in 1975, consistently to 113,123 (100 kg.) in 1978. Quantities

TABLE 4

HECTARES UNDER GLASS  
DEVOTED TO SELECTED CUT FLOWER PRODUCTION  
GERMANY, 1975 AND 1978

	1975	1978
Roses	270	251
Chrysanthemums	242	244
Tulips	124	102
Glads, Iris	127	147
Carnations	33	34
Total these crops	795	778

Source: Anbau von Zierpflanzen, Reihe 3.6, 1978,  
Land-Und Forstwirtschaft, Fachserie 3.;  
Herausgeber: Statistisches Bundesamt Wiesbaden

TABLE 5

GERMAN IMPORT OF ROSES  
 PERIOD NOVEMBER 1-MAY 31, 1975-78  
 BY ORIGIN (100 Kg)

Country	1975	1976	1977	1978
Columbia	556			
Netherlands	88,810	89,412	93,678	83,507
Italy	2,472	1,611	2,274	3,421
Brazil	2,027	1,831	1,420	1,331
Israel	7,326	9,376	10,093	22,034
Spain, Canary Is.	867	878	1,298	2,283
Kenya	208	218		
Total	102,908	104,018	109,655	113,123
EEC	91,367	91,166	96,281	87,208



TABLE 6

GERMAN IMPORTS OF CARNATIONS  
PERIOD NOVEMBER 1-MAY 31, 1975-78  
BY ORIGIN (100 Kg)

Country	1975	1976	1977	1978
Netherlands	80,507	80,941	73,480	65,235
Italy	74,719	64,269	71,746	73,623
Spain	3,501	3,211	3,503	2,154
Kenya	13,215	17,687	13,643	21,225
Columbia	3,690	10,640	11,912	18,031
Israel	5,063	11,640	19,209	57,114
Total	195,539	200,972	205,661	247,318
EEC	166,852	155,505	154,673	145,565

entering Germany from Netherlands declined, but rose imports from Israel tripled from 7,326 (100 kg.) to 22,034 (100 kg.).

Imports of carnations likewise increased, from 195,539 (100 kg.) in 1975, to 247,318 (100 kg.) in 1978, an increase of 26 percent. Imports from the Netherlands decreased by 19 percent; those from Italy remained barely constant; while those from Kenya increased by 62 percent, and from Columbia, 486 percent. Imports from Israel fluctuated widely, reflecting competition with Columbia and Holland on the German market. However, many of the German imports during the period November 1 through May 31 undoubtedly are of Israeli origin.

#### Prices

Prices for roses and carnations imported by Germany were calculated for the season November 1, 1977 - May 31, 1978, by origin. Prices ranged considerably among the exporting countries, probably reflecting quality differences. Prices for roses ranged from a low of 9.44 D.M. per 100 kg. for Brazilian roses, to a high of 13.19 D.M. for Spain roses. Prices averaged 11.68 D.M. per 100 kg. for the six months period (Table 7).

Prices for carnations ranged from a low of 6.22 D.M. per 100 kg. (Israel), to a high of 10.92 D.M. for Italy. The average was 9.33 D.M. Earlier it was suggested that in the case of carnations, Israel production competed most directly with that from Kenya. This suggestion is strengthened by the price comparisons for the two countries; Israel, 6.22 D.M., and Kenya, 6.094 D.M., compared with the average of 9.33 D.M..

A study titled "The EEC Market for Cut Flowers" (mimeographed; publisher not stated) reports that rising production costs for growing cut flowers in Germany have outstripped the rise in prices, in 1975. Reduction in hectares of greenhouse space suggest this situation may be continuing to the present;

TABLE 7

GERMAN WHOLESALE PRICES FOR IMPORTED CUT ROSES AND CARNATIONS  
BY ORIGIN, FOR PERIOD NOVEMBER 1, 1977-MAY 31, 1978

<u>Exporting County</u>	<u>Price per 100 Kg (D.M.)</u>	
	<u>Roses</u>	<u>Carnations</u>
Spain	13.19	8.95
Israel	10.31	6.22
Netherlands	11.80	10.76
Brazil	9.44	
Italy	10.94	10.92
Kenya		6.94
Columbia		9.70
Average	11.68	9.33



if so, there may be additional imports as lower cost winter time production occurs in warmer climate areas. However, interregional competition depends on the comparative sum of relative production, marketing, and transportation costs for products of equal quality.

#### France

The main wholesale flower market in France is located at Rungis, near Paris, from where international and domestic cut flowers and pot plants are distributed.

Rungis is the wholesale market serving most regions of France. In the immediate region of Paris, there are 3,500 retail flower establishments, and 233 wholesalers. There are adequate storage warehouses, including controlled atmosphere facilities at Rungis.

#### Imports

Imports represent a small percentage of flowers sold through the Rungis market, but they have been growing at a steady rate. Gross imports are shown in Table 8 for the years 1970-78, and imports by months, in Table 9. Imports have increased more than threefold during the past five years, and in 1978 accounted for 12 percent of total lots sold at Rungis. This was up from 2.6 percent in 1970.

The largest volumes of imports occur during the months October through May (Table 9). Most parcels are from Holland, followed by Italy and Africa (Table 10).

#### Market Demands - Roses

Red roses have the largest demand, followed by rose' (pinks), and whites. Major varieties produced in France to meet these demands include Baccara (15 percent), Sonia (42 percent), Carina (13 percent), Belinda (14 percent),

TABLE 8

IMPORTS OF CUT FLOWERS  
RUNGIS WHOLESALE MARKET, 1970-78

<u>Year</u>	Number of <u>Colis<sup>a/</sup></u>
1970	71
1971	71
1972	62
1973	111
1974	110
1975	161
1976	232
1977	253
1978	346

a/ Colis, literally, parcels or lots.

TABLE 9

IMPORTS OF CUT FLOWERS AT RUNGIS  
1970-78, PARCELS

<u>Year</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Total</u>
1970									4,155	6,130	4,981	8,265	
1971	7,570	9,743	11,271	3,172	1,098	5,700	3,853	2,370	6,196	7,232	4,597	8,401	71,203
1972	7,969	11,366	8,746	3,987	3,392	4,187	3,169	2,110	3,933	5,405	3,404	4,034	61,702
1973	10,903	10,343	15,731	8,910	4,977	4,394	4,730	2,401	6,476	12,369	7,950	16,605	105,789
1974	11,047	12,993	7,927	6,542	4,966	6,176	4,934	3,654	8,346	13,270	12,729	17,668	110,252
1975	12,823	12,529	12,704	13,000	11,371	8,267	9,919	4,165	12,273	19,163	16,841	28,325	161,380
1976	21,621	23,621	22,014	18,776	15,171	11,813	12,302	7,887	16,415	20,650	17,626	35,049	222,945
1977	28,250	25,047	23,636	16,957	17,886	19,019	10,187	7,609	18,064	20,876	22,222	43,109	252,865
1978	37,069	35,777	28,749	23,480	24,039	10,596	7,113	11,572	24,902	36,073	38,311	68,618	346,299

TABLE 10

## SOURCE OF CUT FLOWER IMPORTS AT RUNGIS, 1976-78

Country of Origin	1976	1977 Parcels (Boxes)	1978
Holland	186,048	201,754	274,917
Italy	29,990	33,251	39,893
Israel	3,954	1,592	8,077
Africa <sup>a/</sup>	6,888	9,530	10,791
Others	<u>4,875</u>	<u>6,738</u>	<u>12,614</u>
Total	231,755	252,865	346,292

<sup>a/</sup> South Africa, Ivory Coast, Morocco, and Kenya

Concorde, and Visa. About 70 percent of the production of roses occurs between the months of May 1 - October 30, with the balance of production under glass during the balance of the season. Value of rose production in France in 1977 was \$22 million.

#### Glads

Land devoted to production of gladiolus averaged about 500 hectares for the period 1971-75.

Market preference is strong for red colored glads (50 percent), followed by pinks and salmons (20 percent). Principle varieties grown include Carmen, Hunting Song, Life Flame, While Excelsior, and White Friendship.

Imports constituted only 2 percent of total supply in 1975. In Northern France, production occurs during the months of July through October, with production from southern France continuing through December.

#### Imports

As stated earlier, only 2 percent of the supply of glads at the Rungis wholesale market are imports. Of this category, Israel is the major supplier, providing cut glads during the months of November through mid-April.

#### Exports of Cut Flowers from Egypt

Egypt is currently exporting cut flowers to a number of middle-eastern countries, to Russia, and to a lesser extent to Europe.

#### Roses

In 1979, there were 14 nations importing Egyptian grown roses (Table 11). Of these, Russia was the largest importer, accounting for 69 percent of total rose exports, and 93 percent of the value of rose exports. Lebanon was the second largest importer, accounting for 27 percent of the number, and 6 percent of the value of rose exports. According to available data, total

Table 11: Roses. Value and Number of Authorized Exports from Egypt  
by Receiving Countries, 1977-79

Country	1977		1978		1979	
	NU <sup>a</sup>	Value L.E.	NU	Value L.E.	NU	Value L.E.
Sudan	-	-	9,360	415	10,200	780
Lebanon	800,678	34,904	988,500	46,350	716,430	56,700
Kuwait	29,440	1,435	2,900	145	43,280	4,240
Saudi Arabia	400	30	-	-	500	20
Abu Zaby	900	71	-	-	2,300	225
Jordan	8,420	475	12,040	565	6,330	380
Oater	-	-	500	25	3,650	320
Emirates	-	-	4,460	315	200	22
Syria	229,460	22,808	228,270	6,135	-	-
El Dubai	300	25	-	-	-	-
Iraq	22,230	2,280	5,080	225	-	-
Russia	3,289,000	162,330	1,957,990	97,170	1,821,870	870,635
Switzerland	-	-	27,060	1,192	4,700	255
Austria	22,200	2,275	87,590	3,100	4,700	465
West Germany	640	30	4,800	270	600	50
England	-	-	-	-	2,520	225
Holland	-	-	-	-	1,600	140
Italy	640	30	-	-	-	-
<b>TOTAL</b>	<b>4,420,288</b>	<b>213,850</b>	<b>3,218,550</b>	<b>155,907</b>	<b>2,617,770</b>	<b>934,457</b>
Avg. Price/100		4.83 L.E.		4.84 L.E.		35.69 L.E.

<sup>a</sup>Number of roses

Source: Mahmoud El Hadeny, Egypt Ministry of Agriculture, Economic Study of Foreign Relations of Agriculture.



value of rose exports have fluctuated greatly during the three year period, ranging from a low of 155,907 L.E. in 1978, to 934,457 L.E. in 1979. Some question of data accuracy arises, when one examines the values assigned to Russian imports, which in 1978 were 97,170 L.E. for 1,957,990 roses, to 870,635 L.E. for 1,821,870 roses in 1979, and when comparing prices received per 100 roses, which were 4.83 L.E. in 1977, 4.84 L.E. in 1978, and jumped to 35.69 L.E. in 1979.

#### Gladiolus

Exports of gladiolus in 1979 were valued at 1,057, 795 L.E., exceeding the value of rose exports for that year. Three importing countries accounted for 95 percent of the value of gladiolus exports in 1979 (Table 12). In volume, Lebanon accounted for 45 percent of shipments, but 26 percent of value. Russia accounted for 30 percent of volume, but 62 percent of value. Italy took 17 percent of gladiolus exports, and 7 percent of value. No data are available to explain these differences in price and quantities. It could reflect quality, or purchasing expertise of buyers in the respective countries. Average price per 100 flowers were 4.51 L.E. in 1977, 6.20 L.E. in 1978, and 14.59 L.E. in 1979.

#### Tuberose

Tuberose were exported to seven countries in 1979, of which Lebanon accounted for 96 percent of volume and value (Table 13). A total of 528,420 tuberose were exported for a value of 62.520 L.E. Average price for 100 pieces were 4.86 L.E. in 1977, 5.11 L.E. in 1978, and 11.83 L.E. in 1979.

#### Strelitzia

These are also known as bird of paradise; they represent a small portion of all flower exports, accounting for 20,830 L.E. in 1979. Of that total,

Table 12. Gladiolus: Value and Number of Authorized Exports from Egypt by Receiving Countries, 1977-79

Country	1977		1978		1979	
	NU <sup>a</sup>	Value L.E.	NU	Value L.E.	NU	Value L.E.
Sudan	-	-	9,100	610	23,060	2,030
Lebanon	747,550	38,533	1,665,600	95,345	3,305,840	275,435
Kuwait	139,580	6,836	108,240	6,370	87,040	7,255
Iraq	227,800	11,391	401,500	22,940	175,400	13,040
Syria	1,017,370	48,145	868,710	49,430	-	-
Saudi Arabia	6,640	525	13,000	715	4,360	525
Jordan	27,890	1,510	85,700	4,975	123,520	7,220
El Dubai	321	22	-	-	-	-
El Dubra	14,040	987	-	-	4,500	495
Abu Zaby	8,080	635	-	-	8,910	1,005
Emirates	-	-	37,390	3,025	-	-
Oater	-	-	-	-	16,570	145
Russia	1,462,670	56,890	1,275,220	104,630	2,194,500	662,880
Poland	-	-	480	40	-	-
Italy	210,960	9,400	812,770	34,800	1,287,030	84,535
Switzerland	1,080	50	19,000	1,025	600	60
Austria	-	-	33,870	1,970	250	15
France	-	-	3,650	190	-	-
Holland	-	-	34,770	1,460	850	65
West Germany	36,060	1,715	1,500	100	11,300	1,300
England	-	-	37,390	3,025	16,570	1,790
TOTAL	3,900,040	176,139	5,280,600	327,735	7,245,280	1,057,795
Avg. Price/100	-	4.51 L.E.		6.20 L.E.		14.59 L.E.

Source: Mahmoud El Hadeny, Egypt Ministry of Agriculture, Economic Study of Foreign Relations of Agriculture.

Table 13. Tuberose: Value and Number of Units of Authorized Exports from Egypt by Receiving Countries, 1977-79

Country	1977		1978		1979	
	NU <sup>a</sup>	Value L.E.	NU	Value L.E.	NU	Value L.E.
Iraq	6,080	280	-	-	-	-
Saudi Arabia	100	6	-	-	-	-
Lebanon	370,590	17,622	143,210	8,524	512,140	60,415
Kuwait	17,300	764	500	15	6,450	870
Jordan	-	-	5,270	320	1,500	110
El. Dabra	1,220	90	120	10	1,580	210
Abu Zaby	300	30	-	-	5,050	675
Emirates	-	-	-	-	300	25
Syria	207,640	10,547	160,750	6,900	-	-
Oater	-	-	1,250	80	-	-
West Germany	-	-	-	-	1,400	195
Austria	-	-	1,000	140	-	-
Italy	-	-	1,020	30	-	-
Russia	2,000	220	-	-	-	-
TOTAL	605,230	29,449	313,120	16,009	528,420	62,520
Avg. Price/100		4.86 L.E.		5.11 L.E.		11.83 L.E.

<sup>a</sup>Number of flowers

Source: Mahmoud El Hadeny, Egypt Ministry of Agriculture, Economic Study of Foreign Relations of Agriculture.

Russia accounted for 90 percent of volume, and 93 percent of value (Table 14). Strelitzia averaged 67.15 L.E. per 100 stalks.

#### Statistical Analysis of Rose Prices at Aalsmeer Auction

##### Regression Analysis

The cultivar sonia represented about half of all roses sold at the Aalsmeer Flower Auction in 1976-78. An analysis of factors associated with price variations for this variety should indicate how prices fluctuate for similar cut roses.

This preliminary study is oriented toward determining the influence on prices at the Aalsmeer Auction associated with changes in the volume of sales and the month when cut roses are sold. Of course, it is recognized that several other factors may be important, but these are excluded for the present.

The data used are monthly auction prices and sales during January 1976-December 1978. These 36 observations were used to express price of sonia as a linear function of sales of sonia and the month of the year. Since the number of observations is not very large an attempt was not made to compute the seasonal effect for each month. Instead five subperiods were used. These were selected from a preliminary examination of monthly prices and sales. For example, during each of the three years prices were at their highest levels (and sales were lowest) during January and February. Prices declined, as sales increased, until about August and then moved in the opposite direction for the remaining four months (September-December).

As is usual for this type of problem the ordinary least squares method was used. The following regression equation was obtained.

$$P = 55.35 - 2.97Q + 17.97X_1 + 15.87X_2 + 5.6X_3 + 12.83X_4$$

where P = Auction price of sonia in cents per stem (expressed in Guilders)<sup>1</sup>

Table 14: Strelitzia. Value of Authorized Exports from Egypt  
by Receiving Countries, 1979

1979		
<u>Country</u>	<u>NU</u>	<u>Value L.E.</u>
Abu Zaby	400	200
Kuwait	650	320
Lebanon	200	180
Saudi Arabia	100	50
EL Dobra	200	100
Emirates	100	50
Russia	28,170	19,450
West Germany	550	260
Switzerland	150	70
Austria	300	100
TOTAL	31,020	20,830

Misc. Flowers

Carnations 1979

Lebanon	1,500	75
---------	-------	----

Source: Mahmoud El Hadeny, Egypt Ministry of Agriculture,  
Economic Study of Foreign Relations of Agriculture.

Q = Auction sales of sonia in million stems  
 and  $X_1$  = Dummy varieties for months of the year  
 with  $X_1 = 1$  for January-February,  $X_2 = 1$  for March-April-May  
 $X_3 = 1$  for September-October,  $X_4 = 1$  for November-December  
 and  $X_1 = 0$  otherwise.

Substituting values for  $X_1$  in the above equation gives separate equations for the five subperiods as follows:

$$P = 73.32 - 2.97Q \text{ for January and February}$$

$$P = 71.22 - 2.97Q \text{ for March, April and May}$$

$$P = 55.35 - 2.97Q \text{ for June, July and August}$$

$$P = 60.98 - 2.97Q \text{ for September and October}$$

$$P = 68.18 - 2.97Q \text{ for November and December.}$$

The constant terms in the above five equations indicate the relative levels for the price-quantity relations during different time periods. For example, on the average, prices decrease by 2.1 cents per stem between January-February and March-May periods in 1976-78--when the same volume of sales are compared. Specifically, it may be of interest to compare prices relative to those received during the June-August period. These are 17.97 cents<sup>2</sup> per stem for January-February, 15.87 cents for March-May, 5.63 for September-October, and 12.83 for November-December.

These results are presented in tabular form for easy comparison. The data in Table 15 are prices estimated by the regression equation for each period when sales are varied from 4 to 16 million stems. (The monthly sales during the period under study ranged from 4.1 to 15.4 million.) In order not to be misleading, the estimated prices in the table are in two groups. One set represents prices estimated for quantities sold during 1976-78. The other

---

<sup>1</sup>In 1980 the Guilder was worth approximately 52 U.S. cents.



Table 15. Estimated Monthly Price for Roses<sup>a</sup> for Varying Sales

Sales <sup>b</sup>	Jan. Feb.	March Apr. May	June July Aug.	Sept. Oct.	Nov. Dec.
4	61.4	(59.3)	(43.5)	(49.1)	(56.3)
5	58.5	(56.4)	(40.5)	(46.1)	(53.3)
6	55.5	(53.4)	(37.5)	(43.2)	50.4
8	(49.6)	47.5	(31.6)	(37.2)	44.4
10	(43.6)	41.5	25.6	31.3	(38.5)
12	(37.7)	35.6	19.7	25.3	(32.5)
14	(31.7)	29.6	13.8	19.4	(26.6)
16	(25.8)	23.7	7.8	(13.5)	(20.7)

<sup>a</sup>Prices for rose variety sonia estimated by regression equation computed (see text). Prices shown in parentheses are for quantities outside the range of sales made during 1976-78.

<sup>b</sup>Sales are in million stems for rose variety sonia.

<sup>c</sup>Prices in parenthesis are estimated prices.

are those estimated by the regression equation for sales smaller or larger than those actually made in this three-year period.

The coefficients determined for the regression equation are statistically significant. Each has the correct sign according to expectations. Furthermore, the t-ratio for each is high, indicating that the value computed for the 36 observations would be very unlikely to occur for a sample drawn from the universe in which the coefficients had zero values.

The regression equation has a high explanatory value. Over 90 percent ( $R^2 = 0.92$ ) of the variation in monthly auction prices was "explained by" (associated with) differences in monthly sales and seasonal shifts in the level of demand. It should be recognized, however, that the two explanatory factors used (sales and month) probably are correlated with some variables not included--e.g., sales of other rose varieties or of other flowers.

Possibly the residuals are autocorrelated even though the Durbin-Watson statistic does not depart sufficiently from  $DW = 2$  to justify accepting the hypothesis that autocorrelation among residuals is present. Thus there is no basis for assuming the interpretation of the regression coefficients should be modified extensively.

In spite of the "good" results obtained, attention should be directed toward further study. It would be particularly useful to secure data for two or three more years in order to have a larger number of observations for analysis. But even with the currently available sample of 36 observations, some refinements could be made. First, information on other sales needed to be incorporated into the study. At present "quantity" is limited to sales of the variety sonia. It would be well to add sales of other roses (either as a total or the combined sales of one to three other important varieties). Also the inclusion of sales for one or other flowers sold in large volume might

improve the analysis. The subperiods of the year were selected somewhat arbitrarily. Experimentation with other groupings of months should be undertaken since a better combination might be secured.

#### Israel's Production and Marketing of Cut Flowers

Israel and Kenya are the most important of the suppliers of cut flowers to Europe during the winter months. Information on both countries was gleaned from sparse statistical data and in the case of Israel, from a representative of Agrexco, the Israeli marketing organization, and with wholesale buyers in the terminal markets.

Israel marketed 25 percent of its flower production through the Aalsmeer auction in 1978, according to Aalsmeer officials. Two methods of export are available to Israeli growers, according to a spokesman for Agrexco. One is through an auction system, with a flower board supervising auctions. The Israeli Flower Board also prepares attractive promotion materials for use by wholesalers and retailers, through offices in Frankfurt, Copenhagen, Rungis, Zurich, Antwerp, and with Italian representation in Italy.

A second way, which reportedly accounts for 95 percent of Israel exports, are through Agrexco, an export company for flowers, fruits and vegetables, owned 51 percent by the state.

Israeli growers receive the annual average price for cut flowers, not the price of actual daily or weekly prices in a given market. In this respect, it operates similarly to pooling by cooperatives.

Nearly all wholesalers interviewed described the success of Israel's rapid, and successful entry into the European flower markets, as due to the "required mentality" to put together the critical mass for such a development. Several stated that other countries have as desirable a climate and soils, but

Chart 1. Sonia Roses: Average Monthly Premium Per Stem Relative to June-August Prices, 1976-78, Aalsmeer Auction

Dutch  
cents

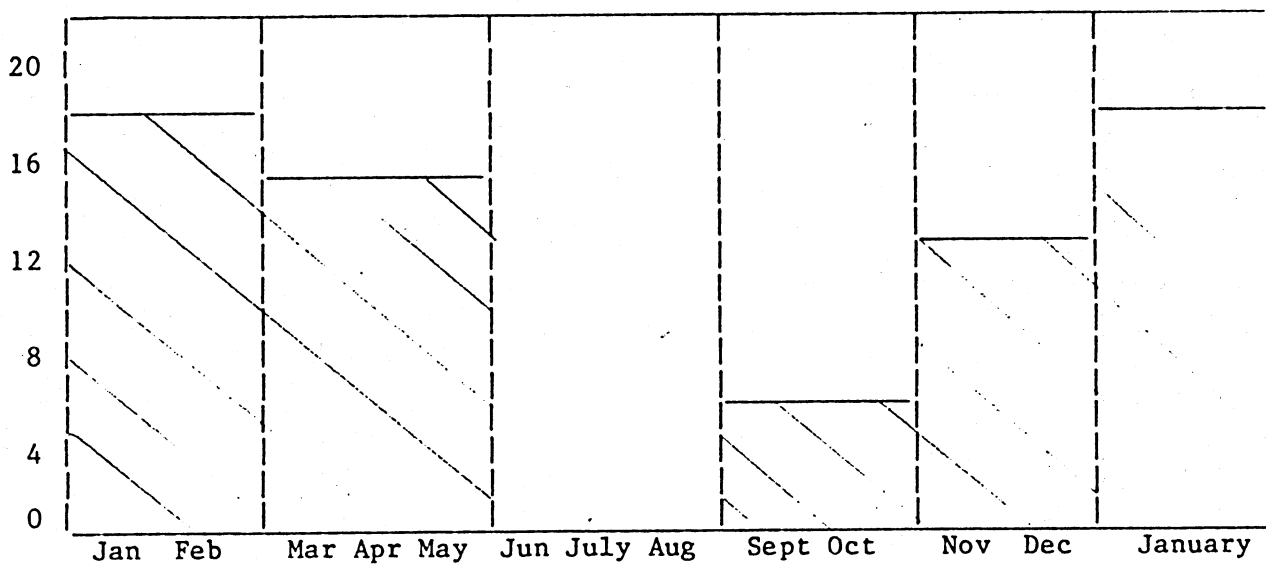
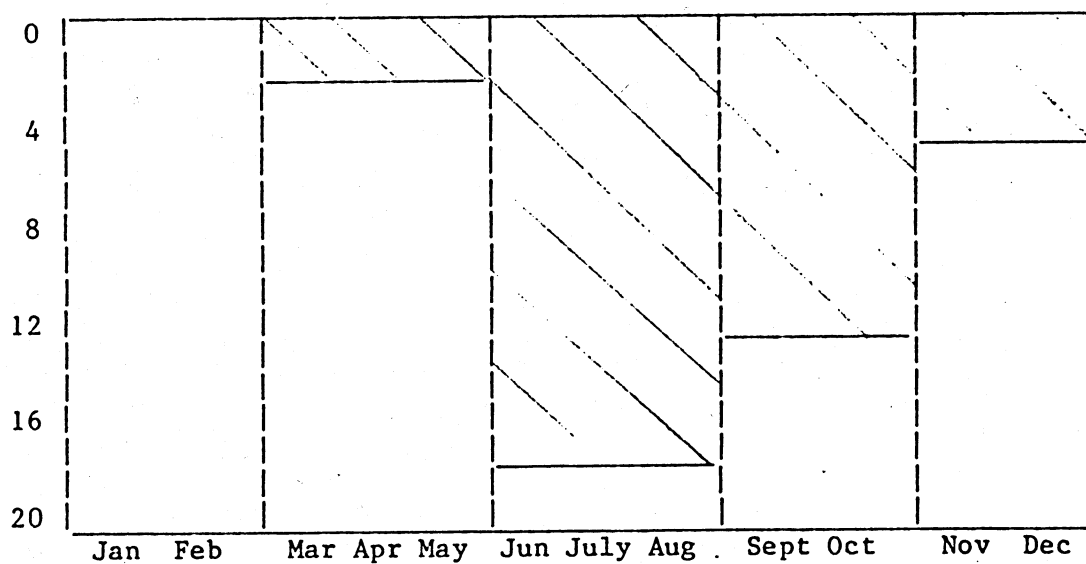


Chart 2. Sonia Roses: Average Monthly Discount Per Stem from January-February Prices, 1976-78, Aalsmeer Auction



the organizational and management talent required to make plans and desires operational are seemingly more apparent in Israel.

Some concept of the Israel flower industry is obtained from the statistics below. Since these are statistical data obtained from the Israel Flower Board, they must be considered more reliable than industry opinions.

The number of growers has increased greatly for rose and carnation production, and less for glads (Table 16), for the years 1974-75 to 1979-1980.

Land area devoted to flower crops peaked in 1978-79, after having climbed consistently since 1974-75. The reduction reflects Israel's cooperation with EEC for voluntary reductions in production of crops critical to EEC (Table 17). Despite such efforts, the number of flowers exported increased again in 1979-1980 just as it had for each year reported (Table 18). Such experience undoubtedly reflects technological advances in production. Only in the case of glads, did the number of pieces exported decline; in part this reflects their lower ratio of weight to value. Total value of exported flowers is shown in Table 19, which shows substantial increases in value for each year for all crops except for glads, which remained static even with lowered exports.

#### Export Conditions and Egyptian Government Policies

Quality of product, post-harvest care, adequacy of disease and pest control practices, and varieties (cultivars) all directly affect the ability of products from one country to compete with other production. Assuming quality and variety differences do not exist, the ability for one country to compete with another producing region depends on the total of farm production costs, preparation and marketing costs, and transportation charges to the ultimate market. To these factors, we can add one highly significant for Egypt; the governmental trade policies.

TABLE 16

NUMBERS OF GROWERS OF CUT FLOWERS, ISRAEL, 1974/5<sup>a/</sup> - 1979/80

	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
Roses	600	510	550	760	1,450	1,400
Carnations	270	355	755	1,160	1,790	1,650
Glads	605	850	740	950	1,100	750
Others	115	140	480	1,500	2,160	2,000
Total	1,1590	1,855	2,525	4,370	6,500	5,800

<sup>a/</sup> 20 to 30 percent should be added to these totals since all flowers are not marketed through the board. This estimate is from the Israel Flower Board.



TABLE 17

LAND AREA DEVOTED TO FLOWER PRODUCTION, ISRAEL, 1974-1980<sup>a/</sup> <sup>b/</sup>

	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
Roses	1,044	1,178	1,225	1,450	2,000	1,975
Carnations	433	650	1,300	2,080	3,050	2,900
Glads	3,000	4,500	3,700	4,350	4,500	3,000
Others	280	340	850	2,320	5,530	6,200
Total	4,757	6,668	7,075	10,200	15,000	14,075

<sup>a/</sup> See footnote a, Table 11.<sup>b/</sup> Land area is the dunam, approximately one-fourth acre.

TABLE 18

NUMBER OF FLOWERS EXPORTED, ISRAEL, 1974-80<sup>a/</sup> b/

	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
			(millions)			
Roses	88.6	90	97	121	156	210
Carnation	42.1	64	139	212	329	370
Glads	31.1	25	28	27	31	20
Other	16.3	14	21	50	122	180
Total	178.1	193	285	410	638	780

a/ See footnote a, Table 11b/ in millions of prices

TABLE 19

ESTIMATED TOTAL VALUE OF ISRAEL FLOWER EXPORTS, U.S. DOLLARS<sup>a/</sup>

	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
		(millions of U.S. dollars)				
Roses	9.8	9.8	13	18.5	22	31
Carnation	3.8	5.2	12	18.0	26	30
Glads	2.3	2.3	3	2.0	2	2
Other	0.7	0.7	1.5	4.5	12	22
Total	16.6	18.0	29.5	43.0	62	85

<sup>a/</sup> see footnote a, Table 12.

The export market structure is not well established in Egypt, including adequate facilities for post-harvest care and air shipping. Usually, channels are direct from grower to retail shops, and growers are also the exporters. A single export cooperative for growers would facilitate gaining economies in post-harvest and market preparation, uniformity in grading, and elimination of competition among growers. Just as important, it would assemble sufficient quantities to attract major buyers.

#### Governmental Policies

Procedures for export appear to be complex and cumbersome, often, but not always, reflecting government policies. For example, the trade prefers gladiolus to be shipped in upright cartons to protect crushing that can occur with flat display cartons, but for some reason, scheduled air service has been unable to handle upright cartons.

Grades and standards are established by the General Organization for Imports and Exports, with specifications established as law. To the extent these grades correspond or exceed those used by the established trade in Europe, no problem is evident. However, when they deviate significantly from established grades in receiving countries, shipments may be refused, or at best, sold at heavy discount. Review of standards to determine compliance with EEC and major wholesale markets is recommended.

Prices for export are established by a committee of 20 members, under the Ministry of Trade. The basis for prices set, apparently, is the previous season's price plus a percentage adjustment, usually an increase. Further, this price is often set for the season. If our understanding of this process is correct, it effectively eliminates Egyptian flowers from the Aalsmeer flower auction, Europe's largest individual market, where prices are

determined by competition among buyers in the market at a given time, not by prices set by contract or government decree.

The economic significance of this exclusion is that it is felt the Aalsmeer market may be more accessible to smaller-scale producing countries of shippers such as those in Egypt, than individual wholesalers in other nonauction markets. Auction markets are essentially consignment markets, with no price reservations or minimum prices possible, such as that established in Egypt.

Finally, the procedures for clearing Egyptian export inspections are cumbersome and conceivably could cause delays in shipments of highly perishable products. Price control verification, customs verification of quantities, and transportation declarations are reported to be impediments for export trade, and perhaps there are better ways to achieve their objectives, possibly through the National Bank, to whom payments could be made on behalf of the shipper.

### Summary and Conclusions

1. The market for cut flowers in Europe is large and has increased steadily for the past decade (1970's). European growers have been unable to produce enough flowers to meet consumption needs, particularly during the winter and early spring season requiring heated greenhouse production. As a result, exports have developed to Europe from countries having warmer climate during the European "off-season".

2. Europe receives flowers from many parts of the world--Israel, Kenya, Columbia, and several southeast Asian countries. The most remarkable growth has been in Israel, whose production and exports have risen by nearly fivefold in the years since 1974-75.

3. There is evidence that the big growth of European cut flower markets has been achieved. EEC member nations have proposed voluntary cutbacks by Israel, and in 1979-80, cropland devoted to cut flower production in Israel did decline in total, for the first time in at least six years.

4. Factors that suggest substitutions in production area may occur are increased energy costs in Europe, and increased transportation costs from producing areas to European markets. Total cost comparisons should be made to identify Egypt's potentials in interregional competition in cut flowers.

5. Aalsmeer, Holland, is the largest wholesale market in Europe, operating as a cooperative auction, and which re-exports flowers from outside Holland consigned to that market.

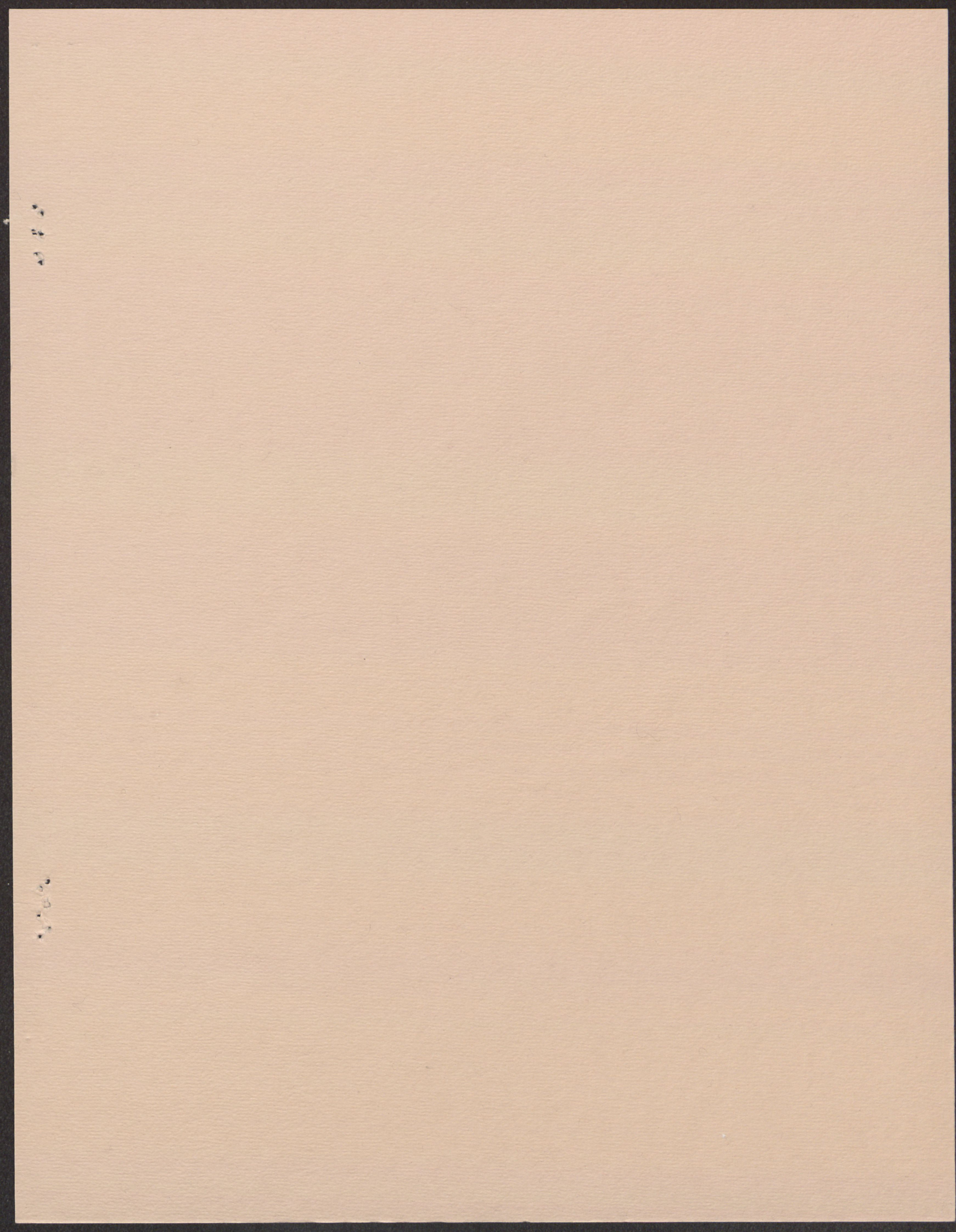
6. Egyptian policies are not conducive to the development of a substantial export sector for cut flowers. Complex requirements for export documentation, and fixed (minimum) prices for exports are two examples of not only inhibiting exports, but preventing Egyptian flowers from being offered



through auctions, of which Aalsmeer is the largest, and considered to be the most feasible for entry by Egypt shippers.

7. Ease of entry into middle-eastern countries for Egypt products appears to present opportunities to expand shipments to these nations. Direct air connections are not the best, so post-harvest care and adequate handling arrangements are warranted. Lebanon was the most significant middle-eastern country for Egyptian cut flowers. Efforts should be strengthened to maintain these shipments, and to expand to other middle eastern countries.

8. During the years 1977-79 Egypt had a trading relationship with Russia, which should be expanded to include other eastern European nations, a few of which have experienced strong economic growth. Russia was the main importer of cut flowers from Egypt during the through year period.





100

100