Overview
In 1843 growers in Ohio were the first to ship strawberries using refrigeration, in the form of ice placed on top of the boxes. This development led to increased markets and increased the strawberry’s popularity. There now are about 200 marketers of fresh strawberries nationally. Approximately 90 are in California and 50 are in Florida. In California, there are many more than 200 growers.

Demand
Over the past two decades, strawberries have experienced one of the highest rates of consumption growth of the fruit and vegetable crops. Both fresh and processed (frozen) consumption grew. New information on health benefits of berry consumption, such as the presence of antioxidants, stimulated the consumption of all berries. Expanded domestic supply and increased availability as the industry transitioned from seasonal to year-round production also stimulated consumption. This shift was primarily due to the adoption of the new varieties and new production practices, which enabled the California industry to market from January to November, with production moving seasonally from San Diego northward to the Watsonville-Salinas area. California’s low supply in mid-winter is supplemented by production in Florida.

Per capita consumption of fresh and frozen strawberries peaked in 2000 at 6.3 pounds. It dropped to 5.8 pounds in 2001, but was still 32 percent higher than in 1990. Per capita consumption of frozen strawberries in 2001 was 27 percent of the total, while fresh strawberry consumption in the United States was 73 percent of total consumption. This ratio is relatively unchanged from a decade ago (1990).
Supply
Total harvested acreage of California strawberries increased from 20,400 acres in 1989 to 29,600 acres in 2003 (Figure 1). California accounts for 70 percent of the total harvested acreage of spring strawberries in the United States. Florida is the sole producer of winter strawberries, as well as the second largest overall producer with 14 percent of the total U.S. strawberry acreage in 2003.

In 2003, the volume of strawberries produced in California for the fresh market increased from 657 million lbs in 1989 to 1,364 million lbs and doubled from 210 million lbs to 471 million lbs for the processing market (Figure 2).

In 2003, California produced $1,118.8 million worth of strawberries, accounting for 93 percent of total U.S. spring strawberry production, and up from $372 million in 1989. Total annual U.S. production in 2003 was $1.3 billion, with Florida’s contribution solely of winter strawberries accounting for $153.5 million. Other significant spring production states are North Carolina ($16.7 million) and Oregon ($15.2 million).

While both acreage and production in California have increased, the United States is growing more fruit on fewer acres. In 2003, the 47,600 acres in the United States used for the production of strawberries was 2.5 percent lower than a decade before. In terms of the value, U.S. strawberry production rose from $683.9 million in 1992 to $1.3 billion over the 10-year span, a 78 percent increase. Fresh and processed production volume has increased 50 percent, from 1,310 million lbs in 1992 to 2,082 million lbs in 2002.

Exports
Total Strawberry exports have grown from $51.2 million in 1989 to $210.3 million in 2003 (Figure 3). The leading export destinations in 2003 were Canada, Japan and Mexico. U.S. strawberry exports consist of fresh, frozen and preserved strawberry shipments. The total value of U.S. fresh strawberry exports increased over 380 percent, from $38.3 million 1989 to $187.0 million in 2003 (Table 1). U.S. fresh strawberry exports have increased 136 percent since 1993, the year before NAFTA. The export of frozen strawberries, totaling $14.7 million in 2003, has varied during the last decade and has been decreasing over the past four years. The value of preserved strawberries exported during the NAFTA years increased from $1.3 million in 1989 to $4.6 million in 1993 and $9.3 million in 2001. It decreased to $8.6 million in 2002.

The United States dominated the Canadian import market for fresh strawberries by holding a 97 percent share (Foreign Agricultural Service, USDA). Total fresh strawberry exports to Canada amounted to $140 million in 2003 (Figure 4). Fresh strawberries as the most important export item to Canada rose from approximately $19 million in 1989 to $136.6 million in 2003. The figures show a clear upward trend. After exports increased sharply from $19 million in 1989 to $50 million in 1992, they averaged $53 million over the next six years. Exports rose 24 percent to $71 million in 1999 and another 40 percent to $36.6 million in 2002. Frozen strawberry exports to Canada are less important, but accounted for 10 percent of total strawberry exports to Canada in 2002. Frozen strawberry exports to Canada rose from $0.9 million in 1989 to $10.2 million in 2002 (2003 at time of writing not yet available).

The value of U.S. strawberry exports to Japan has increased slightly. Overall shipments totaled $33.8 million in 2003. Fresh strawberry shipments to Japan totaled $21 million in 2003, up from $14 million in 1989. Similarly frozen strawberry shipments
from the United States to Japan increased slightly from $8.4 million in 1989 to $9.0 million in 2003.

Total strawberry exports to Mexico amounted to $10.3 million in 2003 (Figure 5). Fresh strawberry exports to Mexico increased from $1.7 million in 1993 to $9.9 million in 2003. Under NAFTA exports tripled to $6.2 million in 1994 but fell in 1995 and 1996, probably due to the economic crisis in Mexico. Shipments were slower in 1997 as well but rebounded in 1998 and reached $6.8 million in 1999. Fresh strawberry exports to Mexico peaked at $11.2 million in 2001 and were $2 million less in 2002. Frozen and processed strawberry exports to Mexico were not significant.

**Imports**

Total U.S. imports of strawberries amounted to $125.7 million in 2003, up from $36 million in 1989 (Figure 6). Almost half (48 percent) of imports consisted of frozen strawberry shipments in 2003, while fresh strawberries accounted for 45 percent of all imports.

Mexico is the major U.S. strawberry supplier accounting for 80 percent of U.S. strawberry imports. Frozen strawberry imports from Mexico rose 17 percent during NAFTA, from $17.2 million in 1993 to $42.0 million in 2003. Fresh strawberry imports from Mexico rose from $18 million in 1993 to $55.0 million in 2003. Fresh strawberry imports fell sharply in 1997 due to freezing weather and financial constraints in Mexico (Foreign Agricultural Service, USDA). In 1998, imports from Mexico rebounded to $63.5 million, but have been lower since then. Other countries shipping strawberries to the United States were Chile and China, accounting for 6.6 percent and 3.6 percent of total U.S. strawberry imports in 2003, respectively.

**Tariff rates and policy changes resulting from NAFTA**

The United States charges 0.2 cents per kilogram on imports from June 15 to September 15 for countries with most favorable nation status. The tariff is 1.1 cent per kilogram for imports at any other time of the year. The tariff for frozen strawberries is 11.2 percent. Countries belonging to specific import groups (e.g. GSP, NAFTA, ATPA) are allowed to import without paying the tariff.

Most U.S. strawberry trade takes place in North America and has been influenced by tariff changes under NAFTA. U.S. exports to Canada faced a tariff of 6.61 cents per kilogram on fresh and frozen strawberries before the Canadian-U.S. Free Trade Agreement (CUSTA). Beginning in 1989, those tariffs were reduced over 10 years and reached zero in 1998.

U.S. fresh strawberry exports to Mexico are no longer subject to tariffs. Prior to NAFTA, Mexico charged a tariff of 20 percent on strawberries, but the tariff was eliminated in 1994 when NAFTA was implemented. The tariff for frozen strawberries, which had amounted to 20 percent, was phased out in 2003 after a 10-year reduction period. Mexico’s tariffs on preserved strawberries were eliminated in 1994.

Before 1989, the U.S. tariff on fresh strawberry imports was 0.4 cents per kilogram for the summer period (June 15 to September 15) and 1.7 cents per kilogram for the rest of the year. These tariffs were eliminated in 1994 under NAFTA. The tariff for imports of frozen strawberries was 14 percent and was incrementally reduced until it was
phased out in 2003. All U.S. tariffs for imports from Canada were phased out over 10 years.

**Prices**
The domestic retail price of fresh strawberries has been increasing over the last 20 years, from around $0.7 per pound in 1980 to almost $2 per pound in 2002. Strawberries are more expensive during the winter. Prices start to increase in August and peak in January and February.

The California price for strawberries did not change substantially during the NAFTA period when taking into account inflation. The adjusted price shows some fluctuation during the 1990s and reached 48.3 cents per pound in 2000, slightly lower than 51.5 cents per pound in 1989. However, prices in 2000 were down from 56.3 cents in the peak year of 1999 in 1996-dollar terms. The California strawberry price recovered in recent years to 55.1 cents per pound (in 1996 dollar terms) in 2003.
Sources


Food Per Capita Consumption Data System. Available at: http://www.ers.usda.gov/data/foodconsumption/datasystem.asp


United States Department of Agriculture, Economics and Statistic System. Available at: http://usda.mannlib.cornell.edu/


Figures and tables

Table 1: U.S. Strawberry Exports by type, in million $, 1989-2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh</td>
<td>38.3</td>
<td>67.4</td>
<td>78.5</td>
<td>84.7</td>
<td>96.4</td>
<td>87.2</td>
<td>90.1</td>
<td>96.7</td>
<td>91.6</td>
<td>106.0</td>
<td>116.6</td>
<td>113.9</td>
<td>135.2</td>
<td>187.0</td>
<td></td>
</tr>
<tr>
<td>Frozen</td>
<td>10.6</td>
<td>20.0</td>
<td>16.3</td>
<td>16.9</td>
<td>24.1</td>
<td>36.3</td>
<td>31.6</td>
<td>27.5</td>
<td>27.5</td>
<td>35.1</td>
<td>31.8</td>
<td>24.5</td>
<td>25.2</td>
<td>26.2</td>
<td>14.7</td>
</tr>
<tr>
<td>Preserved</td>
<td>1.3</td>
<td>2.1</td>
<td>3.7</td>
<td>5.1</td>
<td>4.6</td>
<td>4.2</td>
<td>3.3</td>
<td>4.9</td>
<td>4.7</td>
<td>4.6</td>
<td>5.1</td>
<td>9.7</td>
<td>9.3</td>
<td>7.4</td>
<td>8.6</td>
</tr>
</tbody>
</table>

(Source: U.S. Customs Service)

Figure 1: California Strawberry Acreage, 1989-2003
(Source: National Agricultural Statistical Service)

Figure 2: California Strawberry Production, Fresh Market and Processing, 1989-2003 (Source: National Agricultural Statistical Service)
Figure 3: Total U.S. Strawberry Exports, 1989-2003
(Source: U.S. Customs Service)

Figure 4: U.S. Fresh Strawberry Exports to Canada and Japan, 1989-2002
(Source: U.S. Customs Service)
Figure 5: U.S. Strawberry Exports to Mexico, 1989-2003
(Source: U.S. Customs Service)

Figure 6: U.S. Strawberry Imports, total and from Mexico, 1989-2003
(Source: U.S. Customs Service)