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A Profile of Turkish Export Cut-flower Growers

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Summary. Turkish cut-flower exports grew from about $100,000 in 1985 to $11 million in 1995 (not adjusted for inflation). Since this is a growing industry in Turkey, we wanted to examine the production structure and main problems of export-oriented contract growers. We surveyed 33 cut-flower export growers and 30 contract growers between May and July 1997. We conducted the survey in the Antalya province, which is the center of the export-oriented cut-flower production in Turkey. The results indicate that cut-flower companies were not highly mechanized, but did use computerized accounting systems. Transportation of cut flowers to foreign markets was the largest expense item in the cut-flower industry. Despite a high rate of unemployment, cut-flower companies face difficulties in obtaining and keeping qualified employees. Managers tended not to use specific performance indicators such as sales per employee or sales per square foot relevant to the cut-flower industry. The most common method for arranging cut-flower export sales was personal contact with the importers. Contracts between firms which grew and exported flowers and smaller contract growers were common, but some problems existed concerning quality and financial obligations. Growers are using fewer commission contracts and are instead opting to sell on a fixed-price basis. The main concerns raised by managers were related to increased competition, price-cutting, transportation expenses for export, training, and labor supply.

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Commercial cut-flower production began in Turkey in 1946. As in the U.S. at that time, cut-flowers were produced mainly near large cities. In Turkey, the production center was primarily Istanbul and surrounding areas, as the flowers were mainly for domestic consumption. In the beginning of the 1980s, production shifted to the Mediterranean (Antalya) and Aegean (Izmir) regions. Antalya is a popular tourist destination located on the Mediterranean Sea in south-central Turkey. A favorable climate and rapid air transportation to Europe gave Antalya a comparative advantage over many other sites in Turkey and the rest of Europe. Thus, Antalya province has become a major center for export-oriented cut-flower production in Turkey.

Cut-flower production began in Antalya with rose (*Rosa hybrida*) cultivation in 1970 (Baktir et al., 1990). However, the main growth of the cut-flower industry has occurred since 1985 from production of spray carnations (*Dianthus caryophyllus*). The total production area devoted to cut flowers in Antalya increased very rapidly from 39.4 ha (97.36 acres) in 1987 to more than 125 ha (308.9 acres) in 1989 (Table 1). The production area of spray carnations declined slightly in the beginning of the 1990s due to inadequate air freight capacity to export cut flowers (Ozkan and Karaguzel, 1997). After 1992, Turkish Airlines increased its freight capacity, and some private cargo planes also were used for exporting flowers. In recent years, 7% of export growers began shipping cut flowers in refrigerated trucks using wet packs. Although transportation capacity is no longer a problem, respondents in this survey still complained that airfreight rates were too high. With freight capacity no longer a limiting factor, cut-flower production area continues to increase. Recent growth was slower than in the beginning years of the carnation production.

Carnations, mainly sprays, account for more than 90% of the total cut-flower production in Turkey. Except for roses, cut flowers in Antalya are grown primarily in plastic greenhouses without

Table 1. Cut flower production area in the Antalya province of Turkey (1987–96) (source: Agricultural Directorate of Antalya Province, 1998).

Years	Protected area (ha)[z]	Open area area (ha)	Total area area (ha)	Change (%)
1987	32.0	7.4	39.4	---
1988	56.1	7.7	63.8	61.9
1989	115.6	10.0	125.6	96.9
1990	110.5	11.4	121.9	–2.9
1991	107.3	12.8	120.1	–1.5
1992	134.1	8.2	146.9	22.3
1993	148.2	4.5	152.7	3.9
1994	155.7	3.4	159.1	4.2
1995	163.9	1.1	165.0	3.7
1996	189.5	1.6	190.9	15.7

[z]1.0 ha = 2.471 acres.

Table 2. Breakdown of Turkish cut-flower exports by years (1985–96) (Prepared from the records of Export Promotion Center of Turkey, 1995).

Year	Quantity (kg)[z]	Simple index (1985 = 100)	Chain index	Value (FOB) ($)	Simple index (1985 = 100)	Chain index
1985	43,142	100	---	106,039	100	---
1986	94,517	219	219	290,613	274	274
1987	275,793	640	292	1,013,128	955	349
1988	895,148	2,076	325	3,172,843	2,992	313
1989	2,620,044	6,076	293	7,138,262	6,732	225
1990	2,972,134	6,889	113	11,605,711	10,945	163
1991	3,233,726	7,496	109	11,535,593	10,879	99
1992	3,306,787	7,665	102	11,078,099	10,447	96
1993	3,962,208	9,184	120	10,848,208	10,230	98
1994	3,997,616	9,266	101	10,290,816	9,705	95
1995	3,764,257	8,729	94	10,908,366	10,287	106

[z]21 kg = 2.2 lb.

heat (Ozkan et al., 1997). Turkish cut-flower exports reached a level of about $11 million in 1995 (Table 2), excluding unregistered trade (suitcase trade). Unregistered trade (trade in which 10 to 20 boxes of flowers are purchased at a time and are taken to Russia, Romania, or Bulgaria on busses as luggage) has become very important for the Turkish cut-flower industry in recent years. Unregistered trade is estimated to represent about $5 million annually, (i.e., almost half of the official exports).

Antalya province produces more than 87% of Turkish cut-flower exports Export Promotion Center of Turkey,1995. Agricultural exports from Antalya province were $67 million in 1996, $13 million (19%) of which were cut-flower exports (Agricultural Directorate of Antalya Province, 1997). The United Kingdom, the European Union's leading carnation importing country, is the major market (82%) for Turkish cut-flower exports. Other countries such as The Netherlands (6%) and Germany (5%) play only a minor role in Turkish cut-flower exports (Antalya Exporter Unions, 1997). While still a small industry by world standards, this growth is quite impressive, and worth watching.

To increase the volume of cut flowers for export, many export growers enter into contracts with smaller growers to supply cut flowers. Contract-growing of cut-flower production for export is well developed and is carried out mainly in the Antalya province. Two types of contract agreements are common: fixed price and commission basis. No standard contract document exists in either type of agreement between export growers and contract growers. However, the quality and size of the products and payment terms are contained in the agreements. Fixed-price contracts include the prices of the products depending on the quality requirements. In the framework of the agreement, export growers provide contract growers with technical advice and production inputs. The contract-grower may sell flowers only to the export grower with whom he has a contract.

The cut-flower industry experienced dramatic growth in particularly between 1985–90. After this term developments in the industry was gradual, which implies that the Turkish cut-flower industry has faced some challenges. The aim of this study was to explore the production structure and main problems of Turkish export-oriented cut-flower industry including contract growing. This paper considers both larger export growers and the smaller contract growers in the Antalya province.

Methodology

Data were collected using face-to-face interviews with 33 cut-flower exporters. The original list of all the cut-flower export growers in Antalya province contained 45 companies, but some of them did not produce cut flowers, others had gone out of business, and others were producing for the local market only. Thus all of the remaining 33 export growers were surveyed. When these export-growing firms could not produce enough flowers for

Table 3. Crop production area of export grower respondents—not including the area contracted with contract growers by cut-flower crop and type of greenhouse in Antalya, Turkey.

Cut flowers	Plastic (m^2)[z]	Plastic (%)	Glass (m^2)	Glass (%)	Total area (m^2)	Total area (%)
Spray carnations *(Dianthus caryophyllus)*	568,000	64.3	1,000	4.6	569,000	62.9
Standard carnations *(Dianthus caryophyllus)*	183,400	20.8	2,000	9.2	185,400	20.5
Gypsophila *(Gypsophila paniculata)*	40,400	4.6	---	---	40,400	4.5
Chrysanthemums *(Chrysanthemum morifolium)*	33,000	3.7	---	---	33,000	3.7
Roses *(Rosa hybrida)*	10,000	1.1	15,500	71.4	25,500	2.8
Solidago *(Solidago* spp.*)*	12,800	1.5	1,200	5.5	14,000	1.6
Gerberas *(Gerbera jamesonii)*	8,400	1.0	2,000	9.2	10,400	1.2
Lilies *(Lilium* spp.*)*	8,140	0.9	---	---	8,140	0.9
Aster *(Aster* spp.*)*	7,000	0.8	---	---	7,000	0.8
Others	12,000	1.4	---	---	12,000	1.3
Total	883,140	100.0	21,700	100.0	904,840	100.0
Percent of total	97.6	---	2.4	---	100.0	---

[z]1 m^2=10.8 ft^2.

Table 4. Crop production area (m^2) of contract grower respondents by cut-flower crop and type of greenhouse in Antalya, Turkey.

Cut flowers	Plastic (m^2)[z]	Plastic (%)	Glass (m^2)	Glass (%)	Total area (m^2)	Total area (%)
Spray carnations *(Dianthus caryophyllus)*	140,888	84.1	---	---	140,888	75.4
Standard carnations *(Dianthus caryophyllus)*	21,016	12.5	1,830	9.5	22,846	12.2
Gerberas *(Gerbera jamesonii)*	2,470	1.5	17,403	90.5	19,876	10.6
Gypsophila *(Gypsophila paniculata)*	3,194	1.9	---	---	3,194	1.7
Total	167,568	100.0	19,233	100.0	186,804	100.0
Percent of total	89.7	---	10.3	---	100.0	---

[z]1 m^2=10.8 ft^2.

their export business, they contracted with smaller growers to produce flowers for them. We also randomly selected and surveyed 30 of these smaller contract growers from the Antalya province from a list of contract-growing companies. Only firms producing cut flowers for export were surveyed. We did not survey growers who produced flowers for domestic consumption only.

A detailed questionnaire was used, containing questions in the following areas: crops, production area, labor usage, production techniques and automation, contract terms, transportation and marketing systems, management techniques, and problems of the industry. Parts of the questionnaire were based on a survey of Pennsylvania producers (Brumfield et al., 1993) and on a survey of Australian producers (Brumfield and McSweeney, 1998). However, the Australian survey was of potted-plant producers, thus this survey was modified to survey cut-flower producers in Turkey.

Results and discussion

PRODUCTION AREA. In Antalya, the growing area of export-oriented cut-flower production was 1,768,100 m^2 (19,095,480 ft^2). Of that total, 904,840 m^2 (9,772,272 ft^2) was operated by export growers (Table 3), and 863,140 m^2 (9,321,912 ft^2) was devoted to contract-growing. The 30 contract growers in this survey represented 186,804 m^2 (2,017,483 ft^2) (21.6%) of the total contract-growing area in Antalya (Table 4). Plastic greenhouses accounted for 90% of the total growing area for both export growers and contract growers. The remaining growing area was protected by glass (Table 4).

The average greenhouse area per export-grower company was 31,072 m^2 (335,578 ft^2)(Table 5). In addition to their own production, most export-growers had at least one contract with at least one smaller contract grower. When contracts that export growers had with contract growers were included, the average greenhouse area per export grower increased to a total of 55,200 m^2 (596,160 ft^2). Table 6 indicates that the majority of export growers had less than 5 ha (12.4 acres) of growing area, including contracts.

The average greenhouse area of the contract growers was 6,555 m^2 (70,794 ft^2). About 62% of the greenhouse area was owned by contract growers, while the remaining 38% of production area was rented. The rental land rate was about 20 million Turkish lira per 1,000 m^2 (equivalent to $539.60/acre in July 1997). This was for land rental only. The contract growers built their own greenhouses on the rented land.

CROP DIVERSITY. Spray carnations were the dominant crop, accounting for over 60% of total greenhouse area of both export growers and contract growers (Tables 3 and 4). Standard carnations were the second most important crop for export growers and contract growers. Gerberas (*Gerbera jamesonii*) accounted for about 12% of production area for contract growers and were exported as unregistered trade (suitcase trade) to Russia, Romania, and Bulgaria. Contract growers preferred unregistered trade since they received better prices for their product compared with the contract prices, and buyers paid immediately. The area used to produce other cut flowers such as gypsophila (*Gypsophila paniculata*), chrysanthemums (*chrysanthemum morifolium*), and roses was minor.

BUSINESS PRACTICES. The age of export firms ranged from 1 to 11 years, and the average length of export experience was 5.1 years. About 60% of the companies had been exporting cut flowers less than 5 years, while the remaining 40% had been exporting cut flowers more of than 6 years. Owners told us in the interviews that the main reason they exported cut flowers was to make a profit.

Managers knew that proper postharvest handling could extend the vase life of cut flowers considerably. Packing depended on the marketing requirements and standards. General quality factors considered by managers were: healthy flowers—free of parasites, diseases, and other mechanical damage; stems rigid and strong enough to support flowers; and sizes desired by the market.

Fifty-five percent of export-growing companies used Turkish Eximbank credit to cover exporting expenses. Several managers stated that there were some important problems in the Eximbank credit, such as a short repayment period and heavy bureaucracy.

CONTRACT TERMS. Contracted production is particularly well developed in cut-flower production in Antalya. Export-growing companies use the contract production system to solve their supply problems. Contract-growing also eliminates most marketing concerns and risks for contract growers. The total contracted area for the 30 contract growers was 863,000 m^2 (9,320,400 ft^2), which was 48% of the total production area in Antalya (Ozkan et al, 1997). No standard contract agreement existed between the export-growing companies and contract growers. However, there were some common points in these contracts. Nine contract growers had fixed price contracts and 21 had commission based contracts. Payments were made in U.S. dollars or in Turkish Lira. In the fixed price contract, growers knew the price before selling the product. In the commission system, the contract product price received by growers was clear after the marketing costs and commission (11% to 12%) of the export company were paid. The contract fixed price was generally below the average of the commission price because of the lower risk to the producer.

In the framework of the contracts, export growers provide technical advice to contract growers for the production process. Contracted growers could sell their products only to export growers

Table 5. Average size and type of Turkish cut-flower export grower respondents in Antlaya, Turkey.

Covering	Export growers (m^2)[z]	(%)	Contract growers (m^2)	(%)
Plastic	30,327	97.6	5,880	89.7
Glass	745	2.4	675	10.3
Total	31,072	100.0	6,555	100.0

[z]1 m^2=10.8 ft^2.

Table 6. Number, size, and area of cut-flower export growers (including contracts with contract growers) in Antalya, Turkey.

Company size (ha)[z]	Export growers (no.)	(%)	Total growing area of companies (ha)	(%)
<3	10	31.3	20.25	11.5
3.1–5	10	31.3	40.08	22.7
5.1–10	8	25.0	62.43	35.3
>10	4	12.5	54.05	30.6
Total	32	100.0	176.81	100.0

[z]1.0 ha = 2.471 acres.

with whom they had contract agreements. After signing the agreement, export growers expected contract growers to comply strictly with all parts of the agreement. Sometimes export growers and contract growers disagreed with each other. Export growers complained that some contract growers sold their product to other export growers. They also complained that product quality did not meet their expectations mainly due to little care given the products by contract growers. Export growers stated that some contracted growers focused on producing cheaply and selling for the highest price without regard for product quality.

Seventy percent of contract growers believed that export growers did not live up to their financial and technical-advice commitments. Contract growers wanted to have the largest possible guarantee of financial coverage for the flowers. Contract growers did not want to have the responsibility of low quality of the products after delivery because, before accepting and exporting the flowers, export growers closely inspected all the flowers for quality standards.

Commission agreements worked like a joint account because profits and losses were divided between the two parties. Contract growers stated that losses were divided between the two parties, but profits were not.

There is a trend away from the consignment system and toward the fixed-price system. This trend has good features for both contract growers and export-growing companies. When the flowers are purchased, the contract grower becomes directly involved in the transaction. The relationship between the contract grower and export-growing company is more clearly defined and generally better understood by both parties than under the consignment system. The producer sets the price and the export-growing company either buys or declines, depending on need, quality, and price. Having purchased the flowers, the export-growing company then establishes the sale price to his customers based on his purchase price. This is a business procedure that places price setting and responsibility for sales in the hands of the producer. The export-growing company actually is a customer in this procedure, rather than a sales agent as in consignment selling.

Production techniques and automation. The adoption rate of computerized accounting systems in surveyed export-growing firms was very high (91%). Trucks and similar vehicles were owned by 44% of export-growing firms. Eighty seven percent of export-growing firms were planning developments or changes in their production systems and techniques. Computerized environmental controls were used in only one surveyed export-growing firm.

Most growers followed similar production techniques regarding soil sterilization, soil preparation and planting, pinching and pruning, irrigation, fertilization, spraying, heating and lightning, harvesting, and postharvest operations. However, firms with more or less the same technology, operating in a similar environment, showed considerable variation in technical and economic results due to managerial and marketing differences between companies. Firms did not use specific performance indicators (such as sales per square meter of growing area) relevant to the cut-flower production. The main indicator for the business performance was the previous year's sales and expenses. Managers felt that favorable climate and relatively low costs of the production are the major advantages for Turkish growers over their competition.

Propagation. Most managers (97%) tried to purchase disease-free, high-quality rooted cuttings from professional propagation firms. Rooted or unrooted cuttings were imported mainly from The Netherlands and Israel. About 63% of the export growers devoted 5% of their total greenhouse areas to stock plants and propagation. Because many contract growers felt the cost of rooted cuttings provided by the export growers was too high, 36% of the contract growers propagated their own plants from vegetative lateral shoots of the flowering plants. Neither the export growers nor the contract growers reported conducting careful cost and quality analyses of purchasing cuttings versus producing their own.

Soil sterilization. Growers applied methyl bromide to sterilize the soil. About 94% of growers used methyl bromide every year, while the other 6% applied it once every 2 years.

Pinching. Growers used several systems of pinching. Pinching 1.5 times was the most common followed by double pinching. The term pinch-and-a-half is often confusing. It begins with a single pinch of the main stem. When the resulting shoots are long enough about one-half of the largest shoots on each plant are pinched. The half-pinch actually is two or three pinches per plant at the later pinching time. This system reduces the amount of the first crop flowers and provides a steady production of flowers without peaks and valleys at least in the first year of production (Besemer, 1980).Most growers stated that double-pinch was good when they used an early flowering variety and planted early, but single pinch was better with late plantings. Generally, pinching occurred 21 to 30 d after planting.

Irrigation. Drip irrigation and sprinkler systems were used by all growers. After planting the cuttings, growers sprinkle-irrigated for a few minutes several times per day due to the warm and

bright weather. Generally, 2 weeks later, regular drip irrigation was started. The frequency of irrigation of flowering carnation plants varied from enterprise to enterprise depending on soil texture, air movement, etc. During the summer season 6 to 8 t/1000 m^2 (26.8 to 35.7 tons/acre) of water were used every day, while in the winter, 3 to 5 t/1000 m^2 (13.39 to 22.31 tons/acre) of water were used every 2 or 3 d.

FERTILIZATION. About 33% of the surveyed growers used manure. Growers preferred chemical fertilization applied with drip irrigation over manure because of the cost and difficulty of obtaining manure. Soil analyses for fertilization were done by only 33% of the export growers.

SPRAYING. Growers used chemicals for preventing fusarium wilt, alternaria, rhizoctonia, thrips, and other insects during the production period. Contract growers followed the advice of the export grower with whom they had a contract.

HEATING AND LIGHTING. Carnations were produced in Turkey without any heat. To prevent excessive temperature damage, shading was put on the greenhouses in May using lime and white lead. Greenhouse roses and gerberas were heated in the winter. Photoperiodic lighting was used from September to March in greenhouses where gypsophila was produced.

HARVESTING AND YIELD. Production and pinching were timed to yield maximum production for seasonal sales periods such as Christmas. Generally, spray carnation flowers were harvested in the stage when buds were showing color. One woman worker could cut 2,000 stems and sort them in 1 d. Growers could harvest between 4 and 10 good quality stems per plant. The average number of cut stems per plant was 6.8 in the surveyed companies. While growers were careful with their production practices, yield mainly depended on the quality of the initial plant material.

Table 7. Market channels used by cut-flower export growers in Antalya, Turkey.

Market channel	Exporter grower using this channel (%)
Wholesaler	84.4
Supermarkets chains	9.4
Agency	3.1
Auction	3.1
Total	100.0

BUSINESS OBJECTIVES AND PERFORMANCE INDICATORS. Like Australian nurseries (Brumfield and McSweeney, 1998), most managers expressed financial objectives in general terms, and few indicated that they had adopted quantitative targets or goals (such as sales per square meter of growing area and sales per employee). The main indicator for business performance used by managers was the previous year's sales and expenses.

TRANSPORTATION AND SELLING. Almost all flowers were exported by air freight, and only small amounts were shipped in wet-packs via refrigerated trucks. About 93% of the exporter growers preferred air freight transportation, 35% used both air freight and truck transportation, and only 7% used only trucks.

Exported products were mainly transported to the markets by Turkish passenger airlines. The biggest problem in transportation was the freight rates. Export growers stated that freight costs averaged about $1.15/kg ($0.52/lb). They felt that this was very high compared to competing countries. Furthermore, air transportation capacity from passenger airlines was insufficient, particularly when the demand for cut flowers was very high.

Most export growers (84%) exported their product via wholesalers (Table 7). Supermarket chains, agencies, and auctions played only a minor role in marketing exported products. When wholesalers purchased the flowers, the relationship between export growers and the wholesaler was clear cut. However, most of the flowers were marketed on a consignment basis. When an export grower consigned his flowers to a wholesale commission house, the export grower paid all the expenses and hoped for a fair return. The consignment system produced some problems and risks for the exporters. The trading risks, exacerbated by the export growers' lack of market information, were generally borne by the consignors. Small export growers tended to have the most complaints about the consignment system.

MAJOR MARKETS. About 79% of the exporters said that the United Kingdom was the most important market for their flowers, followed by Russia and eastern European countries like Romania (7%), The Netherlands (6%), Germany (4%), Japan (2%), and Sweden and Norway (2%). The United Kingdom and some other western European countries bought spray carnations, while eastern European countries demanded standard carnations and other cut-flower products. In recent years, important quantities of Turkish cut flowers were sold through suitcase trade (unregistered trade) in addition to officially registered exports. This type of trade sold mainly standard carnations to Russia, Romania, and Bulgaria. According to export growers, the volume of suitcase trade was almost equal to half of official export values.

Managers of export-growing companies stated that all the exports were delivered during the months of November to May. Peak periods were Christmas (21%), Valentine's Day (17%), and Mother's Day (15%). Thus, export growers said their important months for the exports, in descending order, were December, February and March.

PROMOTIONAL APPROACHES. The majority of the managers of export-growing firms (85%) used some promotional measures to attempt to keep their existing markets, increase the volume of exported products, and find new markets (Table 8).

Most (73%) managers of export-growing firms received orders from importers via telephone and fax machines. Only 6% of the total companies had an agency in the importing countries, and some companies (3%) received information on product demand via a government agency Export Promotion Center of Turkey, 1995.

MANAGEMENT AND LABOR STRUCTURE. In all of the contract-growing firms, the owners also acted as general managers for their greenhouses. Only 13% of the owners of export-growing firms did not act as general managers.

The owners of export-growing firms were slightly younger (41.2 versus 44.6 years) and much more educated (12.3 versus 6.4 years) than owners of contract-growing companies (Table 9). Owners of the export-growing firms tended not to have an agricultural background, and had only about 6.1 years of experience in the greenhouse industry. Thus, 69% of them also had an agriculturist who was responsible for the management of production. Almost every export-growing company also had a marketing manager. Surprisingly, the first priority in hiring a marketing manager was language skills, particularly English speaking ability, rather than marketing skills.

About 69% of the owners of contract-growing firms were involved with agriculture before they began produc-

Table 8. Promotional methods used by cut-flower export growers in Antalya, Turkey.

Promotional method	Export growers using this method (no.)
Communicating by telephone and fax	33
Inviting the importers (buyers)	13
Sending product samples	11
Participating in fairs	10
Visiting customers	6
Advertising in the trade journals	4
Using Internet	1

ing cut flowers. The main reason contract growers had switched to production of cut flowers was profitability.

In contracted growing, most of the labor was carried out by family members. Contract-growers had families with an average of 5.9 people, and 60% of the family members worked in the business. The average age and educational level of the other family members were 36.5 and 6.4 years. Male and female workers accounted for 58% and 42% of the total family labor, respectively. Although contract growers generally used family labor in their production, 62% of the holdings also used causal workers particularly during peak times of cut-flower production.

Female workers played an important role in the cut-flower industry. Females accounted for 73% of the total work force in the export-growing companies.

In recent years a new system (*Dal basi*) based on the number of produced and cut stems per plant, has been very popular among the firms and laborers. In this system, an adult worker is responsible for a 1,000 m^2 cut-flower growing area for one production season. The average worker produces 1000 stems/day in the *Dal basi* system. For the 1997–98 production season, payments to a worker for one flower stem of standard quality were 2250 to 2500 Turkish lira (equivalent to $0.015 to $0.017). Labor costs were $4/day in Antalya the traditional work system where they work 8 to 10 h/day. Most contracted workers laborers were willing to work 12 h/day if necessary in the *Dal basi* system, but they could more than double their income compared to the traditional system to $8.82/day. This system seems to be positive move for both the workers and the export-growers. These wages still were extremely low compared to labor costs in European countries.

Sources of information. Managers of export-growing companies generally consulted with foreign advisers to have new technology and techniques. The survey results showed that their own experience and exchanges of information between the managers of other firms were more important than information from official institutions (Table 10).

Industry concerns: Export growers. Managers of export-growing companies expressed their views on existing problems to sectors of the cut-flower industry. These concerns are divided into three areas: cost of inputs, labor, and price competition.

Cost of inputs. Managers stated that the cut-flower industry was perceived as simple and very profitable, and thus still lacked a level of professionalism. Every surveyed company has used similar technology and production practices, but the results were quite different. The reason comes partly from the managerial approach of each company. Company managers expressed that the biggest expense item for exported products was the freight costs, followed by plant materials, labor, fertilization, and chemicals. Managers reported that freight costs were 35% of the total costs of the exported flowers.

Labor. Almost all the managers of contract-growing firms expressed concerns about getting and keeping good employees, even with a high rate of unemployment in the study region. Some managers felt that worker training was essential to increase profit. It was clear that the concern about labor was the quality of the labor supply, not the labor costs. Managers tended to focus more on labor issues and on marketing than on production problems or on increasing capital investment to improve greenhouse efficiency.

Price competition. Managers felt that a favorable climate and relatively low costs of labor were the major advantages for Turkish exporters. The most common method for making cut-flower export sales was personal contact with importers in the United Kingdom. Managers were concerned about an increase in the number of competitors entering the export market. They felt that this could lead to downward pressure on prices. Furthermore, every company had different types of marketing strategies and policies. Their main concern was about excessive price-cutting from their competitors.

Contract growers. Contract growers stated that they face important problems in contract-growing of cut-flower production (Table 11). Survey results showed that the most important problems of contract growers were related to their interaction with export growers. Only 9 of the contract growers felt that export growers lived up to their financial obligations, while 21 felt they did not. Major concerns were also expressed in two areas: production and selling.

Production. Export growers supplied technical advice on production techniques to contract growers. Some contract growers believed that export growers did not live up to their financial and technical-advice commitments. Contract growers reported a need for advice on fertilization and chemicals.

Table 9. Labor structure of investigated cut-flower export growers and contract growers in Antalya, Turkey.

Company type	Worker type	Total workers (no.)	Workers/company (no.)		Worker age (years)		Educational level (years)	
			Female	Male	Female	Male	Female	Male
Export growers	Owners					41.2		12.3
	Regular	17.2	10.2	7.0	26.0	31.6	7.6	6.7
	Temporary	32.0	21.5	10.5	17.7	35.0	5.0	5.0
	Total	59.2	31.7	17.5				
Contract growers	Owners					44.6		6.4
	Regular	3.5	2.0	1.5	36.5	36.5	6.4	6.4
	Total	3.5	2.0	1.5				

Table 10. Information sources used by the cut-flower producing companies in Antalya, Turkey.

Source of information	Companies using using each (%)
Foreign advisers	47.2
Own experiences	25.0
Other domestic firms	16.7
Publications	8.3
Official institutions	2.8

However, some contract growers complained that the technical advice given by the export growers was not enough to obtain good profits. Some contract growers felt the advisory staff did not have enough experience. The cost of the rooted cuttings provided by the export companies was highlighted as another problem. Thus, 36% of the contract growers propagated their own cuttings from vegetative lateral shoots of the flowering plants. Some contract growers claimed that training related to cut-flower production is essential if they are to increase profits. We observed that neither the export growers, nor the contract growers conducted careful cost analyses or quality analysis of propagating their own cuttings.

SELLING. The relationship between export growers and contract growers varied with each individual situation. Due to the contract agreement, contract growers have to comply strictly with all parts of the agreement. Growers can not sell their product to other companies and people. Most export growers sell products on consignment. When the agreement between the export growers and contract growers is on the commission basis, consignment systems create some problems and risks for the contract growers. Under this system, contract growers generally find product prices very low. Thus, they try to sell their product to other firms or they sell the product as unregistered trade. The growers prefer unregistered trade because they received a relatively high price and cash after the delivering the product, and they can sell a lower quality product to these buyers.

FUTURE DIRECTIONS. In spite of the high price of cuttings and heavy competition, the majority of export-growing companies wanted to continue to produce cut flowers (Table 12).

Conclusions and recommendations

The Turkish export cut-flower industry has made remarkable progress. Twelve years ago, it hardly existed, and in 1995, it exported $11 million of cut flowers, grown on nearly 190 ha (469.5 acres) of protected area. Owners who have entered the industry have come from backgrounds other than agriculture and have taught themselves the production and marketing of carnations. They have succeeded by growing a crop that has simple production requirements and requires low technology. They have chosen a market that is price competitive, and where high quality is not demanded. To continue to grow and remain highly profitable, owners will probably have to consider increasing quality by making additional investments in production facilities such as climate control and fertilization systems. This would allow them to sell in markets that will pay for higher quality products. They may also want to consider more high value cut flowers.

Contract-growing has the advantage of reducing risks both for export growers and contract growers. However, it is not without its problems. Problems generally arise when there is a great difference between the contract price and price of the open market. Even though the both sides made commitments in the contract, there were some important problems. Some contract growers were tempted to make short-term profits, but this discourages the export growers from working with that contract grower again. On the other hand, export growers sometimes unfairly reject flowers on the basis of the quality when the market is over supplied. Contract growers have no marketing flexibility and cannot switch to another market if prices are low.

Competition will most likely intensify for the coming years. To survive and prosper, managers should assure their customers of excellent and consistent quality. Turkish exporters must offer an assortment of suitable products that meet the needs of the consumers. The future of Turkish cut-flower industry is in the hands of contract growers and export growers.

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Table 12. Manager decisions to continue in the cut-flower industry (shows percentage change in the current year over the previous year).

Manager decisions	Proportion of managers (%)
Want to continue	57.2
Undecided	17.9
Want to increase diversification	10.7
Want to decrease	7.0
Want to produce vegetables	3.6
Do not want to produce	3.6

Table 11. The main concerns of cut-flower contract growers in Antalya, Turkey.

Concern	Growers (no.)	Companies (%)
High commission and other marketing expenses	17	56.7
Late payments for sold products	6	20.0
Losses, due to unsold flowers	4	13.3
Export growers do not pay enough when market prices are high	3	10.0
Total	30	100.0