

California's Central Valley: Center of U.S. Raisin Industry

Raisins are dried grapes. Technically, a grape becomes a raisin when, during the drying process, its sugar content drops below 16 percent. In the United States, raisins are produced almost entirely in the Fresno area in California's Central Valley. Arizona produces a small fraction of all grapes used for making raisins, according to data from the U.S. Department of Agriculture's National Agricultural Statistics Service (USDA-NASS). The long, hot growing season and abundant water supplies in the Central Valley helped turn this region of California into the center of the U.S. raisin industry. Over the last 5 years, the area harvested to raisin grapes ranged from 230,000 to 280,000 acres. It is difficult, however, to determine the actual acreage devoted solely to raisin production.

Commercial raisin production in California began in the 1870s. As early as 1909, California produced 280,000 short tons of raisin grapes (fresh-weight basis) and dried about 95 percent of that volume. Now, California's raisin grape production averages over 2.0 million short tons annually, and about 70 percent of this volume is used each year in making raisins. Raisins generate a farm value ranging from \$200 million to \$300 million annually. With production capacity ranging from about 300,000 short tons to nearly 500,000 short tons (dried-weight basis) over the last 13 years, the United States has become the world's largest producer of raisins and the third largest exporter, after Turkey and Iran.

Raisins Made Mostly From Thompson Seedless Grapes

Grape varieties are classified into three major groups: table-type, raisin-type, and wine-type grapes. Several varieties can be used for both fresh and processing regardless of type classification. The very first raisins produced in California were made from Muscat grapes, a large, seeded wine-type grape variety brought into this country by Spanish missionaries. Just as Muscat raisins were becoming popular, a Scottish immigrant, William Thompson, introduced seedless grape cuttings to California in 1872. Today, industry sources report that the Thompson seedless grape is not only the leading grape variety grown in

California but it also represents more than 95 percent of all the grapes used to make raisins. This variety is classified as a raisin-type grape that produces a green, seedless fruit. While dominating raisin production, it is also widely used for fresh consumption and for making juice concentrate and wine as well. Several other raisin grape varieties are used for raisin production, including Muscat, Black Corinth, and Sultana.

While most of the raisins are made from raisin-type grapes, about 1-2 percent of all the grapes dried in California comprise of table grape varieties. The most widely used table grape variety for raisin production is Flame seedless.

Different varieties of grapes are dried into the following types of raisins:

- **Dark raisins or natural seedless** – sun-dried Thompson seedless grapes that naturally develop a dark brown color during the drying process. These raisins account for over 90 percent of production.
- **Golden raisins or golden seedless** – Thompson seedless grapes mechanically dried to prevent them from turning dark. During processing, the raisins are treated with sulphur dioxide to preserve the golden color. These raisins account for about 5 percent of production and are rising in popularity, especially in the baking arena.
- **Dipped seedless** – sun-ripened Thompson seedless grapes, bathed in hot water, and mechanically dried. These raisins have a light brown color.
- **Muscat raisins** – sun-dried Muscat grapes, whose raisins are large, dark, extra sweet, and with a distinct fruity taste. The seeds are mechanically removed during processing. These raisins are considered a specialty item, especially for holiday baking.
- **Zante Currants** – sun-dried Black Corinth grapes. These raisins, also popular for baking, are seedless, very dark, and about one-fourth the size of other raisins, with a tart and tangy flavor.

- **Sultanas** – dried large, yellow-green grapes that are available in many gourmet and health food stores.
- **Flame seedless** – sun-dried Flame seedless grapes, whose resulting raisins are large, dark red, and very sweet; used primarily for baking, especially in fruit cakes.

Raisins Are Second Largest Use of Grape Production

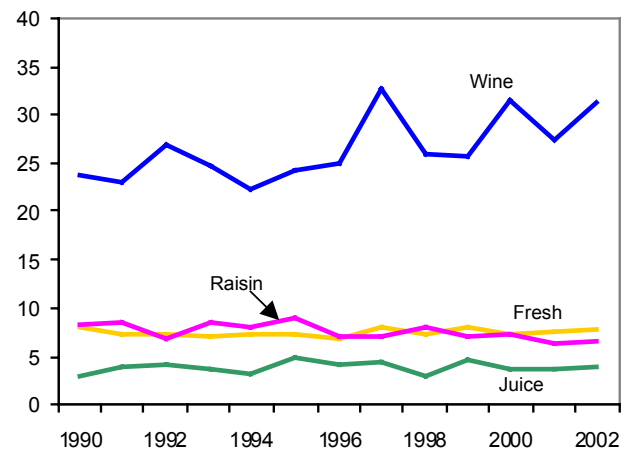
Next to wine production, raisin production accounts for the second largest share of California’s total grape crop. Nearly 30 percent of the State’s production is processed into raisins each year. At the consumer end, this trend has also been evident through most of the last 13 years (fig.6). On a per capita fresh-weight basis, wine is by far the major form in which grapes are consumed in the United States. Prior to the last 3 years, raisin consumption remained slightly ahead of fresh grape consumption. Domestic raisin consumption averaged between 1.5 pounds and 2.0 pounds per person (dried-weight) over the last several years. Regarded as one of the most nutritious dried fruit, raisins are rich in dietary fiber and are a good source of iron, potassium, vitamin B, and natural sugars for quick energy.

Making Raisins A Labor-Intensive Process

Raisin production is a highly labor-intensive process, with nearly all stages of the growing period requiring hand labor. Because most raisins produced in California follow the traditional “dried-on-the-ground” (sun-drying) system, the most critical need for labor is during harvesting (including drying).

In late August through mid-September, when the sugar content in the grapes reaches a desirable level, the grapes are hand picked, set on paper trays laid between the vine rows, and dried in the sun. The grapes are turned once to ensure evenness in drying. As soon as the moisture content of the dried grapes reaches 15 percent, the paper trays are rolled carefully by hand and left to bake under the sun for a few more days. The rolled up trays are then moved out of the vineyard to an open space on the farm. The dried grapes are shaken off the trays and onto a conveyor belt where the larger stems are manually separated. Finally, the dried grapes are transferred to

Figure 6
U.S. per capita grape consumption*
Pounds



* Fresh-weight basis.

Source: National Agricultural Statistics Service, USDA.

wooden bins or sweat boxes where they are stored until they are ready to be processed.

Harvesting grapes for raisin production is expensive because it requires a large, temporary workforce to carry out the work that occurs over approximately 2 to 3 weeks. It is also during this period that the crop is most vulnerable to adverse weather causing quality problems such as disease, mold, or embedded sand that may result in price discounts. In a cost study conducted by the University of California Cooperative Extension in 1998, harvesting cost to produce raisins following best management practices amounted to \$460 per acre, about one-third of the total cash cost per acre (including cash overhead) incurred by growers. Now under pressure from high labor costs and low prices, there is a growing interest in the industry to shift to new production systems that could make mechanical harvesting more economically feasible.

Family-Owned Farms Dominate

Currently, there are about 5,000 raisin growers in California. The average grower has about 50 acres of raisin grapes. Most of these farms are family owned and operated, and while raisin grapes are their primary crop, most of the growers produce other crops or rely on off-farm income as well. There are also about 600 table grape growers in California and although the fresh market is their largest outlet, some

of these growers also produce for the raisin industry. Currently, between 3 and 5 percent of table grape production in California is processed into raisins. Growers sell their raisins to packers or handlers. A packer takes on the responsibility of processing and packaging the raisins. A handler, on the other hand, is responsible for shipping. Processing generally includes: size grading, washing, and sorting to discard any unwanted material and ensure that the final product meets exacting standards and quality. After final inspections, the raisins are weighed and packed for distribution to various retail outlets.

There are 22 raisin packers in California, including 3 cooperatives and 19 privately owned operations. Sun Maid Growers Cooperative of California is the largest of the three cooperatives, handling a large share of the industry's production. All of the packers are also handlers, and there are two handlers who are not packers.

Federal Marketing Order in Place

The marketing of California raisins is regulated by a federal marketing order, authorized by the U.S. Congress through the Agricultural Marketing Agreement Act of 1937. Marketing orders are designed to help stabilize market conditions for specific agricultural products. The marketing order for California raisins was established in 1949 and is administered by the Raisin Administrative Committee (RAC), a group that consists of 47 members, including 35 producers, 10 handlers, 1 cooperative bargaining association member, and 1 public member (someone who is not involved in raisin production and marketing). Each RAC member has an alternate.

Under the marketing order, RAC determines whether volume control measures are necessary during a given crop year. When volume regulation is in effect, RAC determines how much of the crop should be sold by handlers in the open market (free tonnage). The remainder of the crop remains in a reserve pool (reserve tonnage) for future use (example, during a short crop year) or marketed to noncompetitive outlets such as government purchases for the school lunch program or for international food aid programs. The actual price received by growers is a weighted average of the free tonnage price and the reserve price.

Glut Leads to Sharply Lower Prices

As with other agricultural commodities, raisin production in California fluctuates from year to year. On average, however, production over the last three decades has increased. Based on NASS data, which include all varieties dried, raisin production in the 1970s averaged slightly over 200,000 short tons, rising to an average of over 300,000 tons during the 1980s and 1990s, and to over 400,000 short tons during the past 3 years (table 14). Total raisin deliveries (both free and reserve tonnage) reported by RAC closely follow this trend. Grower prices for dried raisin grapes over this same time period have fluctuated from over \$200 per ton to \$1,250 per ton, with the average being over \$800 per ton (NASS).

Raisins are a storable product and the large production in recent years, combined with stagnant domestic demand and increased foreign competition, has forced the industry into a glut situation. The percentage allotments for free tonnage set by RAC for natural seedless raisins over the last 3 years averaged 56 percent, lower than any year since 1984.

Continued large production in recent years may be partly attributed to the diminishing demand from U.S. wineries for Thompson seedless grapes--once the most popular grape variety crushed for juice and wine. During the mid-1970s, Thompson seedless grapes made up about a third of all the grapes crushed in California for juice and wine production. This share has dropped to an average of 13 percent over the last 5 years as U.S. wineries increased their use of premium wine varieties to improve quality and further boost both domestic and foreign demand. As production of wine grape varieties rapidly expanded during the 1990s, production of raisin grapes typically intended for the wine market were more than likely processed into raisins.

Record-large raisin production in 2000 led to a sharp drop in grower prices (for dried raisin grapes) from \$1,220 per ton in 1999 to \$569 per ton. Although production the following year was reduced, prices generally remained below average and lower than the cost of production for many growers.

Table 14--Raisin production in California, 1970-2002 1/

Year	Grape variety type		Price per ton	
	Raisin	Table	Raisin	Table
	----- Tons -----		----- Dollars -----	
1970	193,000	450	283	350
1971	194,100	730	329	400
1972	105,000	350	560	550
1973	224,000	526	754	752
1974	241,500	630	602	666
1975	284,000	645	665	640
1976	218,000	400	706	1,050
1977	248,300	600	840	878
1978	146,200	250	1,121	1,750
1979	302,300	1,090	1,151	1,200
1980	309,000	1,550	1,151	1,200
1981	255,000	1,810	1,198	1,120
1982	292,000	3,300	1,150	1,250
1983	396,000	2,500	587	1,020
1984	334,500	850	635	609
1985	346,000	1,940	612	650
1986	277,000	1,900	757	582
1987	356,000	1,950	817	783
1988	363,000	3,500	898	767
1989	430,000	3,200	977	770
1990	393,000	2,500	903	805
1991	345,000	3,000	963	842
1992	388,300	3,200	911	866
1993	382,000	6,300	937	874
1994	418,600	3,400	923	550
1995	306,400	2,800	980	750
1996	311,500	2,400	1,070	880
1997	428,500	4,300	908	914
1998	277,400	3,800	1,250	933
1999	341,000	5,800	1,220	1,030
2000	484,500	9,200	569	700
2001	411,300	5,800	548	644
2002	396,500	5,300	2/	2/

1/ Dried basis.

2/ Prices for California grapes utilized for raisins will be available on July 8, 2003.

Source: National Agricultural Statistics Service, USDA.

The Raisin Diversion Program

To address the current oversupply situation in the U.S. raisin industry, the raisin diversion program (RDP) was implemented for the 2003 crop year. The RDP is another program authorized under the Federal Marketing Order that concerns reserve raisins. During a given crop year when there is overproduction, RAC can decide to implement the RDP and announce the total tonnage eligible for diversion during the upcoming crop year. Participating growers are required to curtail production by either vine removal or spur pruning. RAC decides which method to use.

To participate in the program, growers need to submit an application to RAC. If the total tonnage applied for by the growers exceeds the allotment, RAC conducts a lottery. Growers who are accepted in the program will receive an RDP certificate indicating the total volume that they will not be producing in the coming crop year. A grower may sell his or her certificate to a handler during the new crop year (marketing season runs from August through September) and is paid according to the free tonnage applicable in the diversion certificate minus the established harvest cost for the diverted tonnage. The handler presents the certificate to RAC, along with payment in the amount equal to the established harvest cost as well as other costs associated with receiving, storing, fumigating, handling and inspecting the tonnage represented on the certificate. In return, the RAC provides the handler with raisins from the prior year's reserve pool equal to the volume indicated in diversion certificate. Tonnage acquired through the RDP will also be subject to the new crop year's allotment percentages for free and reserve tonnage.

In January of this year, RAC approved a total of 35,000 tons of raisins to be diverted from the 2003 crop. Production will be curtailed solely by vine removal. With a production cap of 2 tons per acres, the total volume eligible for diversion covers 17,500 acres. A harvest value was set at \$340 per ton. So far, applications to the RDP for 2003 are at 57 percent of the total allotment, covering a total of 10,000 acres.

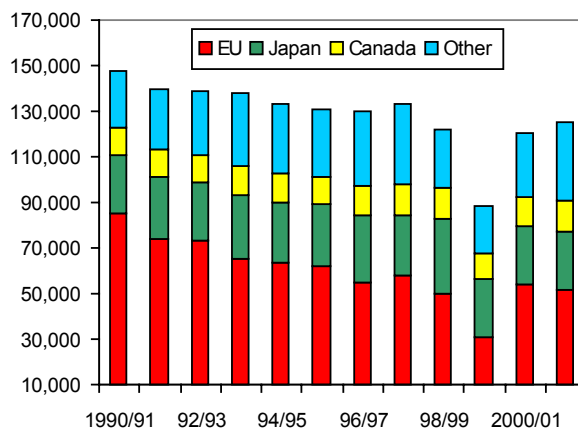
Top 5 Countries Supply Bulk of World Exports

More than 80 percent of world raisin exports come from five countries--Turkey, Iran, the United States,

Greece, and Chile. Turkey supplies more than a third of the total export volume, while Iran and the United States each supply over 15 percent. Greece and Chile account for 8 percent and 7 percent of total export volume, respectively.

In the United States, the export market has become a vital part of the raisin industry. U.S. raisin exports during the 1990s increased more than 50 percent from the average volume exported in the 1980s and were more than double those in the 1970s. Exports averaged 239.4 million pounds (119,697 tons), dried weight equivalent during the past five marketing seasons, averaging over \$171 million and almost half the average annual farm value of domestic raisin production. Export volumes during this 5-year period, however, were slightly below those in the early- to mid-1990s (fig. 7). Increased exports of cheaper raisins from low-cost producing countries continue to put pressure on U.S. exports. For the 2002/03 marketing season, a large decline in exports from Turkey due to heavy rains that curtailed the crop will likely open more opportunities for U.S. exporters, particularly in the EU where both countries are large suppliers. About three-quarters of U.S. raisin exports go to the European Union (42 percent), Japan (23 percent), and Canada (11 percent). Other leading markets include Taiwan, Hong Kong, Singapore, and South Korea.

Figure 7
U.S. raisin exports, crop years 1990/91-2001/02*
Thousand tons



* Dried basis. Crop year runs from August-July.

Source: National Agricultural Statistics Service, USDA.