

Commodity Highlight

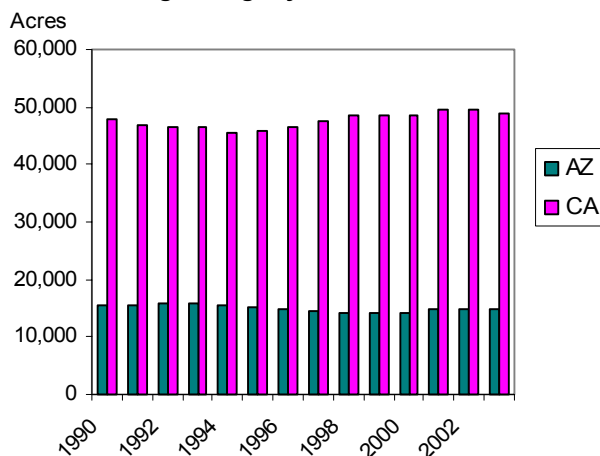
Lemon Production and Consumption

Lemons are a member of the citrus fruit family, along with oranges, grapefruit, and limes. Unlike oranges and grapefruit, however, lemons are rarely consumed alone. The high acid content in lemons makes them unpalatable for most people to consume the same as oranges or grapefruit. Therefore, most lemons are consumed as an ingredient in cooking, as garnish, and as juice in lemonade, carbonated beverages, and other drinks. The lemon peel is often candied, or used as an ingredient in cooking and baking. The oil from the peel is used for its essence to add to beverages and candies. The oil is also very popular for industrial uses, such as furniture polish, perfumes, and as a bleaching agent.

Lemon production in the United States is concentrated in California and Arizona. While it is believed that lemons were first introduced into the United States in Florida, freezes in the 1800s destroyed the trees, and commercial lemon production in Florida vanished. California is now the leading producer in the United States with an estimated 49,000 bearing acres in 2002 (fig. 7). As a subtropical fruit tree, lemon production is limited to areas where temperatures do not drop much below 30⁰F. Temperatures just below 30⁰F can kill the young fruit and blossom. Lower temperatures can kill mature fruit and damage the tree itself. As a result, California's lemon production is concentrated in the southern parts of the State, in Ventura, Riverside, Kern, Tulare, and San Diego counties.

Figure 7

Lemon bearing acreage by State, 1990-2003



Source: National Agricultural Statistics Service, USDA.

Arizona's lemon production is much smaller than California's. In Arizona, lemons are produced on 14,000 acres, mostly in Yuma County.

United States is the World's Fifth Biggest Lemon Producer

The United States ranks fifth in the world in lemon production behind India, Argentina, Spain, and Iran (fig. 8). Whereas, U.S. growers produced an average of 879,000 short tons of lemons annually during 2000-02, India produced an average of 1.5 million tons, Argentina 1.3 million tons, and Iran and Spain each produced 1 million tons.

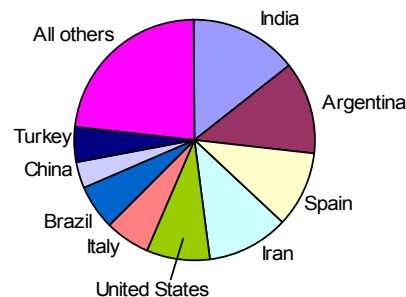
Lemon harvested acreage has grown steadily in many parts of the world since 1990, but has remained relatively unchanged in the United States and Spain. Among the top 10 world producers, harvested acreage has increased most rapidly in Argentina, India, Iran and China. Most of these countries have lower average yields than the United States and therefore require more acreage to meet growing domestic needs. Argentina, however, is as efficient as the United States and a large share of its production is destined for export markets.

U.S. Fresh Lemons Are Available To Consumers Year Round

The lemon season runs from August through July. Harvesting starts in Arizona and the desert area of California and as the season progresses, it moves into

Figure 8

World lemon production, by leading countries, 2000-02 average



Source: Food and Agriculture Organization, United Nations.

Ventura, Kern, Tulare and other California counties. Lemons can be picked from these latter counties at the end of the harvest season and stored throughout the summer. The summer is very important to lemon growers because demand is the highest.

Imports Strongest During the Summer Months

During the summer months, the quantity of lemon imports peaks, partially due to the strong seasonal demand and partially due to the decline in the quantity of the domestic crop available as harvesting of a new crop just gets underway in Arizona and California. The share of imports as a proportion of domestic consumption has increased since the 1970s and 1980s, when there were virtually no fresh lemon imports, to recent years when they account for about 9 percent of consumption. Imports still, however, make up only a small share of lemon consumption relative to other fresh fruit.

During the summer and early fall months (July through October) Chile, Spain, and the Bahamas are the major import suppliers to the U.S. market. Spain's presence in the U.S. market has grown over time, expanding from a seasonal presence in the early 1990s to a year-round supplier since 1997/98.

During the summer of 2000, the first shipments from Argentina were permitted in the U.S. market. Argentina quickly took over as the top supplier from outside the United States. Argentine imports again arrived in the summer of 2001, and imports reached their highest July and August levels on record. Shipments lasted through September. Legal issues surrounding the USDA's Animal and Plant Health Inspection Service's research which resulted in Argentine lemons entering the U.S. market, led to a ban on these imports in late 2001. Since this action was taken, no Argentine lemons have been allowed entry.

Sporadically over the 1990s and more steadily in recent years, Mexico, along with Spain, plays a major role in providing lemon imports during the early winter months. Interestingly, Mexicans do not consume lemons, preferring like most Central American and Caribbean nations, to consume limes. Mexico's lemon production is solely intended for export to the United States and Europe either as fresh product or processed.

Exports Play Less Important Role in Lemon Markets in Recent Years

Export markets have been playing a lesser role in overall fresh lemon sales in the late 1990s and 2000s than in the 1970s to mid-1980s. In 2001-02, about 21 percent of the crop was sold in export markets compared with over 50 percent in the mid-1970s. Over this period, production grew about 39 percent, indicating domestic demand rose for fresh lemons, replacing the quantity available for export.

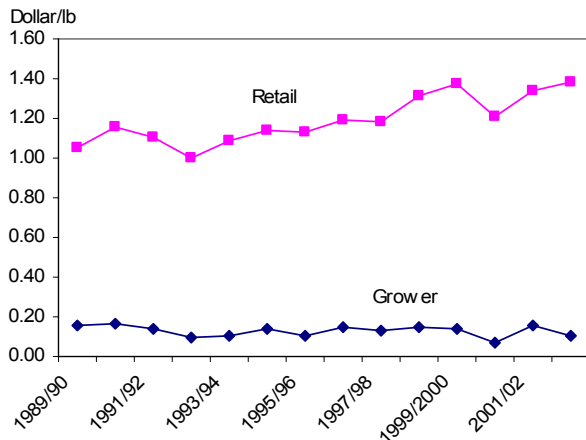
Japan is the major export market, however, their shipments have been declining in recent years. Shipments to Japan have accounted for about two-thirds of total exports since the mid-1990s. In recent years, however, the quantity shipped has been declining. At the same time, other markets are growing in importance. The Canada market, while only about half the size of Japan's, has increased steadily over the past decade. The third largest market, Hong Kong, has been losing market share, as shipments have gone directly to Mainland China. China's market has been growing rapidly since it opened to U.S. citrus during the 1999/2000 season. During the 2002/03 season, China ranked sixth in shipments. Rounding out the top five destinations, South Korea and Australia both are growing markets.

Lemon Marketing Centralized

Agricultural cooperatives play a very strong role in the U.S. lemon industry. Many grower cooperatives and private packinghouses market their fruit through Sunkist Cooperative. Sunkist does not own any groves or packinghouses, but is affiliated with the majority of them to market the fruit. Sunkist was created to help growers best market their fruit to achieve optimal prices. By using a cooperative marketing system, the industry is able to control supply movement to obtain strong prices and to ensure there will be sufficient stock available for the high-demand summer months.

Figure 9

Annual average retail and grower prices, for all lemons, 1989/90-2002/03



Sources: National Agricultural Statistics Service, USDA and Bureau of Labor Statistics, U.S. Dept. of Labor.

Grower Prices Stable Over Time as Retail Prices Rise

Grower prices for fresh lemons averaged about 13 cents a pound from 1998/99 through 2002/03, the same as from 1990/91 through 1994/95 (fig. 9). The industry has been able to maintain prices even as production increased over this period. The industry was able to achieve this partially due to strong demand and partially with the use of the processing sector as a residual market to offset any increases in overall supply (fig. 10).

While grower prices have stayed unchanged throughout the 1990s and early 2000s, retail prices have climbed. Retail prices averaged \$1.32 a pound during 1998/99 through 2002/03, up from an average of \$1.10 during 1990/91 through 1994/95. As a result of the growth in retail prices, the retailers' portion of the price consumers pay for lemons increased from 79 percent during the early nineties to 82 percent during 1998/99 to 2002/03 (table 14).

Lemon Consumption on the Rise

U.S. lemon consumption has been growing since the early 1980s, mostly due to the growth in demand for fresh lemons. Per capita consumption of fresh lemons has increased from an average of 2.04 pounds in the 1970s to 2.28 pounds in the 1980s to 2.64 pounds in the 1990s. During the first 4 years of the 2000s, per capita lemon consumption has jumped to 3.23 pounds. The initial estimate for 2003/04 is for fresh

lemon consumption to average 3.31 pounds per person, marginally lower than the previous season.

Among all major fresh fruit eaten in the United States, lemon consumption ranked eighth, with per capita consumption, on a per-pound basis, a fraction of the very popular fruit, such as bananas, apples, and oranges. On the other hand, Americans consumed more fresh lemons than many other fruit, despite the fact that lemons are not usually directly consumed. In 2002, fresh lemon consumption exceeded tangerines and tangelos (including clementines), limes, apricots, avocados, blueberries, cherries, mangoes, pears, and plums and prunes, among others.

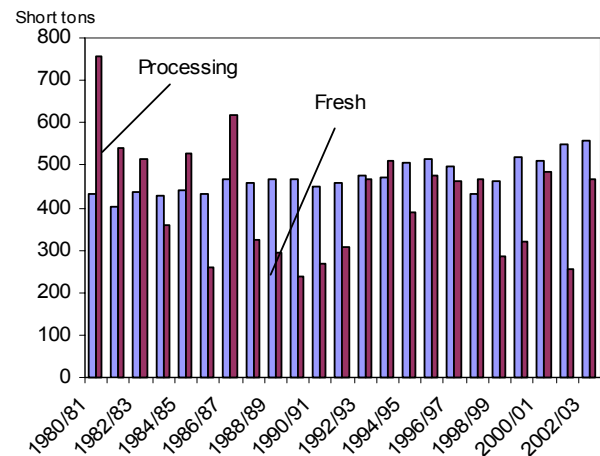
Lemon juice consumption has remained relatively stable over the last several decades, averaging 0.16 gallon per person during 1998/99 to 2002/03. In 2003/04, lemon juice consumption is estimated to average 0.25 gallon per person, mostly due to expected high imports.

For the most recent information, see:

<http://www.ers.usda.gov/publications/fts>

Figure 10

Lemon production, by end-use, 1980/81-2002/03



Source: National Agricultural Statistics Service, USDA.

Table 14--Fresh lemons: U.S. monthly retail prices, marketing spread, and grower prices, 1989/90-2002/03 1/

Year 2/	Marketing spread			Grower price	
	Retail value 3/ Dollars/lb	Actual	Portion of retail Percent	Actual Dollars/lb	Portion of retail Percent
1989/90	0.96	0.72	75.30	0.24	23.71
1990/91	1.03	0.78	75.17	0.26	23.84
1991/92	1.18	0.95	80.98	0.22	18.26
1992/93	0.97	0.79	81.52	0.18	17.74
1993/94	1.04	0.83	79.77	0.21	19.42
1994/95	1.06	0.83	78.38	0.23	20.75
1995/96	1.09	0.88	80.52	0.21	18.70
1996/97	1.07	0.83	77.86	0.24	21.25
1997/98	1.20	0.97	80.74	0.23	18.49
1998/99	1.15	0.91	78.87	0.24	20.28
1999/00	1.32	1.08	82.01	0.24	17.27
2000/01	1.16	0.99	85.12	0.17	14.28
2001/02	1.28	1.04	80.69	0.25	18.54
2002/03	1.33	1.12	84.38	0.21	15.00

1/ Prices are simple 12-month averages. 2/ Marketing year is August of first year through July of second year shown.

3/ Adjusted to allow 4 percent for waste and spoilage incurred during marketing.

Sources: Bureau of Labor Statistics, U.S. Dept. of Labor; National Agricultural Statistics Service and Economic Research Service, USDA.