

# Industry & Trade Summary

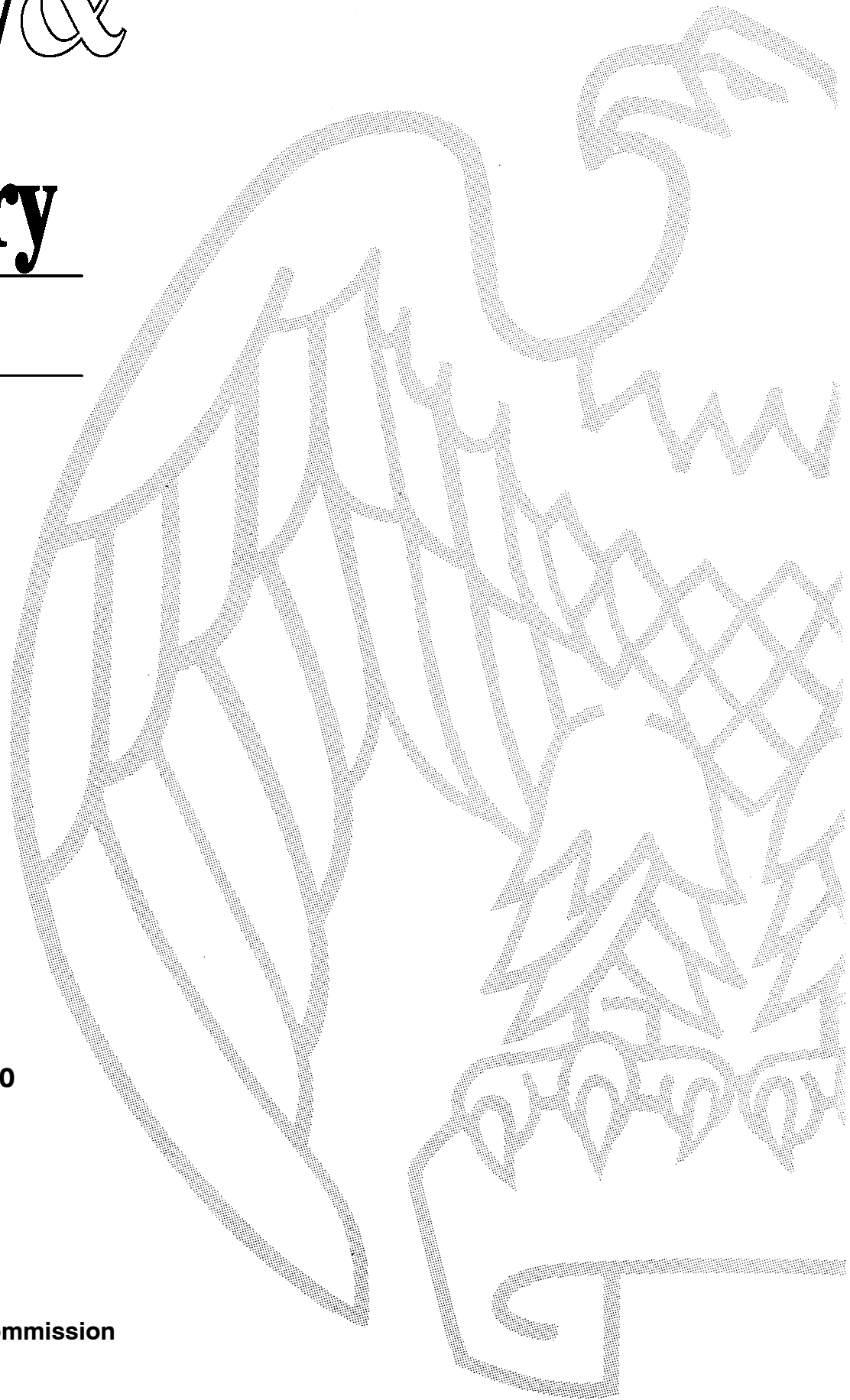
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## Cut Flowers

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USITC Publication 3580  
February 2003

OFFICE OF INDUSTRIES  
U.S. International Trade Commission  
Washington, DC 20436



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# PREFACE

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In 1991 the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into and exported from the United States. Each summary addresses a different commodity/industry area and contains information on product uses, U.S. and foreign producers, and customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.<sup>1</sup>

This report on cut flowers covers the period 1997-2001. Listed below are the individual summary reports published to date on the agriculture and forest products sectors.

<i>USITC publication number</i>	<i>Publication date</i>	<i>Title</i>
2459	November 1991 .....	Live Sheep and Meat of Sheep
2462	November 1991 .....	Cigarettes
2477	January 1992 .....	Dairy Produce
2478	January 1992 .....	Oilseeds
2511	March 1992 .....	Live Swine and Fresh, Chilled, or Frozen Pork
2520	June 1992 .....	Poultry
2544	August 1992 .....	Fresh or Frozen Fish
2545	November 1992 .....	Natural Sweeteners
2551	November 1992 .....	Newsprint
2612	March 1993 .....	Wood Pulp and Waste Paper
2615	March 1993 .....	Citrus Fruit
2625	April 1993 .....	Live Cattle and Fresh, Chilled, or Frozen Beef and Veal
2631	May 1993 .....	Animal and Vegetable Fats and Oils
2635	June 1993 .....	Cocoa, Chocolate, and Confectionery
2636	May 1993 .....	Olives
2639	June 1993 .....	Wine and Certain Fermented Beverages
2693	October 1993 .....	Printing and Writing Paper
2702	November 1993 .....	Fur Goods
2726	January 1994 .....	Furskins
2737	March 1994 .....	Cut Flowers
2749	March 1994 .....	Paper Boxes and Bags
2762	April 1994 .....	Coffee and Tea

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<sup>1</sup> The information and analysis provided in this report are for the purposes of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.

# PREFACE—*Continued*

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<i>USITC publication number</i>	<i>Publication date</i>	<i>Title</i>
2859	May 1995 .....	Seeds
2865	April 1995 .....	Malt Beverages
2875	May 1995 .....	Certain Fresh Deciduous Fruits
2898	June 1995 .....	Certain Miscellaneous Vegetable Substance and Products
2917	October 1995 .....	Lumber, Flooring, and Siding
2918	August 1995 .....	Printed Matter
2928	November 1995 .....	Processed Vegetables
3015	February 1997 .....	Hides, Skins, and Leather
3020	March 1997 .....	Nonalcoholic Beverages
3022	April 1997 .....	Industrial Papers and Paperboards
3080	January 1998 .....	Dairy Products
3083	February 1998 .....	Canned Fish, Except Shellfish
3095	March 1998 .....	Milled Grains, Malts, and Starches
3096	April 1998 .....	Millwork
3145	December 1998 .....	Wool and Related Animal Hair
3148	December 1998 .....	Poultry
3171	March 1999 .....	Dried Fruits Other Than Tropical
3268	December 1999 .....	Eggs
3275	January 2000 .....	Animal Feeds
3350	September 2000 .....	Grain (Cereals)
3352	September 2000 .....	Edible Nuts
3355	September 2000 .....	Newsprint
3373	November 2000 .....	Distilled Spirits
3391	January 2001 .....	Cotton
3405	March 2001 .....	Sugar
3461	October 2001 .....	Cured Fish
3463	October 2001 .....	Fresh or Frozen Fish
3490	February 2002 .....	Wood Pulp and Waste Paper
3476	February 2003 .....	Oilseeds

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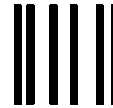
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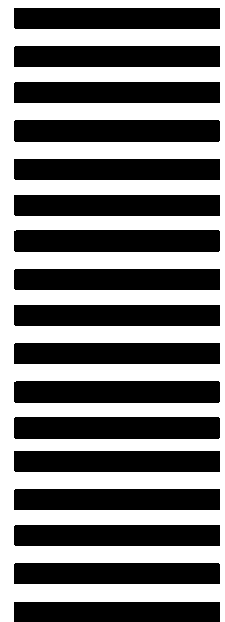
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# ABSTRACT

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This summary addresses trade and industry conditions for fresh and preserved cut flowers for the period 1997-2001.

- Over the last two decades the U.S. market for fresh cut flowers has become increasingly served by imports. The United States is an important market for South American growers, especially those in Colombia and Ecuador, because of strong U.S. demand and high disposable incomes. These and other developing country producers have a competitive advantage over U.S. growers because of their low wage rates, smaller climate control investments, and weaker currencies.
- Due to increased global supply of fresh cut flowers, especially roses, since the early 1990s, fresh cut flower import prices have fallen significantly. In the face of increasing low-priced import competition, many U.S. growers have shifted production to specialty cut flowers that are not imported in significant volumes, and to other floriculture crops. U.S. production of roses and certain other flowers has fallen significantly. Sales by U.S. fresh cut flower growers, except in Western States, have fallen to about one-half of 1992 levels.
- Almost 85 percent of total U.S. imports of cut flowers in 2001 entered duty-free under preferential trade programs. The majority of those imports entered under the Andean Trade Preferences Act that benefits Bolivia, Colombia, Ecuador, and Peru.
- In addition to Latin America, governments in Africa and Asia have encouraged the development of cut flower export industries in their countries as a mechanism to employ large numbers of semiskilled workers and to attract U.S. dollars to their economies. The Netherlands, Colombia, and Ecuador are the largest exporters of cut flowers in the world; however, Eastern and Southern African countries such as Kenya, South Africa, and Zimbabwe are becoming important players in the global cut flower export market.



# INTRODUCTION

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This summary covers fresh or preserved cut flowers classified for tariff purposes in chapter 6, heading 0603 of the Harmonized Tariff Schedule of the United States (HTS), which provides for fresh and preserved cut flowers.<sup>1</sup> Also included within the scope of this summary are bouquets, floral baskets, wreaths, and similar articles made wholly or partly from fresh cut and preserved flowers, which account for a significant share of final consumption of fresh cut and preserved flowers.<sup>2</sup> However, fresh cut and preserved flower production are valued in this summary at their first stage of production. Information is presented on the structure of the U.S. industry, imports and exports, consumers, foreign industries, and domestic and foreign tariff and nontariff trade measures. The analysis primarily covers the time period from 1997-2001.

The United States is the third-largest producer of cut flowers in the world; production was valued at \$424 million in 2001, down from \$472 million in 1997. Almost all domestic production serves the U.S. market, which has seen increasing demand for cut flowers since the late 1980s. The United States has one of the most diverse cut flower markets, with all types of fresh flowers arriving from all over the world. Roses are the leading fresh cut flower produced and consumed in the United States (based on value) and, in 2001, accounted for almost 30 percent of fresh cut flower shipments. Chrysanthemums and carnations accounted for nearly 10 percent each. As a result of increasing imports over the last two decades, U.S. production of certain flowers, especially roses, has fallen significantly.

The majority of the U.S. market for fresh cut flowers is served by imports. The United States is an important market for foreign growers, mostly from South America, because of strong demand and high disposable incomes. Imports were valued at \$551 million in 2001, down from \$579 million in 1997. Imports supplied approximately 60 percent of U.S. consumption during the period 1997-2001, with Colombia supplying more than one-half of such imports. Imports from Ecuador and the Netherlands together accounted for about one-quarter of the total. Fresh cut roses, carnations, and chrysanthemums were the principal types of cut flowers imported. Mexico was the principal supplier of preserved flowers.

In recent years, fresh cut flowers have accounted for 85-90 percent of U.S. consumption of products covered by this summary. Data are not available on the principal preserved flowers produced and consumed in the United States, but delphinium, roses, lavender, and statice are believed to be the most important.

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<sup>1</sup> The HTS defines the product as “fresh cut flowers and flower buds used in bouquets or for ornamental purposes, and dried, dyed, bleached, impregnated or otherwise prepared cut flowers used in bouquets or for ornamental purposes.”

<sup>2</sup> Other floriculture crops, such as potted flowering plants, foliage plants, and bedding/garden plants (provided for in HTS heading 0602), or cut greens, foliage, and ornamental grasses (provided for in HTS heading 0604), are not covered in this summary.

# The Product

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Cut flowers are parts of plants, characteristically including the blooms or “inflorescences” and some attached plant materials, but not including roots and soil. Fresh cut flowers are highly perishable because they maintain only limited life-supporting processes by taking water up through their stems. Fresh cut flowers are used for decorative purposes such as vase arrangements and bouquets at formal events; designs for weddings and funerals; gifts on occasions such as Mother’s Day, Valentine’s Day, in times of illness, and at holidays such as Christmas and Easter; corsages and boutonnieres; and informal displays to beautify homes and public places. More than 200 different types of fresh cut flowers are sold in the United States.

Preserved flowers are fresh cut flowers that have been dehydrated, preserved with a chemical solution and then air- or oven-dried. They may be used in boutonnieres, corsages, wreaths, formal and informal displays, and similar ornamental articles. Preserved flowers, known in the industry as “everlasting flowers” or “everlastings,” are not as perishable as fresh cut flowers.

The three principal types of fresh cut flowers produced in the United States and the world are roses, carnations, and chrysanthemums. Roses are deciduous woody perennials that can be used for cut flowers, drying and preserving, and for landscaping.<sup>3</sup> Roses are members of the Rosacea family; at least 100 species and thousands of varieties are known to exist. The most commercially important types of roses are sweetheart (intermediate), hybrid tea, and spray roses. Sweetheart roses have one small bloom per stem, generally one-half inch to 2 inches in diameter, and are typically used in bridal bouquets. Hybrid tea roses also have one bloom per stem but with a much larger flower head, ranging from 3 to 6 inches in diameter. Spray roses are a relatively newer variety with multiple blooms, one-half inch to 2 inches in diameter, growing off of a single stem. Although the most typical roses are red, they may be almost any color except true blue or black.<sup>4</sup> As fresh cut flowers, roses may last 3 to 7 days in the home without the use of floral preservatives, depending on the variety of the rose and environmental factors such as temperature and care. The vase life of a rose can be doubled when floral preservatives are used.

Carnations are members of the Caryophyllaceae or so-called “pink” family. These relatively inexpensive flowers are divided into two major groups, the standards and the miniatures. Standard carnations produce double, fragrant flowers 2 to 3 inches across, borne singly on wiry stems that are 18 to 24 inches long. Carnations may be white, yellow, pink, red, or multicolored. White carnations are often artificially colored with hues absent in natural cultivars. Carnations last from 7 to 10 days as cut flowers without the use of a floral preservative and up to several weeks when a floral preservative is used.

Chrysanthemums are a genus of the Compositae family. The major groups grown commercially are standards and pompons. Chrysanthemums may be white, yellow, red, bicolored, or tricolored; they can also be artificially colored. Standard chrysanthemums have 1 flower per stem (stems range from 18 to 36 inches), with the diameter of each bloom

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<sup>3</sup> Roses used for landscaping are not included in this summary.

<sup>4</sup> Ann Hooper, “Roses: the straight scoop,” *Flower & Garden*, Jan. 2001, Vol. 45, Issue 1, p. 22.

ranging from 3 to 8 inches. Pompon chrysanthemums have 4 to 6 flowers per stem (stems range from 18 to 30 inches) with a diameter of 3 to 5 inches. As fresh cut flowers, pompons last from 10 to 14 days, and standards last from 7 to 12 days, depending on variety and temperature. Chrysanthemums have been successfully bred into a wide variety of colors, shapes, and textures, making them the flower of choice for the mass-market bouquet business.<sup>5</sup>

## **Production Process**

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### ***Fresh Cut Flowers***

When, in 1918, researchers at Cornell University proved that plant growth responds to day length, horticulturists began to artificially control flower exposure to daylight. This discovery made year-round flowering possible, significantly increasing the economic value of flowers.

Today, flower production occurs throughout the year in the United States, in open fields or within a protective structure. The production method primarily depends on the environmental conditions of the area and quality considerations. In 1997, the most recent year for which detailed data are available, flower production took place on approximately 3,444 covered acres (150 million square feet) and approximately 36,000 acres of open fields.<sup>6</sup> Data for all floriculture crops show that in 2001 approximately 21,400 acres were cultivated under some sort of protective structure, while about 41,000 acres were grown on open fields.<sup>7</sup>

The propagation of flowering plants can be by means of seed, cuttings (either stem tips or rooted cuttings), bulbs, grafting, or by the process of division. In a covered setting, the propagative material is typically placed in a mixture of organic material in a raised greenhouse bench, a shallow concrete box usually 4 feet wide and raised 24 to 36 inches for drainage. Before planting, the soil is prepared, either by sterilization with steam or the application of chemicals. Growers may also use prepackaged soilless media (rice hulls, coir, sand, or composted bark), which have already been pasteurized to kill pathogens, weeds, and seeds. Soil preparation usually takes place between each harvest. Although seeds or cuttings are planted directly into the greenhouse bench, bulbs are generally stored and monitored in cool, dark rooting rooms until they sprout, then transferred to the organic material in the greenhouse. Wire or plastic mesh is often used to support certain flowers (e.g. roses and chrysanthemums) as they grow, thereby encouraging a long straight stem. Drip irrigation lines are generally used to reduce spotting of the flower petals, soil splashing onto the foliage, and the spread of disease. Water may be treated by reverse osmosis and injected with fertilizers before being applied to plants.

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<sup>5</sup> Win Winogrand, "Cut flowers on the move," *The History of U.S. Floriculture*, (Greenhouse Grower, Meister Publishing Fall 1999).

<sup>6</sup> USDA, Economic Research Service, Market and Trade Economics Division, *Floriculture and Nursery Crops Situation and Outlook Yearbook*, FLO-2002, May 2002. Data includes acreage for cultivated cut greens, which are not included in the scope of this summary.

<sup>7</sup> USDA, ERS, *Floriculture and Nursery Crops Outlook*, Sept. 2002.

The greenhouse structure may form a completely controlled environment, or just provide shade or protection from the wind, e.g., an overhead lattice work or a “poly-house” (an aluminum or steel framework covered with a double layer of polyethylene film). While a glass greenhouse is the most durable structure, greenhouse panes made of fiberglass sheets may also be used and typically last 10 to 20 years without replacement. The “poly-house,” made longer lasting than its predecessors by the availability and low cost of high technology plastics, may last for up to 4 years. The latter requires significantly less capital investment than the other types of covered structures and accounts for the majority of protected growing areas in the United States.<sup>8</sup>

Air temperature in the greenhouse is commonly controlled by central steam boilers or individual unit heaters fueled by natural gas or propane and are often combined with horizontal air flow fan systems to circulate air. Common heating systems for the root-zone of the plants are electrical-resistance heating strips or pads and small boiler systems that warm the water as it flows through an array of small tubes under the propagating units. Some greenhouses are equipped with computer systems that regulate environmental factors such as heating, cooling, irrigation, fertilization, carbon dioxide, and ceiling shade blackout for artificial night. Supplemental lighting is often used to control flowering and quality.

During the production process, approximately 50 percent of all direct labor is used in harvest activities.<sup>9</sup> At harvest, laborers carefully inspect plants for the proper picking stage. Flowers are harvested when the proper stem length and inflorescence required for sale in the wholesale market are reached. Generally, the optimal stage of growth for harvesting is when the flower has just opened. Stems with more than one flower are usually harvested with less than one-third of the flowers fully opened. The flower stem is cut at the appropriate length by hand with a sharp knife or pruning shears. Since flower condition will not improve after picking, growers must calculate the cutting precisely so that the flower will not be past its prime when it reaches the consumer.

Postharvest handling methods developed more than 20 years ago on domestically produced flowers are still current practice in the fresh flower industry.<sup>10</sup> Many growers harvest by accumulating an armful of flowers as they move along an aisle, whereas others employ picking carts and/or conveyor systems. Some growers have automated systems that can strip leaves, trim stems, and uniformly bunch flowers that may then be transported on specially-designed monorails suspended on tracks from the ceiling of the greenhouse. With automated systems, surfaces are padded to minimize damage to the flowers. In the packing warehouse, stems are cut for a second time while submerged in water to allow the water to move up the stems. They are immediately placed in tepid water (110 degrees) with added

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<sup>8</sup> In 2000, USDA reported that 68 percent of the total covered growing area was dedicated to film plastic structures, while fiberglass and glass structures accounted for 18 and 14 percent, respectively. Total growing area includes area dedicated to all floriculture crops, including bedding and garden plants and cut cultivated greens, which are not included in the scope of this summary. USDA, National Agricultural Statistics Service, *2000 Floriculture Crops Summary*, Apr. 2001.

<sup>9</sup> Mary Albrecht, Alan Stevens, Susan Stevens, *Starting a Greenhouse Business - A Commercial Grower's Guide*, (Kansas State University, Cooperative Extension Service, June 1994).

<sup>10</sup> Terril A. Nell, Ayumi Suzuki, Ria T. Leonard, James E. Barrett, and David G. Clark, “Developing Protocols for Cut Flower Longevity,” Department of Environmental Horticulture, University of Florida, and Michael S. Reid, University of California, Davis, CA, found at [www.endowment.org/projects/nell99.htm](http://www.endowment.org/projects/nell99.htm), retrieved Jan. 23, 2003.

floral preservative for at least 2 to 3 hours to allow for a maximum amount of water uptake. They can be left temporarily in a cool (less than 60 degrees) location or stored in a 40 degree cooler overnight for subsequent grading. Flowers that do not retain water and are not kept at low temperatures will lose water and wilt quickly.

Grading of cut flowers is done to ensure consistent standards. Stems are generally graded by stem length (18 to 24 inches for most flower types) and are downgraded for short or broken stems, poor flower condition, poor foliage condition, or old flowers.<sup>11</sup> Sorting machines are able to grade flowers by length of stem, however, all other factors are still determined by human decision-making. Pompon chrysanthemums are graded into 250- to 340-gram bunches containing several stems, while standard chrysanthemums of equal sizes are graded in groups of 10 or 12. The flower buds are wrapped in cone-shaped plastic sleeves to prevent damage. Carnations are usually separated into piles of 3 grades, each grade is then bunched into units of 25 stems. For roses, 25 flowers from an individual grade are bunched with the heads on an even plane. Stems are then tied together with string and parchment, or waxed paper is wrapped around the heads for protection.

Flowers that are destined for nationwide sale are carefully prepared to maintain flower quality. Boxes are often packaged using “wet packs” to allow the flowers to remain in water throughout their transport. Packed boxes can be pre-cooled by units that fill them with 98 percent humid, cool air for added protection. The boxes are then transported by refrigerated truck or by air to customers.

### ***Dried and Preserved Flowers***

The production process for dried and preserved flowers is similar to that of cut flowers up to the point of harvesting. Flowers are cut, bunched, and then dehydrated in mechanical dryers or in the sun, or preserved chemically. Preserved flowers are placed in a solution of glycerin and water for a period of 3 to 7 days. As the solution is drawn up the plant stem and into the flowers, the water in the plant tissue is replaced with glycerin, yielding a final product that will remain soft and pliable for several years. Since the flowers naturally turn brown as the tissues degrade, dye may be placed in the solution to be drawn up the stem. The glycerin-preserved flowers are then placed in industrial dryers at a temperature of about 60 to 75 degrees Fahrenheit while fans remove humidity from the air. Colors can also be applied to the flowers after drying by immersing the flower bundles in hot vegetable-based dyes. The dyed flowers are then returned to the dryer for a period of 3 to 4 days. When the drying process is complete, the flowers are arranged and then packaged for retail sale.

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<sup>11</sup> Scott M. Aker and William E. Healy, “Enterprise Guide for Southern Maryland: Producing Cut Flowers - General Field Crop Management,” Fact Sheet-468 Department of Horticulture, The University of Maryland, 1991.

# U.S. INDUSTRY PROFILE

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## Industry Structure

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The structure of the U.S. fresh cut flower industry is illustrated in figure 1.<sup>12</sup> Although market channels for cut flowers are growing increasingly complex, most fresh cut flower production moves through the traditional market channels, from growers to wholesalers to retail florists, and finally to consumers. The U.S. industry is generally characterized as fragmented because each of these industry segments has unique issues and perspectives. The majority of preserved flowers go from processors to wholesalers to craft stores or retail florists, and finally to the consumer (figure 2).

Fresh cut flower growers may sell their products to a flower wholesaler, a florist, or directly to the consumer. Very small quantities of fresh cut flowers are sold for further processing. Those growers who focus on selling to wholesalers or florists generally specialize their operations and limit the number of species grown to one or two. Growers who sell directly to consumers may grow as many as 15 to 20 different species, with at least 5 available for sale at any time.<sup>13</sup> Some cut flower producers have horizontally integrated by using existing space to produce other horticultural products such as foliage plants and hanging flower baskets, which are not covered in this summary. In the greenhouse, efficiency can be gained by growing these products in the space above the fresh cut flower crop.

Dried and preserved flowers fall into the market segment that also includes dried and preserved foliage and other plant materials such as pods, sticks, stalks, and weeds, which are not included in this summary. Dried and preserved flowers make up a very small part of the dried and preserved plant materials industry as only certain flower types and varieties lend themselves to the rigors of the preservation and/or drying processes.<sup>14</sup>

### *Cut Flower Operations*

The total number of U.S. fresh cut flower growers declined by 34 percent from 3,120 in 1988 to 2,067 in 1998 (the only recent years for which official statistics are available on a disaggregated basis).<sup>15</sup> More recent data show that, for growers with more than \$100,000 in

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<sup>12</sup> Cut flower production is covered by North American Industry Classification system (NAICS) code 111422, which covers establishments primarily engaged in growing and/or producing horticulture products, etc.

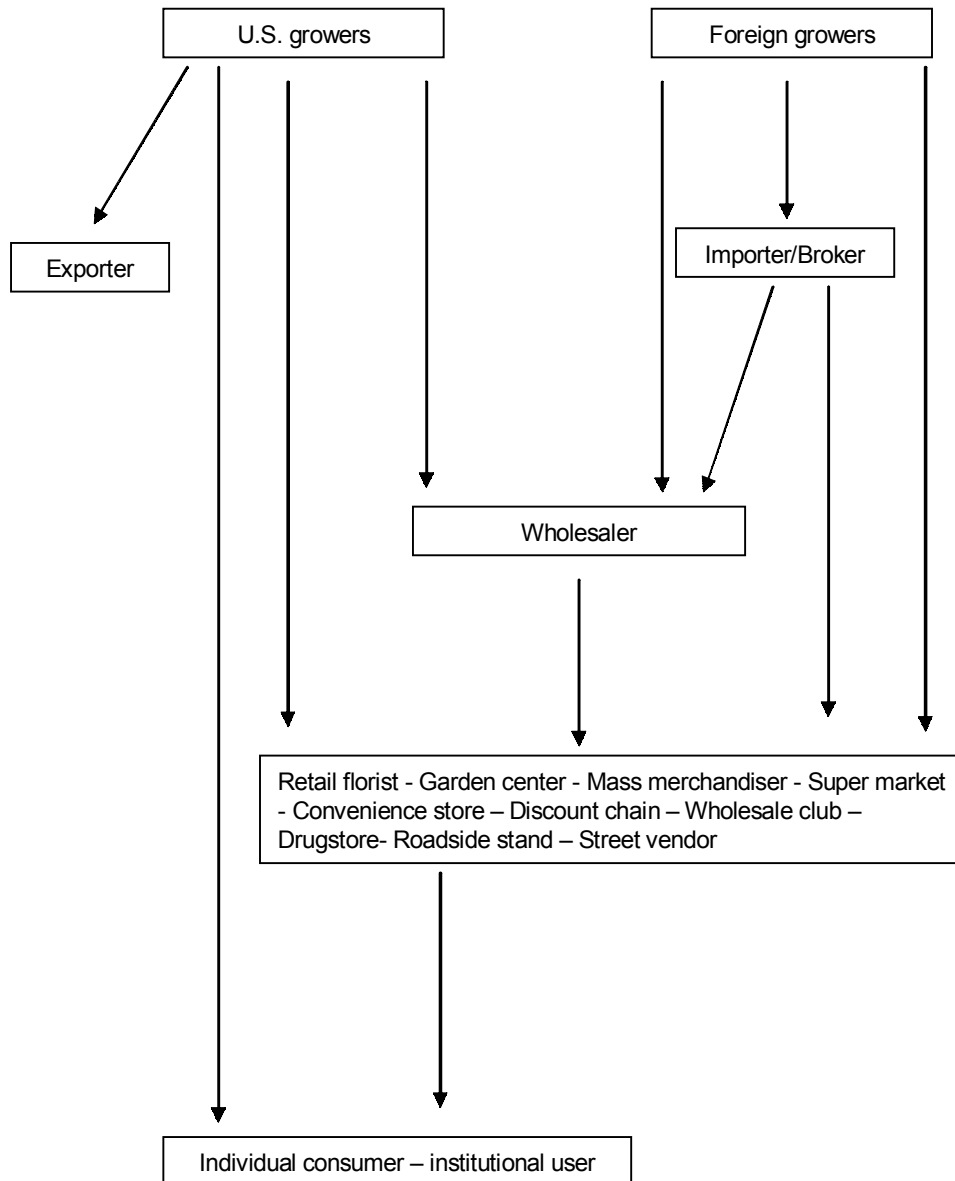
<sup>13</sup> "Specialty Cut Flowers: A Commercial Growers Guide" (Kansas State University, Agricultural Experiment Station and Cooperative Extension Service, June 1992).

<sup>14</sup> Common flowers used for preservation in the U.S. are delphinium, larkspur, roses, lavender, and statice.

<sup>15</sup> U.S. Bureau of the Census, *Census of Horticultural Specialties (1998)*, Vol. 3, Special Studies, Part 2, Mar. 2000.

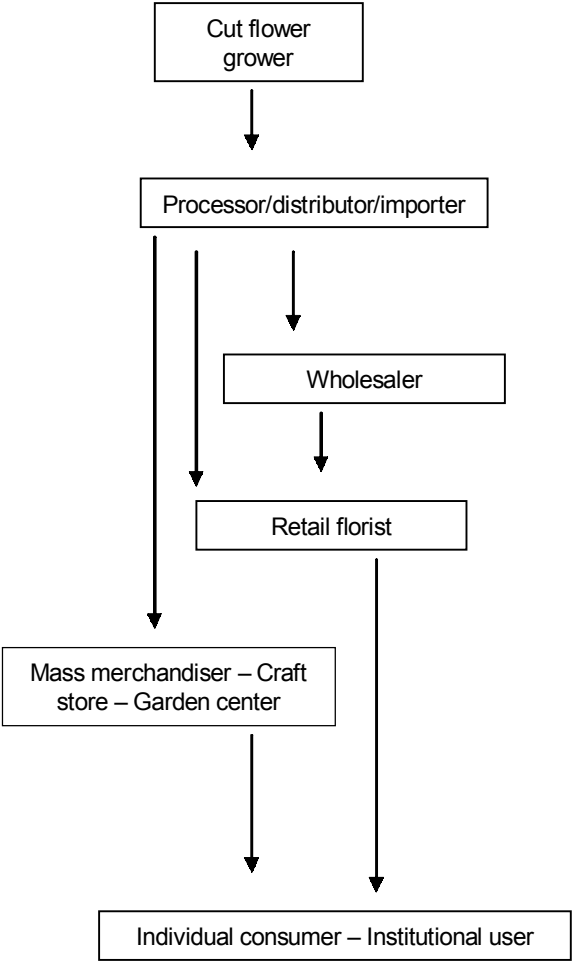


Figure 1  
Major distribution channels for fresh cut flowers in the United States



Source: U.S. International Trade Commission.

Figure 2  
Major distribution channels for preserved flowers in the United States



Source: U.S. International Trade Commission.

sales, there were 615 cut flower growers in 2001, down from 760 in 1997.<sup>16</sup> The U.S. fresh cut flower industry has been going through a prolonged period of consolidation and contraction in the number of growers, with the remaining growers obtaining larger volumes. Most fresh cut flower-growing operations are family owned and operated, and the industry is not generally described as highly concentrated. Although a large number of growers operate less than 20,000 square feet of growing space, a few large firms cultivate several million square feet in flower production.<sup>17</sup>

### ***Geographic Distribution***

In the early 1900s U.S. cut flower production was centered around the large population centers such as New York City, Boston, Philadelphia, and Chicago. The expansion of the interstate highway system in the 1950s facilitated the transportation of goods over longer distances, and cut flower growers moved west in search of more favorable growing conditions. Producers settled predominantly in Colorado, in the area around Denver, and throughout California.

Today, although fresh cut flowers are commercially grown in nearly every State, California is by far the largest fresh cut flower producer, accounting for 66 percent of annual U.S. production during 1997-2001. Florida, Washington, Hawaii, Oregon, New Jersey, and Michigan are also important fresh cut flower producing States, together accounting for 20 percent of annual U.S. production in 2001. California, Florida, and Hawaii have climates that are especially conducive to year-round flower production. Washington ramped up production over the last 5 years, moving from the sixth most important State in 1997 to third place in 2001. Colorado lost importance during the period, cutting production by one-half between 1997 and 2001 (table 1).

**Table 1**  
**Fresh cut flowers: U.S. production in major producing States,<sup>1</sup> 1997-2001**

State	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
California .....	307,557	261,548	279,611	288,441	292,115
Florida .....	29,241	27,398	28,293	28,119	23,168
Washington .....	11,745	17,736	23,295	19,624	18,857
Hawaii .....	15,622	14,383	17,461	16,436	16,221
Oregon .....	10,499	10,214	10,338	10,195	10,698
New Jersey .....	11,916	8,495	9,194	7,128	8,533
Michigan .....	11,514	8,551	4,995	7,624	8,119
Colorado .....	12,932	11,425	10,749	8,156	6,440
All other .....	60,543	51,845	47,688	44,240	40,105
Total .....	471,569	411,595	431,624	429,963	424,256

<sup>1</sup> Data are for production in 36 major producing States for operations with \$100,000 or more in annual sales.

Source: Compiled from official statistics from the U.S. Department of Agriculture.

<sup>16</sup> USDA, National Agricultural Statistics Service, *Floriculture Crops Summary*, Apr. 1998, Apr. 2002.

<sup>17</sup> John Bartok, "Automating an Industry," *Greenhouse Grower*, Fall 1999.

There are believed to be three to four large producers of preserved flowers although there are probably several hundred small-scale (“mom and pop”) producers. Most preserved cut flower operations are family owned and operated. However, the industry is concentrated, with one firm dominating.

## ***Employment***

Cut flower production requires strict adherence to sanitation and handling requirements to produce quality finished products. Relatively skilled labor is required in the production of cut flowers; most of these skills are learned from on-the-job experience and not from formal education. Data on employment in the U.S. fresh cut flower industry are not available, since workers used to produce fresh cut flowers are used to produce a variety of other floriculture crops at the same time. A considerable amount of actual labor in the fresh cut flower sector is “unpaid” labor of the grower and other family members. It is estimated that the fresh cut flower industry employed 7,500 full time workers and 5,000 part-time workers annually during 1997-2001.<sup>18</sup> It is estimated that the preserved flower industry employs about 1,000 workers.<sup>19</sup>

Operations such as planting, harvesting, grading, and packaging traditionally require hand labor, making labor inputs a significant component of production costs in the cut flower industry. Labor costs generally account for 25-30 percent of a flower sales value. Recently however, growers have found that the scarcity of workers is driving labor costs up. Automation has increasingly been introduced to keep labor costs down or when extra workers are not available, but such methods can require significant initial capital expenditures.

Mechanization in the greenhouse generally consists of conveyors to move flowers, seeders, and automated irrigation. Seeders inject seeds through a nozzle or needle in a manifold that places one row of seeds at a time, up to 100 trays per hour. With drip irrigation, a series of small plastic tubes reach into each flower pot from a 1/2- to 3/4-inch main line extending the length of a greenhouse bench. With this method, every plant is irrigated at the same time with exactly the same amount of water. Although automation can significantly reduce grower costs, manufacturers of specialized equipment have not been attracted to the cut flower industry because of the large number of growers who operate less than 20,000 square feet of growing space and find the capital expense difficult to justify.<sup>20</sup>

However, highly automated greenhouses and technological advancements resulting from extensive applications of research and development do occur in the industry, generally by the larger growers. These advancements have yielded greater productivity and efficiency at the grower level.<sup>21</sup>

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<sup>18</sup> Estimated by staff of the U.S. International Trade Commission.

<sup>19</sup> Ibid.

<sup>20</sup> John Bartok, “Automating an Industry,” *Greenhouse Grower*, Fall 1999.

<sup>21</sup> Will Carlson, and Dick Meister, “Technology and Productions,” *Greenhouse Grower*, Fall 1999.

## *Vertical Integration*

Flowers can be marketed by the grower to a flower wholesaler, a retail florist, or directly to the public by a street vendor or at a farmers market. Traditionally, wholesalers consolidate product from various growers and sell smaller units to retail outlets. The wholesaler's product is often on consignment from the grower; the wholesaler finds buyers for the product and pays the grower a portion of the sale. Wholesalers have traditionally passed information regarding demand trends back to the grower who can then modify production accordingly.

Today, market channels for fresh cut flowers are increasingly complex.<sup>22</sup> Since in large part the production of fresh cut flowers for the U.S. market has shifted overseas, some importers are fulfilling the traditional wholesaler's role, aggregating product from offshore producers and farms, and selling directly to retail outlets. Some large U.S. retailers work directly with brokers who get foreign producers to meet the retailers' specific requirements.<sup>23</sup> Some importers located in Miami are merely extensions of Latin American growers' operations. Vertical integration has allowed some wholesalers to provide better service and more services than their competitors.<sup>24</sup> For example, wholesalers/importers/brokers have set up bouquet-making operations at the Miami airport or offshore and then ship the final product, a fully arranged bouquet, directly to retail outlets.<sup>25</sup>

Cut flower producers in the United States have adapted to the changing market structure. Some have formed shipping companies and wholesale businesses to market their own production as well as that of other domestic and foreign producers. Others have established retail outlets to market cut flowers. In some cases, retail outlets have established cut-flower-producing operations to supplement their purchases from other domestic producers, shippers, wholesalers, and importers.

For several decades, especially in California, growers have used flower auctions to sell directly to retail florists.<sup>26</sup> Through the auction system, retail outlets bypass the wholesaler. In this environment, retailers make decisions based on economic considerations and can receive a price based on the cost of production, shipping, and other direct costs. The online grower auction is a relatively recent phenomenon. Business to business commerce over the Internet, which is an increasingly important factor in business relations across industries, is successfully uniting flower growers, brokers, retailers, hard goods suppliers, seed companies, and retailers.

Although some retailers source product through the auctions, the majority still find the services a wholesaler provides to be extremely valuable.<sup>27</sup> Wholesalers are generally able to provide the following types of services to retailers: meeting growers/importers minimum orders; dealing with large consolidated bulk shipments; keeping perishable goods refrigerated; replacing inferior products quickly and easily; and dealing with product credit issues of overseas suppliers. Some wholesalers may even provide extended credit to their retail customers who may periodically experience financial distress and have to slow or cease

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<sup>22</sup> Red Kennicott, "Wholesale Changes," *Greenhouse Grower*, Fall 1999.

<sup>23</sup> "The Changing Floriculture Industry," Society of American Florists, June 2001.

<sup>24</sup> Charles Kremp, "Retail Florists Blossom," *Greenhouse Grower*, Fall 1999.

<sup>25</sup> "The Changing Floriculture Industry," Society of American Florists, June 2001.

<sup>26</sup> Red Kennicott, "Wholesale Changes," *Greenhouse Grower*, Fall 1999.

<sup>27</sup> "The Changing Floriculture Industry," Society of American Florists, June 2001.

payment.<sup>28</sup> Most retailers prefer to deal with an intermediary when purchasing product grown overseas as well, since they do not generally have the time or expertise to deal with trade credits, quality guarantees, freight, brokers' fees, and duties, or to identify reliable supply sources.

Several unsuccessful attempts were made in the late 1990s by private equity firms to consolidate multiple firms in different industry segments and take the new companies public.<sup>29</sup> These firms intended to streamline the wholesale distribution of flowers by consolidating a number of smaller flower growing operations, importers, brokers, bouquet manufacturers, and wholesalers. Executives involved in the failed mergers cited pricing pressure from imports in the late 1990s, in light of already thin margins on floral products, as one of the main reasons for the consolidations' failure, in addition to the fact that the cut flower industry is highly fragmented with different segments maintaining distinct inventory management systems and business practices.<sup>30</sup>

## **Globalization in the Cut Flower Industry**

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Producers of cut flowers generally are not integrated with foreign firms. There is little direct foreign ownership of U.S. cut flower firms, and few U.S. cut flower producers operate abroad. One exception is a large U.S. multinational firm that recently acquired 790 hectares of farms in cut flower production in Colombia, Ecuador, and Mexico. The company owns its own aircraft service that transports flowers from locations in Latin America to its recently constructed, 328,000-square-foot processing, warehousing, and shipping facility in Miami. This producer serves as grower, importer, marketer, and distributor. The vertical integration of its logistics and handling operations represent its effort to deliver uniform product quality from the farm to its final customers.<sup>31</sup>

Although this type of large-scale operation and investment is not typical in the industry, many overseas producers in Latin America are focusing on establishing supply relationships with U.S. mass merchandisers. Once these connections are established, the mass retail outlet often takes an active role in the production decisions at the grower level. In a relationship of this type, the grower produces to customer specifications, losing some control of his operations; however, his product is guaranteed a venue for sale in the U.S. market where demand is high.

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<sup>28</sup> Ibid.

<sup>29</sup> Delilah Onofrey, "Courting Consolidation," *Greenhouse Grower*, Fall 1999.

<sup>30</sup> "Fading fortune," *Latin Trade*, July 2001.

<sup>31</sup> "Industry News," *Floral Management*, Society of American Florists, Mar. 2002.

## Marketing Methods

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Cut flowers are promoted generically through industry associations and other voluntary organizations. The Society of American Florists (SAF) administrates the Floral Marketing Council (FMC), the largest voluntary public relations program for flowers and plants in the United States. FMC receives contributions from all industry segments. Floral wire services, such as Florists' Transworld Delivery (FTD) and Teleflora, are networks of worldwide florists who have agreed to exchange out-of-town flower orders placed by telephone or over the Internet. These organizations also conduct national advertising campaigns. U.S. and Colombian growers promote flowers in the United States market through the Flower Promotion Organization, a voluntary arrangement they formed to boost short-term and long-term demand for flowers.<sup>32</sup>

A mandatory national marketing effort, similar in structure to national promotion orders for other commodities, was developed in the mid-1990s, but was terminated shortly after its institution. The grower-funded program, in which assessments of 0.5 percent of gross sales were to generate \$10-12 million for promotional activities, was formally organized in 1996. USDA handled the administration and collection of the program until it lost the support of the growers and was dismantled in 1997.<sup>33</sup>

In some cases, dried and preserved flowers may be promoted and marketed along with fresh cut flowers in a general "gift item" category. However, customers do not generally perceive fresh and preserved flowers to be substitutable due to the perishable nature of fresh flowers. Floral decorations made of silk and other, synthetic, materials compete more directly with preserved flowers.

Retail marketing of fresh cut flowers has shifted from a large number of small, independent retail florists to florist chains and mass market retailers with garden centers. The entrance of mass merchandisers, or "big box" stores, to the distribution of fresh cut flowers, as well as other garden products, has greatly influenced the change in marketing practices in the industry.

Mass merchandisers are typically discount clubs, home improvement chains, and supermarkets. These stores are typically strategically located, aggressively advertised, and have high customer traffic. Under the influence of mass merchandisers, the marketing of fresh cut flowers has moved from a product and sales orientation to a customer-driven, market-oriented approach. In turn, the concept of strict inventory management and tracking of consumer sales (done through UPC labeling, data captured through point-of-sale registers, and electronic data interchange), perfected by mass merchandisers, has begun to pervade the rest of the retail flower industry; independent retailers and suppliers have begun to adopt these technologies.<sup>34</sup> As mentioned above, a key aspect of the mass merchandisers' typical business model, the notion that low prices move large quantities of merchandise, gives them the ability to exert control over their suppliers. The "big box" stores also need suppliers with

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<sup>32</sup> Flower Promotion Organization fact sheet, ASOCOLFLORES, Association of Colombian Flower Exporters, found at <http://www.asocolflores.org/promo/Art%EDculu%20N%B01.pdf>, retrieved July 3, 2002.

<sup>33</sup> Delilah Onofrey, "Promotion Commotion," *Greenhouse Grower*, Fall 1999.

<sup>34</sup> Stan Pohmer, "Mass Market Acceleration," *Greenhouse Grower*, Fall 1999.

sufficient production capabilities to satisfy their needs. This has contributed to consolidation within the cut flower industry.

## Pricing Practices

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Market prices for cut flowers are sensitive to demand as well as supply conditions.<sup>35</sup> Although there has been some shift from retailer dependence on holiday promotions to year-round sales, prices for cut flowers tend to be high around certain holidays when demand peaks. Supplies are determined by growers' strategic planting and pinching schedules as well as the weather. When peak production does not coincide with peak demand, prices fluctuate. Certain physical characteristics, such as stem length, color, appearance, and freshness, are also important in establishing prices for cut flowers.

The large purchasing power of mass merchandisers, as well as large importers and distributors, is an important factor in the determination of cut flower prices. This, in addition to low-priced imports, has kept fresh cut flower prices low.<sup>36</sup> Smaller importers and U.S. growers have seen their profit margins decrease significantly as a result. Large growers may be able to maintain profits by negotiating volume discounts with their shippers and reducing other costs. Their cost-cutting strategies may include the development of more productive flower varieties by breeders, particularly in the 40- and 50- centimeter lengths destined for the mass markets; increasing volume to reduce costs per stem; and introducing more efficient management practices.<sup>37</sup>

## Research and Development

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Many concepts and technologies still used today in the cut flower industry were developed in the 1950s and 1960s, such as artificial soil mixes, individual plug propagation (made possible by the introduction of plastics), and mechanization in the greenhouse.<sup>38</sup> More recently, the industry has incorporated advances such as the use of sophisticated computers for lighting and heating, better control of diseases, hydroponic (soilless) production, improved transportation, and biotechnology. Advances in molecular biology help cut flower growers understand how plant genes and chemical pathways in plants determine quality characteristics. Breeders can patent this knowledge and recoup research and development costs.

Expenditures on research and development in the cut flower industry are carried out by several organizations. Endowments have long provided private sources of funds for research and educational programs. The American Floral Endowment allocates approximately

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<sup>35</sup> Debbie Hamrick, "Is Floriculture Recession-proof?" *FloraCulture International*, retrieved from [www.floricultureintl.com](http://www.floricultureintl.com) on Oct. 28, 2002.

<sup>36</sup> Nancy Laws, "World Commerce in Cut Flowers and Roses," *FloraCulture International*, retrieved from [www.floricultureintl.com](http://www.floricultureintl.com), on Oct. 31, 2002.

<sup>37</sup> *Ibid.*

<sup>38</sup> Thomas Weiler, "Cutting in on History," *Greenhouse Grower*, Fall 1999.



\$1 million annually for programs in floriculture and environmental horticulture.<sup>39</sup> In 2000, the Floriculture Industry Research and Scholarship Trust (FIRST) awarded more than \$150,000 in scholarships and research grants to improve the production and marketability of flowers and plants.<sup>40</sup> SAF's American Florist Marketing Council also conducts research and marketing promotions on fresh cut flowers.

## U.S. MARKET

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### Consumer Characteristics and Factors Affecting Demand

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In the 1960s, cut flower consumers in the United States had little more to choose from than chrysanthemums, gladioli, roses, and standard carnations. Today, with the elimination of constraints on the ability to ship flowers and available transportation, there is an almost unlimited variety of cut flowers available for purchase in the U.S. market.

Most consumers make floral purchases at either a florist shop or supermarket.<sup>41</sup> These two channels support about three-fourths of all cut flower transactions. In the 1990s, supermarkets and discount chains gained importance as retail outlets for cut flowers, primarily due to price and convenience, as traditional floral shops lost sales.<sup>42</sup> Purchases of preserved floral products generally take place at discount chains and craft/hobby stores. Consumers are increasingly making their fresh cut flower purchases online, and the vast majority of these purchases are floral arrangements. Although Internet sales may represent a relatively small share of total purchases, it is becoming an increasingly popular venue for floral sales.<sup>43</sup>

Fresh cut flower consumption tends to be seasonal and peaks around certain holidays. Sales also depend on consumer optimism and price. Industry research on cut flower buying practices has shown that a "heavy buyer" (repeat customer) of fresh cut flowers tends to be middle-aged, and most likely an "empty-nester" whose children have left home to start their own families. Heavy buyers generally come from affluent households and are most likely to be found in the New England and Mid-Atlantic regions of the Eastern United States, and the Mountain and Pacific regions of the West. More than 50 percent of floral product purchases are for gifts.<sup>44</sup>

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<sup>39</sup> American Floral Endowment website at [www.endowment.org/contributions.htm](http://www.endowment.org/contributions.htm), retrieved Jan. 2003.

<sup>40</sup> "FIRST Cultivating Progress," retrieved at [www.firstinfloriculture.org](http://www.firstinfloriculture.org) on Jan. 2003.

<sup>41</sup> "Customer Targeting," American Floral Endowment, found at <http://www.endowment.org/specialreports/marketing.htm>, retrieved Aug. 23, 2002.

<sup>42</sup> Ibid.

<sup>43</sup> *Flora-Stats Annual Report*, American Floral Endowment, 1999.

<sup>44</sup> Ibid.

## Consumption

In 2001 apparent consumption of cut flowers was estimated to be \$950 million, representing a decline of 6.6 percent from the level in 1997. U.S. production decreased by 10 percent over the period. Exports similarly declined by 19 percent. U.S. imports remained relatively stable throughout the period, rising slightly (by 3 percent) between 1997-1998 and 1999-2000 and ending the period down by 5 percent from the 1997 level (table 2).

**Table 2**  
**Cut flowers: U.S. production, exports of domestic merchandise, imports for consumption, and apparent consumption, 1997-2001**

Year	U.S. production <sup>1</sup>	U.S. exports	U.S. imports	Apparent U.S. consumption	Ratio of imports
					to apparent consumption
	Value (1,000 dollars)				Percent
1997 .....	471,569	48,753	595,045	1,017,861	58.5
1998 .....	411,595	44,553	614,362	981,404	62.6
1999 .....	431,624	41,354	591,593	981,863	60.3
2000 .....	429,963	39,500	611,255	1,001,718	61.0
2001 .....	424,256	39,434	565,471	950,293	59.5

<sup>1</sup> Production of fresh cut flowers. Data for preserved are not available.

Source: Production compiled from official statistics of the U.S. Department of Agriculture; exports and imports compiled from official statistics of the U.S. Department of Commerce.

Strong economic indicators in the United States in the first half of the 1990s, marked by steady growth of GDP, low unemployment, low inflation, increasing wages, and general optimism relating to the stock market, kept cut flower sales steady and prices relatively strong.<sup>45</sup> Since cut flower purchasing is discretionary and tends to be tied to the economy, consumer confidence had a positive influence on cut flower sales.<sup>46</sup> As economic activity slowed starting in 2000, U.S. consumers cut back on their purchases of floral products, especially green plants, cut flowers, and preserved products. Data show that apparent consumption remained steady from 1997-2000 at about \$1 billion, then dropped by about \$50 million in 2001 (table 2).

The ratio of imports to apparent consumption remained relatively steady between 1997 and 2001 ranging from 59 percent to 63 percent. The main sources for imports during the period were Colombia, Ecuador, and the Netherlands. Imported flowers are considered to be of high quality. Prices on high volume imports, especially roses and chrysanthemums, are generally more cost competitive than domestic products due to low wage rates, smaller climate-control investments, and weaker currencies in Colombia and Ecuador, the chief U.S. suppliers.<sup>47</sup>

<sup>45</sup> "Consumer Tracking Study," *Flora-Stats Annual Reports*, 1993-1999. American Floral Endowment, [www.endowment.org/florastats](http://www.endowment.org/florastats), retrieved Sept. 2002.

<sup>46</sup> Debbie Hamrick, "Is Floriculture Recession-proof?" *FloraCulture International*, Apr. 2002

<sup>47</sup> USDA, ERS, *Floriculture and Nursery Crops Situation and Outlook Yearbook*, FLO-2002, May 2002.

## Production

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In the last two decades, production of certain cut flowers for the U.S. market has moved overseas. Sales by U.S. fresh cut flower growers, except in Western States, have fallen to about one-half their 1992 levels, with the prices of imports falling at a much faster rate. Current prices of domestically grown cut flowers are only 2 percent higher than they were in the early 1990s (less than general consumer price inflation) Prices of imports, however, have dropped by 36 percent over the same period. This has left current overall prices of fresh cut flowers in the U.S. market 15 percent below their levels in 1995.<sup>48</sup>

In the face of increasing low-priced import competition, many U.S. growers have shifted production into specialty cut flowers (which generally refers to flowers other than carnations, chrysanthemums, gladioli, or roses), which are not imported in significant volumes, and also into other floriculture crops such as bedding and garden plants, which are not covered in this summary. Some U.S. growers have differentiated their product to some extent by offering services not available from importers, such as quick turnaround times on special orders.

Table 3 shows data on U.S. production, by type, for the last 5 years. During the period, the value of U.S. production of fresh cut flowers overall decreased by nearly 10 percent. Roses had the most dramatic decrease, falling by almost half. Between 2000 and 2001, decreases were recorded for the value of U.S. production of all flower types, including “other cut flowers,” with the exception of lilies and lisianthus.<sup>49</sup>

## U.S. TRADE

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### Overview

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The United States maintains a trade deficit in cut flowers with the vast majority of its trading partners with the exception of Canada. The U.S. trade surplus with Canada increased by 42 percent between 1997 and 2001 (table 4) The overall U.S. deficit narrowed between 1997 and 2001, falling from \$546 million to \$526 million, primarily due to the decrease in value, although not necessarily volume, of imports. The United States is a net importer of flowers because its foreign competition has a competitive advantage in terms of the costs of labor, land and environmental protections.

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<sup>48</sup> USDA, ERS, *Floriculture and Nursery Crops Outlook*, Sept. 2002.

<sup>49</sup> USDA altered its Ornamental Crops data set significantly in 1999 and 2001. In 2001 USDA created a category for all roses and six new product categories that had previously been reported under “other flowers.” No comparative information is available for additional individual flower types for the entire 5-year period.

**Table 3**  
**Fresh cut flowers: U.S. production, by major flower types, 1997-2001**

Flower type	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Roses <sup>1</sup> .....	122,515	102,365	87,003	69,294	67,656
Lilies .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	55,975	57,452
Tulips .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	26,760	26,265
Gladioli .....	34,861	33,138	25,535	28,339	24,183
Iris .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	20,395	20,117
Gerbera daisy .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	20,886	20,045
Snapdragons .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	19,166	17,249
Pompon chrysanthemums .....	16,341	16,828	15,181	17,214	16,578
Delphinium and larkspur .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	10,955	10,807
Lisianthus .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	6,891	10,101
Other cut flowers <sup>3</sup> .....	<u>297,852</u>	<u>259,264</u>	<u>303,905</u>	<u>154,088</u>	<u>153,803</u>
Total .....	<u>471,569</u>	<u>411,595</u>	<u>431,624</u>	<u>429,963</u>	<u>424,256</u>

<sup>1</sup> Data for 1997-1999 were collected for two categories of roses only: hybrid tea and sweetheart; 2000 and 2001 data were collected for "all roses".

<sup>2</sup> Data were not collected separately for this category during 1997-1999; production was included in "other cut flowers."

<sup>3</sup> Data for 1997-1999 are not comparable with 2000-2001; 2000 and 2001 data collection excluded additional individual flower breakouts which had formerly been in this category.

Note.—Data are for production in 36 major producing States and represent only growers with sales of \$100,000 or more.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 4

**Cut flowers: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries, 1997-2001<sup>1</sup>**

	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
<b>U.S. exports of domestic merchandise:</b>					
Colombia .....	159	461	247	205	72
Ecuador .....	4	213	183	0	331
Netherlands .....	5,426	1,061	487	422	217
Mexico .....	9,515	7,145	5,830	4,659	3,113
Canada .....	23,174	24,805	26,252	27,969	29,757
Costa Rica .....	3	20	26	12	7
Israel .....	103	8	58	0	0
Chile .....	36	71	36	4	0
Guatemala .....	29	129	0	6	12
New Zealand .....	3	18	16	6	0
All other .....	10,301	10,620	8,219	6,218	5,924
Total .....	48,753	44,553	41,354	39,500	39,434
<b>U.S. imports for consumption:</b>					
Colombia .....	359,620	360,626	343,127	347,912	302,412
Ecuador .....	83,497	90,119	92,174	89,350	99,745
Netherlands .....	61,774	69,200	61,629	71,628	67,097
Mexico .....	23,649	25,186	27,200	29,633	29,421
Canada .....	14,871	15,554	15,434	17,816	17,953
Costa Rica .....	17,974	18,993	19,378	19,429	14,705
Israel .....	3,832	4,468	4,345	5,818	6,891
Chile .....	1,402	2,321	3,024	2,920	3,396
Guatemala .....	7,998	7,397	5,621	5,506	3,373
New Zealand .....	1,668	2,078	2,261	2,420	3,165
All other .....	18,760	18,421	17,400	18,824	17,312
Total .....	595,045	614,362	591,593	611,255	565,471
<b>U.S. merchandise trade balance:</b>					
Colombia .....	-359,462	-360,165	-342,881	-347,707	-302,340
Ecuador .....	-83,493	-89,906	-91,991	-89,350	-99,414
Netherlands .....	-56,348	-68,139	-61,142	-71,206	-66,879
Mexico .....	-14,134	-18,042	-21,370	-24,974	-26,308
Canada .....	8,302	9,252	10,818	10,154	11,804
Costa Rica .....	-17,971	-18,972	-19,353	-19,417	-14,698
Israel .....	-3,729	-4,459	-4,287	-5,818	-6,891
Chile .....	-1,366	-2,249	-2,988	-2,916	-3,396
Guatemala .....	-7,969	-7,268	-5,621	-5,500	-3,361
New Zealand .....	-1,665	-2,060	-2,245	-2,414	-3,165
All other .....	-8,459	-7,801	-9,181	-12,606	-11,388
Total .....	-546,293	-569,809	-550,239	-571,754	-526,037

<sup>1</sup> Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

Source: Compiled from official statistics of the U.S. Department of Commerce.

## U.S. Imports

Virtually no fresh cut flowers were imported into the United States prior to 1960. At that time, it was difficult to transport perishable products such as flowers over long distances and large-scale production of cut flowers largely was limited to the United States and Europe. In the mid-1960s researchers at Colorado State University identified Bogota, Colombia, as the ideal place in the Western Hemisphere to cultivate standard carnations due to excellent year-round growing conditions, favorable wage rates, and relatively low investment costs. At about the same time, first generation jet aircraft such as the Boeing 727 were becoming too inefficient for use in passenger travel and their freight rates were reduced for use as cargo

planes. These factors, along with the cooperation of the local government in Bogota, led to the development of the export-oriented cut flower industry in Colombia.<sup>50</sup> Similarly, governments in Africa, Asia, and other Latin American countries have encouraged flower industries in their countries as a mechanism to employ large numbers of semiskilled workers and to attract U.S. dollars to their economies.<sup>51</sup> By the early 1980s, offshore cut flower production began to overtake U.S. domestic production, particularly of chrysanthemums, carnations, and roses. Greater supplies of cut flowers at ever lower prices also had the effect of increasing the overall demand for cut flowers in the U.S. market.

### ***Import Levels and Principal Suppliers***

As shown in table 5, imports of fresh cut flowers decreased irregularly between 1997 and 2001, but stayed in the range of \$550-\$600 million (table 5). Although import value fell between 2000 and 2001, the volume of fresh cut flower imports actually increased, albeit at reduced prices, due to high levels of global production.<sup>52</sup> The U.S. economy was generally sluggish in 2001, causing the sales value of fresh cut flowers in the United States to stagnate, reflecting demand sensitivity to increased unemployment and weak economic activity.<sup>53</sup>

**Table 5**  
**Fresh cut flowers: U.S. imports for consumption, by principal sources, 1997-2001**

Source	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Colombia .....	359,584	360,576	342,755	347,749	302,321
Ecuador .....	83,378	89,967	91,900	89,216	99,554
Netherlands .....	58,762	66,327	59,495	70,503	66,633
Mexico .....	16,479	17,901	18,437	21,618	21,056
Canada .....	14,156	14,928	14,935	16,949	17,549
Costa Rica .....	17,963	18,946	19,284	19,392	14,695
Israel .....	2,329	3,081	3,040	4,730	6,088
Chile .....	1,402	2,247	3,003	2,881	3,396
Guatemala .....	7,951	7,316	5,576	5,458	3,320
New Zealand .....	1,633	2,056	2,243	2,420	3,165
All other .....	15,575	15,558	13,547	14,614	13,405
Total .....	579,212	598,903	574,215	595,530	551,182

Note.— Because of rounding, figures may not add to the totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

<sup>50</sup> Win Winogrand, "Cut Flowers on the Move," *Greenhouse Grower*, Fall 1999.

<sup>51</sup> "The Changing Floriculture Industry," Society of American Florists, June 2001.

<sup>52</sup> USDA, *Ornamental Crops Report, Fruit and Vegetable Market News*, Jan. 2002. USDA data on floral import volumes are not comparable to data compiled by the U.S. Department of Commerce. USDA Ornamental Crops data show a 12.5 percent increase in floral import volume from 2000 to 2001 (3.78 billion stems in 2001 up from 3.36 billion in 2000).

<sup>53</sup> USDA, ERS, Market and Trade Economics Division, *Floriculture and Nursery Crops Situation and Outlook Yearbook*, FLO-2002, May 2002.

The main sources for imports during the period were Colombia, Ecuador, and the Netherlands. Imports from Colombia are valued at over three times those of the next largest importing country, Ecuador. The value of imports from Colombia decreased significantly between 1997-2001, by 16 percent, while imports from Ecuador rose by 19 percent, with the most significant increase between 2000 and 2001 when Ecuadorian growers began to market roses aggressively in the U.S. market.<sup>54</sup> Imports from the Netherlands increased irregularly, ending the period 13 percent above the level in 1997. U.S. imports of preserved flowers have decreased irregularly since 1997, falling by 10 percent during the period (table 6). The major supplier to the U.S. market is Mexico, accounting for more than one-half of the value of imports. China has also become an increasingly important supplier of preserved flowers.

**Table 6**  
**Preserved flowers: U.S. imports for consumption, by principal sources, 1997-2001**

Source	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Mexico .....	7,170	7,286	8,763	8,015	8,365
China .....	355	677	1,695	1,411	1,348
Sri Lanka .....	87	0	3	649	845
Israel .....	1,503	1,386	1,305	1,088	804
India .....	1,124	815	635	670	799
Netherlands .....	3,013	2,873	2,134	1,125	463
Canada .....	716	626	499	867	404
France .....	277	216	378	441	207
Ecuador .....	118	151	274	134	191
South Africa .....	147	211	180	191	146
All other .....	1,324	1,217	1,511	1,134	718
Total .....	15,833	15,459	17,378	15,724	14,289

Note.—Because of rounding, figures may not add to the totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Fresh cut flowers are a major nontraditional agricultural export product for both Colombia and Ecuador. Ecuador, like Colombia, enjoys year-round production and benefits from abundant water, labor, and quality land. The United States is the principal fresh-cut flower export market for both these Andean countries,<sup>55</sup> accounting for 82 percent of the total value of Colombian cut flower exports (\$580.7 million) and 72 percent of Ecuadorian cut flower exports (\$154.7 million) in 2000.<sup>56</sup>

The most important imported flower, in terms of value, is the rose, accounting for 36 percent of all cut flower imports in 2001 (table 7). Carnations (both standard and miniature) are the second-most- imported flower, followed by pompon chrysanthemums.

<sup>54</sup> Staff interview with Jim Wanko, President, Wholesale Florist and Florist Supplier Association, June 25, 2002.

<sup>55</sup> As beneficiaries of the Andean Trade Preferences Act, these countries' imports of cut flowers are entitled to preferential rates of duty. See "U.S. Trade Measures" below.

<sup>56</sup> United Nations Statistical Office, Comtrade Data Base System.

**Table 7**  
**Cut flowers: U.S. imports for consumption, by major types, 1997-2001**

Flower type	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Pompon chrysanthemums .....	66,732	73,023	67,298	61,940	50,622
Standard carnations .....	79,504	74,559	70,597	57,111	44,810
Miniature carnations .....	37,751	38,740	41,058	34,153	26,526
Alstroemeria .....	( <sup>1</sup> )	( <sup>1</sup> )	26,738	19,367	23,645
Gypsophila .....	( <sup>1</sup> )	( <sup>1</sup> )	22,206	21,037	21,867
Preserved flowers .....	15,833	15,459	17,378	15,724	14,289
Spray roses .....	( <sup>1</sup> )	( <sup>1</sup> )	4,027	5,406	5,798
Sweetheart roses .....	1,375	1,565	1,933	1,309	942
Other roses <sup>2</sup> .....	205,220	215,951	194,886	206,286	198,955
Other fresh cut flowers .....	188,632	195,064	145,471	188,920	178,016
Total .....	595,045	614,362	591,593	611,255	565,471

<sup>1</sup> Category not broken out prior to 1999.

<sup>2</sup> 1997 and 1998 data includes spray roses; 1999-2001 data do not include spray roses.

Source: Compiled from official statistics of the U.S. Department of Commerce.

### *Logistics*

Flowers imported from overseas remain fresh by employing a “cold-chain” of distribution, meaning the product is shipped in an unbroken refrigerated chain from grower to importer to floral wholesaler to retailer, providing the flowers with controlled temperature, humidity, and atmospheric conditions. Flowers generally arrive by air from overseas producers and are unloaded from airline cargo holds to refrigerated cooling facilities on the airport premises. Once inspected by USDA and released by U.S. Customs, they travel to importers’ facilities where they are re-cooled. Cold air is drawn through the shipping cartons to remove warm air that accumulates inside due to the flowers own respiration and outside temperature changes. The temperature of the flowers is brought down to hibernation level ranging from 32 to 38 degrees Fahrenheit. The flowers are then sorted and loaded onto refrigerated trucks or air carriers for transport to final destinations.

## **U.S. Trade Measures**

### *Tariff Measures*

Table 8 shows the column 1 rates of duty, as of January 1, 2002, for the articles included in this summary (including both general and special rates of duty) and U.S. exports and imports for 2001. An explanation of tariff and trade agreement terms is shown in appendix A. The aggregate trade-weighted average rate of duty for all products covered in this summary, based on 2001 imports and 2001 duty rates, was 1.1 percent ad valorem; the average trade-weighted rate of duty for the dutiable products was 6.3 percent.



**Table 8**

**Cut flowers: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 2002; U.S. exports, 2001; and U.S. imports, 2001**

HTS subheadings	Description	Col. 1 rate of duty as of Jan. 1, 2002		U.S. exports, 2001	U.S. imports, 2001
		General	Special <sup>1</sup>		
				————— 1,000 dollars —————	
Cut flowers and flower buds of a kind suitable for bouquets or for ornamental purposes, fresh, dried, dyed, bleached, impregnated or otherwise prepared:					
Fresh:					
0603.10.30	Miniature (spray) carnations . . . . .	3.2%	Free (A,CA,E,IL,J,JO,MX)	31,274 <sup>2</sup>	26,526
0603.10.60	Roses . . . . .	6.8%	Free (CA,D,E,IL,J,JO,MX)	( <sup>2</sup> )	205,695
0603.10.70	Chrysanthemums, standard carnations, anthuriums and orchids . . . . .	6.4%	Free (A*,CA,E,IL,J,JO,MX)	( <sup>2</sup> )	110,056
0603.10.80	Other . . . . .	6.4%	Free (A,CA,E,IL,J,JO,MX)	( <sup>2</sup> )	208,905
0603.90.00	Other . . . . .	4%	Free (A,CA,E,IL,J,JO,MX)	8,160	14,289

<sup>1</sup> Programs under which special tariff treatment may be provided, and the corresponding symbols for such programs as they are indicated in the "Special" subcolumn, are as follows: Generalized System of Preferences (A); Generalized System of Preferences with the exception of Colombia (A\*); North American Free Trade Act (goods of Canada) (CA); African Growth and Opportunity Act (D); Caribbean Basin Economic Recovery Act (E); United States-Israel Free Trade Act (IL); the Andean Trade Preferences Act (J); United States-Jordan Free Trade Area Implementation Act (JO); North American Free Trade Agreement (goods of Mexico) (MX).

<sup>2</sup> Separate export data are not available on an 8-digit level; data reflect all exports of the 6-digit subheading 060310.

Almost 85 percent of total U.S. imports of cut flowers in 2001 entered duty-free under preferential trade programs. More than three-quarters of those imports entered under the Andean Trade Preferences Act (ATPA) that benefits Bolivia, Colombia, Ecuador, and Peru.<sup>57</sup> Imports from Colombia and Ecuador accounted for the vast majority of imports under that program.<sup>58</sup> The second-most-important program with regards to cut flowers is NAFTA; imports from Canada and Mexico combined accounted for almost 10 percent of duty-free cut flower imports in 2001. Small amounts of cut flowers enter under Caribbean Basin Economic Recovery Act (CBERA) (mostly from Costa Rica) and the Generalized System of Preferences (GSP) (mostly from Chile). Israel is a significant world supplier of cut flowers and shipped \$6.8 million to the United States in 2001 duty-free under the U.S.-Israel Free Trade Area. Duty-free imports of roses under the African Growth and Opportunity Act (AGOA)<sup>59</sup> program are currently low; however, Kenya is now the leading supplier of roses to Europe and began to ship to the U.S. market under AGOA for the first time in 2001.

### *Nontariff Measures*

Phytosanitary regulations are the only nontariff measure that affects trade in cut flowers. All imported fresh cut flowers are subject to quarantine inspection by the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture to prevent the spread of injurious plant pests. Most cut flowers do not require a permit, although a certificate of inspection from the country of origin is required for some species.<sup>60</sup> Generally inspectors require that one box of each variety from each grower within a shipment be opened. The inspectors remove the flowers and examine them for any restricted plant pests. Cut flowers found to have any injurious pests are subject to seizure and must be destroyed if they cannot be effectively treated. Such plant material may also be re-exported.

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<sup>57</sup> ATPA was signed into law in December 1991, and renewed in 2002, eliminating or reducing U.S. tariffs on eligible products, including cut flowers, from four Andean countries for the purpose of promoting broad-based economic development in those countries and to develop viable economic alternatives to coca cultivation and cocaine production by offering enhanced access to the U.S. market for Andean products.

<sup>58</sup> Both Colombia and Ecuador are GSP beneficiary countries, however, roses are not included in the GSP program and chrysanthemums are not duty-free under the GSP for Colombia due to the competitive-need-limit requirement. For duty-free treatment, Colombian exporters can ship both roses and chrysanthemums under ATPA only, while Ecuadorian exporters can ship roses under ATPA and chrysanthemums under the ATPA or GSP programs.

<sup>59</sup> The AGOA was signed into law in May 2000, to increase the level of trade and investment between Sub-Saharan Africa and the United States.

<sup>60</sup> One of the most serious diseases that can be introduced on imported flowers is Chrysanthemum white rust. For this reason, chrysanthemums from Mexico and the Netherlands must be accompanied by a phytosanitary certificate and chrysanthemums from Venezuela are prohibited in the United States.

## U.S. Government Trade-Related Investigations

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Fresh cut flowers, mainly from South America, were the subject of a number of antidumping and countervailing duty investigations during the 1980s and early 1990s. However, the relationship between U.S. and Colombian cut flower producers underwent a significant change in the late 1990s. In 1999, long-standing antidumping duty orders on fresh-cut flowers from Colombia and Ecuador, and a countervailing duty order on pompon chrysanthemums from Peru were revoked as a result of the withdrawal of participation in the proceedings by U.S. domestic interested parties.<sup>61</sup> That same year, U.S. and Colombian cut flower growers and importers reached an arrangement to increase sales of all cut flowers in the United States through the Flower Promotion Organization.

## U.S. Exports

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### *Principal Markets and Export Levels*

The United States exports cut flowers mainly to Canada, Mexico, the EU, and Japan. U.S. exports of fresh cut flowers fell 5 percent between 1997 and 2001; small but steady increases in exports to Canada offset drops to the Netherlands and Germany during that time (table 9). Exports of preserved flowers showed a steady decline, decreasing 49 percent between 1997 and 2001 (table 10). This was mainly due to the drop in exports of preserved flowers to the principal export market, Mexico. U.S. exports of cut flowers represent a small portion of total U.S. production value as they face intense price competition from low-cost suppliers to the world market.

**Table 9**  
**Fresh cut flowers: U.S. exports of domestic merchandise, by principal markets, 1997-2001**

Market	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Canada .....	19,520	21,803	23,653	25,172	27,193
Japan .....	3,072	2,693	2,680	2,607	2,740
Ecuador .....	4	209	180	0	331
Russia .....	136	327	0	0	197
United Kingdom .....	69	130	280	506	177
Netherlands .....	5,118	534	321	141	132
Bahamas .....	12	33	48	48	121
Germany .....	3,806	3,435	1,757	238	120
All other .....	1,043	1,548	1,048	572	264
Total .....	32,780	30,713	29,966	29,285	31,274

Source: Compiled from official statistics of the U.S. Department of Commerce.

<sup>61</sup> 64 FR 28975, May 28, 1999 and 64 FR 48346 and 48347, Sept. 3, 1999.

**Table 10**  
**Preserved flowers: U.S. exports of domestic merchandise, by principal markets, 1997-2001**

Market	1997	1998	1999	2000	2001
	Value (1,000 dollars)				
Mexico .....	9,397	6,946	5,656	4,651	3,098
Canada .....	3,654	3,002	2,599	2,797	2,564
United Kingdom .....	369	442	628	272	554
Japan .....	619	604	458	490	413
France .....	20	48	124	0	287
Germany .....	260	211	217	192	244
Hong Kong .....	119	67	160	61	199
Italy .....	132	260	237	104	175
All others .....	1,403	2,261	1,308	1,648	626
Total .....	15,973	13,840	11,387	10,216	8,160

Source: Compiled from official statistics of the U.S. Department of Commerce.

### *Foreign Trade Tariff and Nontariff Measures*

The world's largest importers of cut flowers are the United States, the EU (mainly Germany, the United Kingdom, the Netherlands, and France), and Japan.<sup>62</sup> The EU imposes a tariff of 8.5 percent or 12 percent ad valorem on fresh cut flower imports and 10 percent on imports of preserved flowers.<sup>63</sup> Recent changes to phytosanitary regulations for cut flower and plant imports into the EU require certificates to accompany all cut flowers declaring the products free from the relevant quarantine organisms.<sup>64</sup> Imports of all types of cut flowers into Japan are duty free for all countries; however, cut flowers are subject to plant quarantine regulations. U.S. exports of fresh and preserved cut flowers enter Canada duty free under NAFTA. U.S. exporters normally supply over 90 percent of the Canadian import market for roses.<sup>65</sup> U.S. exports captured 13 percent of the Canadian cut flower market for imports in 2001, following Colombia and Ecuador.<sup>66</sup> U.S. exports of cut flowers to Canada do not require an import permit or a phytosanitary certificate.

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<sup>62</sup> United Nations Statistical Office, Comtrade Data Base System.

<sup>63</sup> Imports of fresh cut flowers enter the EU with a 12-percent duty from June through October; they are charged an 8.5-percent duty during the rest of the year. Cut flowers from African, Caribbean, and Pacific countries receive duty-free treatment into the EU under the Cotonou agreement.

<sup>64</sup> EU Directive 2000/29/EC had previously required disease-free certification only for cut dianthus, chrysanthemum, and orchid imports. Several amendments to that directive, which will take effect in Apr. 2003, expand the requirement to cover all types of cut flowers.

<sup>65</sup> USDA/FAS, *Canadian Market Brief: Flowers, Plants, Nursery Products*, Apr. 1998.

<sup>66</sup> Global Trade Atlas database for Canada.

# FOREIGN INDUSTRY PROFILE

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## Global Trade and Market Conditions

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Although data are not available for world production, the major cut flower producing countries are believed to be the Netherlands, Colombia, and the United States. The main exporting countries are the Netherlands, Colombia, Ecuador, and Israel. Data on world imports of cut flowers indicate the magnitude of the world market, which reached \$3.7 billion in 2000. A country's cut flower consumption growth tends to depend on its economic development. The data bears this out, revealing that the world's most wealthy countries consume the most cut flowers. Per capita consumption of cut flowers is highest in Europe, the United States, and Japan. Germany is the largest importer worldwide, receiving about 20 percent of world trade in 2000. The United States imports just slightly less than Germany. The Netherlands is also a large importer, due to the presence of large flower auctions, but it re-exports most of its imports to other countries within the EU.<sup>67</sup> The United Kingdom and Japan are also significant importers. Roses and carnations are the most traded flower types throughout the world.

Prior to the 1970s, the vast majority of world cut flower consumption was supplied by local production. At that time, any international trade in cut flowers was primarily limited to cross border trade. The expanded use of commercial jet aircraft, the establishment of frequent and reliable transoceanic airline service, and the development of sophisticated receiving, handling, and shipping facilities in many countries has allowed for a world market in fresh cut flowers.

Today, the importance of domestic production is generally declining while global imports are increasing. In the 1970s and 1980s, demand for some cut flowers exceeded supply in the world market. At that time, countries in Latin America and Africa ramped up production and created efficient export operations. In the 1990s, worldwide production continued to rise while demand in key markets stabilized or increased only marginally, making trading extremely competitive in most markets. With world production of cut flowers, particularly roses, outpacing demand, average prices fell. Data show that world imports of cut flowers decreased in value by 5 percent between 1997 and 2000 (the most recent year for which data is available), yet at the same time traded volumes increased.<sup>68</sup>

### *Netherlands*

Cut flower production in the Netherlands was valued at \$1.8 billion in 2000.<sup>69</sup> Production took place on 8,000 hectares mainly in the Westland region of western Netherlands.<sup>70</sup> More

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<sup>67</sup> More than two-thirds of the international trade in flowers takes place within Europe.

<sup>68</sup> United Nations Statistical Office, Comtrade Data Base System and Laws, Nancy, "World commerce in cut flowers and roses," FloraCulture International, Oct. 31, 2002.

<sup>69</sup> Association of Dutch Flower Auctions (*Vereniging van Bloemenveilingen in Nederland*).

<sup>70</sup> K.V. Peter, "Cut flower market to touch \$35 billion," *Asia Intelligence Wire*, Sept. 3, 1999.

than 60 percent of production takes place in greenhouses.<sup>71</sup> Increased competition from low-priced imports has led to consolidation within the industry, resulting in larger farms which can take advantage of economies of scale to increase productivity. The cultivation of flowers and plants accounts for only about 4 percent of horticultural land use in the Netherlands, but it generates about one-half of its production value.<sup>72</sup> The main flower crops are roses, tulips, chrysanthemums, freesias, and gerberas. Dutch producers benefit from fertile soils and a cool and temperate climate, as well as an abundant supply of natural gas to heat their greenhouses.<sup>73</sup>

The Dutch have been growing flowers and plants commercially since the early 1800s. Most growers do not sell their products directly to end users, but are affiliated with the Dutch flower auction system. This system, in place since the early 1900s, serves as a type of growers' co-operative. Once a member of the auction, a grower is obligated to sell all his production there. More than 90 percent of Dutch production, as well as many imports, is sold through the auction system. Today about 15 percent of flowers at the Dutch auctions consist of imports, mostly from Kenya, Colombia, and Israel.<sup>74</sup> Electronic auction sales are becoming increasingly important. Regardless of the form the auction sales take, the auction system is where prices are determined and where the distribution of flowers to both domestic and export markets is organized.

The Netherlands is by far the largest exporter of cut flowers in the world. Dutch exports reached \$2.1 billion in 2000, the vast majority of which went to neighboring countries within the European Union, especially Germany, the United Kingdom, and France.<sup>75</sup> Almost 75 percent of all Dutch production is exported.<sup>76</sup> The Dutch accounted for 58 percent of the international cut flower market and 85 percent of the market in the European Union in 2000.<sup>77</sup> Although the Netherlands has more expensive raw materials and labor costs and a less favorable climate for most of the year relative to developing country producers, the Dutch industry is able to remain competitive due to its high productivity, efficiency, and innovation.<sup>78</sup> The Netherlands' success in floriculture can also be attributed to the use of capital intensive technical applications, high quality propagation material, and a highly trained workforce.<sup>79</sup>

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<sup>71</sup> Ibid.

<sup>72</sup> Dutch Product Board for Horticulture, "Dutch Horticulture in Facts and Figures, 2000."

<sup>73</sup> Peter J. Batt, "Strategic Lessons to Emerge from an Analysis of Selected Flower Export Nations," *Journal of International Food and Agribusiness Marketing*, Vol. 11, Nov. 3, 2000.

<sup>74</sup> Ibid.

<sup>75</sup> This figure includes Dutch exports of imported product.

<sup>76</sup> Dutch Ministry of Agriculture, Nature Management and Fisheries, "The Dutch Floriculture Sector," Oct. 2000.

<sup>77</sup> Dutch Product Board for Horticulture, "Dutch Horticulture in Facts and Figures, 2000."

<sup>78</sup> Joanne McIntyre, "Vast European market set to dominate world trade," *Flowertech*, Vol. 2, No. 4, 1999.

<sup>79</sup> Peter J. Batt, "Strategic Lessons to Emerge from an Analysis of Selected Flower Export Nations," *Journal of International Food and Agribusiness Marketing*, Vol. 11, No. 3, 2000.

## ***Colombia***

Colombia's fresh cut flower production was valued at approximately \$642 million in 2001.<sup>80</sup> Fresh cut flowers were produced on 5,630 hectares in 2001 on more than 500 farms. Most of Colombia's fresh cut flower production is located around Bogota, with small production areas in the Rionegro and Antioquia regions around Medellin and Cali. Roses, standard and miniature carnations, and chrysanthemums account for almost 80 percent of Colombian production and exports. Colombia has ideal growing conditions for cut flowers, abundant labor and land, and high light levels, giving it a production cost advantage over U.S. producers. Relatively low investment costs and a cooperative local government have contributed to the flourishing of Colombia's cut flower industry.

Colombia was the second largest exporter in the world in 2001 and exported about 95 percent of its cut flower production, primarily to the United States and the EU. The Colombian cut flower industry was developed in the late 1960s specifically as an export business, replacing traditional small-scale agricultural production. In 2001, Colombian producers exported more than \$610 million worth of flowers. The United States was the destination for about 80 percent of Colombian exports during the period 1997-2001. The EU was the destination for about 12 percent of Colombia's exports. Flowers destined for the United States are transported in 35,000 boxes on 20 daily flights into Miami International Airport. The industry employs approximately 79,000 people directly involved in production and another 75,000 indirectly in shipping, packaging, and other services. The largest cost component of production is labor, representing 30 percent of the cost of the final product. Cut flowers accounted for 5 percent of the value of total Colombian exports and contributed 3 percent to the Colombian gross domestic product in 2001.<sup>81</sup>

## ***Ecuador***

Ecuador's fresh cut flower production was valued at approximately \$280 million in 2001.<sup>82</sup> In 1998 (the last year for which data are available), fresh cut flowers were produced on 2,700 hectares on 264 farms with 50,000 people involved in direct production operations.<sup>83</sup> Ecuador has ideal weather conditions for flower growing due to its situation on the equator and 12 hours of sunlight year-round. Roses accounted for over one-half of Ecuador's cut flower production.

Exports of fresh cut flowers in 2001 reached \$250 million.<sup>84</sup> Traditionally over 90 percent of the country's total cut flower production is exported, mostly to the United States but also to the Netherlands and Russia. In recent years, Ecuadorian producers have lost important markets in Eastern Europe and have increased exports to the United States. Although

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<sup>80</sup> Based on the fact that 95 percent of Colombian production is exported. Association of Colombian Flower Growers (ASCOLFLORES). Presentation to the 53<sup>rd</sup> Congress of International Association of Horticultural Producers, Bogota, Colombia, Oct. 2001.

<sup>81</sup> Association of Colombian Flower Growers (ASCOLFLORES).

<sup>82</sup> Based on the fact that 90 percent of Ecuadorian production is exported. USDA, U.S. Foreign Agricultural Services, "World Horticultural Trade and U.S. Export Opportunities," Oct. 1996.

<sup>83</sup> EXPOFLORES, Ecuadorian Flower Growers and Exporters Association, "La Flor de Ecuador," Mar. 1999.

<sup>84</sup> "Ecuador assails cuts in U.S. aid," *Los Angeles Times*, June 26, 2002.

Colombia dominates the U.S. market for imports, Ecuadorian producers have recently made significant investments in production facilities, specifically newer plantings of rose bushes, and are therefore able to offer different varieties than their competition<sup>85</sup>Ecuadorian exporters ramped up exports to the U.S. market in 2001. Ecuador has a slight disadvantage relative to Colombia in terms of freight rates; however, Ecuador benefits from lower labor costs relative to Colombia.

### ***Israel***

Israeli flower production, which takes place on approximately 2,100 hectares, has been estimated to be worth \$185 million in 2001.<sup>86</sup> As in many cut flower producing countries, the area dedicated to cut flower production has been increasing. However, the number of growers is declining and average property sizes are increasing.<sup>87</sup> The main flower types produced are roses and carnations. Most production (about 70 percent) takes place under protective polyvinyl structures to counteract high daytime temperatures, humidity, and low overnight temperatures. Specialized drip irrigation was developed in Israel in the 1950s as a way to deal with the water shortage that affects all sectors of Israeli agriculture.<sup>88</sup> Technical efficiencies, low labor-wage costs, and temperatures generally favorable for plant growth sustain the Israeli floriculture sector.

In 2001, Israel was the fourth-largest exporter of cut flowers in the world, with exports valued at \$130 million. The EU is the principal destination for Israeli cut flowers and, in 2001, Israeli imports accounted for 16 percent of the import market for cut flowers in the EU. Israel faces increased competition in supplying Europe with flowers as African countries develop more efficient export operations.

### ***Eastern and Southern Africa: Kenya, South Africa, Zimbabwe***

In Eastern and Southern Africa approximately 1,400 growers cultivated 5,500 hectares of flowers and exported approximately 80,000 tons of cut flowers in 2001.<sup>89</sup> In the late 1990s, the floriculture sector grew at an average rate of 10 to 15 percent per year.<sup>90</sup> This development has come as a result of improved logistics, flower quality, and postharvest handling conditions. In addition, several of the key producing countries have been successful in meeting internationally recognized standards of practice regarding safety, wage rates, environmental awareness, and water management.<sup>91</sup> Africa benefits from competitive

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<sup>85</sup> A rose bush may be commercially productive for 6-8 years. Many Colombian growers are working off of existing bushes and offering the same varieties as in previous years.

<sup>86</sup> Communication with Tal Darcherits, Flower Board Israel.

<sup>87</sup> Peter J. Batt, "Strategic Lessons to Emerge from an Analysis of Selected Flower Export Nations," *Journal of International Food and Agribusiness Marketing*, Vol. 11, No. 3, 2000.

<sup>88</sup> In drip irrigation, water is applied directly to the root of the plant using 1/16 of the water of traditional irrigation methods.

<sup>89</sup> Marie-Francoise Petitjean, "Booming floriculture in Africa," *Floriculture International*, June 2002.

<sup>90</sup> Ibid.

<sup>91</sup> "Rosey future for Kenya flowers," *African Business*, Mar. 2002.



production costs and in some cases productivity comparable to other key suppliers to the EU market such as Israel and Latin American countries.<sup>92</sup>

Although the majority of African producing countries are highly dependent on roses, producers in several countries have conducted strategic analyses to diversify production into other flower types and into other types of products, such as ready-made bouquets. However, for the majority of the countries in Africa, it remains a challenge to attract medium and long-term investment funds for the expansion of existing small-scale flower projects.

African growers produce mainly for the European market. Flowers from African, Caribbean, and Pacific countries receive duty-free treatment into the EU under the Cotonou agreement. A proposal has been made to limit duty-free access for flowers to least developed countries when the agreement comes up for renewal in 2007. Under these provisions, Kenya and Zimbabwe, not considered least developed for purposes of the agreement, would have a competitive disadvantage vis-a-vis other African cut flower producers such as Uganda, Tanzania, and Zambia in exporting to the EU.

Kenya, the largest cut flower grower in Africa, produced 41,400 metric tons of fresh cut flowers for export in 2001. Although Kenya has the most diversified production of the African producers, about two-thirds of its exports are roses. Carnations are the second-most-popular flower export. Cut flower production is Kenya's fastest growing sector of the economy and ranks second after tea. Production increased by 22 percent between 1999 and 2000.

Kenyan exports of cut flowers were valued at \$91 million in 2000.<sup>93</sup> Improved air-freight capacity and the construction of a modern cargo facility near the Nairobi airport facilitate quick shipment of the vast majority of exports to the EU. Most Kenyan flowers are sold through the Dutch flower auctions, but 15 percent is sold directly to British supermarkets.<sup>94</sup> In 1999, Kenya surpassed Israel to become the largest import supplier of cut flowers to the Dutch auction, and by 2000 captured 28 percent of the EU import market.<sup>95</sup> The high growth in the industry in recent years can be attributed to private sector initiatives, minimal government interference, and liberalization of the economy.<sup>96</sup>

Zimbabwe is the second-most-important African supplier to the EU, and the third-largest overall supplier behind Kenya and Israel in 2000. Farmers traditionally growing maize and tobacco farmers diversified their operations by cultivating 1 to 2 hectares of flowers on their farms. By 2000, 1,150 hectares were devoted to cut flower production with 20,000 tons of exports shipped almost exclusively to the Netherlands and Germany. Roses account for 70 percent of the country's production. Political instability and governmental mismanagement may lower productivity and export potential of the sector. In 2002,

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<sup>92</sup> Marie-Francoise Petitjean, "Booming floriculture in Africa," *Floriculture International*, June 2002, p. 20.

<sup>93</sup> USDA, Foreign Agricultural Service, GAIN Report, "Kenyan Horticultural Situation, 2002." June 20, 2002.

<sup>94</sup> Marie-Francoise Petitjean, "Booming floriculture in Africa," *Floriculture International*, June 2002, p. 17.

<sup>95</sup> *Ibid*, p. 20.

<sup>96</sup> USDA, Foreign Agricultural Service, GAIN Report, "Kenyan Horticultural Situation, 2002." June 20, 2002.

President Mugabe's government began expropriating farmland, affecting the entire commercial farming sector and making the future of the floriculture industry uncertain.<sup>97</sup>

South Africa has a large number of hectares dedicated to the production of cut flowers that mostly serves the domestic market. The country reported \$11.6 million in exports for 2001, with slightly more than one-half shipped to the EU, and the rest to Asia, Australia, and North America.<sup>98</sup> With an additional 189,000 hectares of land available for cultivation, South Africa has enormous potential for increasing cut flower exports and has begun to address relevant considerations for that endeavor such as technology and training, freight, and quality standards.

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<sup>97</sup> Marie-Francoise Petitjean, "Booming floriculture in Africa," *Floriculture International*, June 2002, p. 17.

<sup>98</sup> United Nations Statistical Office, Comtrade Data Base System.

**APPENDIX A**  
**EXPLANATION OF TARIFFS AND**  
**TRADE AGREEMENT TERMS**

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# TARIFF AND TRADE AGREEMENT TERMS

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In the *Harmonized Tariff Schedule of the United States* (HTS), chapters 1 through 97 cover all goods in trade and incorporate in the tariff nomenclature the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description. Subordinate 8-digit product subdivisions, either enacted by Congress or proclaimed by the President, allow more narrowly applicable duty rates; 10-digit administrative statistical reporting numbers provide data of national interest. Chapters 98 and 99 contain special U.S. classifications and temporary rate provisions, respectively. The HTS replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989.

Duty rates in the *general* subcolumn of HTS column 1 are normal trade relations rates; many general rates have been eliminated or are being reduced due to concessions resulting from the Uruguay Round of Multilateral Trade Negotiations. Column 1-general duty rates apply to all countries except those listed in HTS general note 3(b) (Cuba, Laos, and North Korea) plus Serbia and Montenegro, which are subject to the statutory rates set forth in *column 2*. Specified goods from designated general-rate countries may be eligible for reduced rates of duty or duty-free entry under preferential tariff programs, as set forth in the *special* subcolumn of HTS rate of duty column 1 or in the general notes. If eligibility for special tariff rates is not claimed or established, goods are dutiable at column 1-general rates. The HTS does not list countries covered by a total or partial embargo.

The *Generalized System of Preferences* (GSP) affords nonreciprocal tariff preferences to designated beneficiary developing countries. The U.S. GSP, enacted in title V of the Trade Act of 1974 for 10 years and extended several times thereafter, applies to merchandise imported on or after January 1, 1976, and before the close of September 30, 2001. Indicated by the symbol "A", "A\*", or "A+" in the special subcolumn, GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries (see HTS gen. note 4). Eligible products of listed sub-Saharan African countries may qualify for duty-free entry under the *African Growth and Opportunity Act* (AGOA) (see HTS gen. note 16) through September 30, 2008, as indicated by the symbol "D" in the special subcolumn; see subchapter XIX of chapter 98.

The *Caribbean Basin Economic Recovery Act* (CBERA) affords nonreciprocal tariff preferences to designated developing countries in the Caribbean Basin area. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to goods entered, or withdrawn from warehouse for consumption, on or after January 1, 1984. Indicated by the symbol "E" or "E\*" in the special subcolumn, CBERA provides duty-free entry to eligible articles, and reduced-duty treatment to certain other articles, which are the product of and imported directly from designated countries (see HTS gennote 7). Eligible products of listed beneficiary countries may qualify for duty-free or reduced-duty entry under the *Caribbean Basin Trade Partnership Act* (CBTPA) (see HTS gen. note 17), through September 30, 2008, as indicated by the symbol "R" in the special subcolumn; see subchapter XX of chapter 98.

Free rates of duty in the special subcolumn followed by the symbol "IL" are applicable to products of Israel under the *United States-Israel Free Trade Area Implementation Act* of 1985 (IFTA), as provided in general note 8 to the HTS; see also subchapter VIII of chapter 99.

Preferential nonreciprocal duty-free or reduced-duty treatment in the special subcolumn followed by the symbol "J" or "J\*" in parentheses is afforded to eligible articles from designated beneficiary countries under the *Andean Trade Preference Act* (ATPA), enacted as title II of Public Law 102-182 and implemented by Presidential Proclamation 6455 of July 2, 1992 (effective July 22, 1992–Dec. 4, 2001) (see HTS gen. note 11).

Preferential free rates of duty in the special subcolumn followed by the symbol "CA" are applicable to eligible goods of Canada, and rates followed by the symbol "MX" are applicable to eligible goods of Mexico, under the *North American Free Trade Agreement* (NAFTA), as provided in general note 12 to the HTS and implemented effective January 1, 1994, by Presidential Proclamation 6641 of December 15, 1993. Goods must originate in the NAFTA region under rules set forth in general note 12(t) and meet other requirements of the note and applicable regulations.

Preferential rates of duty in the special subcolumn followed by the symbol "JO" are applicable to eligible goods of Jordan under the *United States-Jordan Free Trade Area Implementation Act*, (JFTA) effective as of Dec. 17, 2001; see HTS gen. note 18 and subchapter IX of chapter 99.

Other special tariff treatment applies to particular *products of insular possessions* (gen. note 3(a)(iv)), *products of the West Bank and Gaza Strip* (gen. note 3(a)(v)), goods covered by the *Automotive Products Trade Act* (APTA) (gen. note 5) and the *Agreement on Trade in Civil Aircraft* (ATCA) (gen. note 6), *articles imported from freely associated states* (gen. note 10), *pharmaceutical products* (gen. note 13), and *intermediate chemicals for dyes* (gen. note 14).

The *General Agreement on Tariffs and Trade 1994* (GATT 1994), pursuant to the Agreement Establishing the World Trade Organization, is based upon the earlier GATT 1947 (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) as the primary multilateral system of disciplines and principles governing international trade. Signatories' obligations under both the 1994 and 1947 agreements focus upon most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national treatment for imported products; the GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, antidumping and countervailing duties, dispute settlement, and other measures. The results of the Uruguay Round of multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participating contracting party, with the U.S. schedule designated as Schedule XX. Pursuant to the *Agreement on Textiles and Clothing* (ATC) of the GATT 1994, member countries are phasing out restrictions on imports under the prior "Arrangement Regarding International Trade in Textiles" (known as the **Multifiber Arrangement** (MFA)). Under the MFA, which was a departure from GATT 1947 provisions, importing and exporting countries negotiated bilateral agreements limiting textile and apparel shipments, and importing countries could take unilateral action in the absence or violation of an agreement. Quantitative limits had been established on imported textiles and apparel of cotton, other vegetable fibers, wool, man-made fibers or silk blends in an effort to prevent or limit market disruption in the importing countries. The ATC establishes notification and safeguard procedures, along with other rules concerning the customs treatment of textile and apparel shipments, and calls for the eventual complete integration of this sector into the GATT 1994 over a ten-year period, or by Jan. 1, 2005.