

# Pistachios

Information compiled by the California Pistachio Commission

**How Produced** – Pistachio trees begin in the nursery where rootstock is planted, germinated and grown in pots for 15 months. The rootstock is then planted in an orchard to help the tree adapt to soil, climate and other environmental conditions, before being budded with an edible cultivar (variety). It takes approximately six years after the tree is planted in the orchard before the first harvest. Pistachio trees rely on wind pollination, where the pollen is distributed throughout the orchard by the wind. Trees need long, hot, dry summers and moderately cold winters for optimum yield.

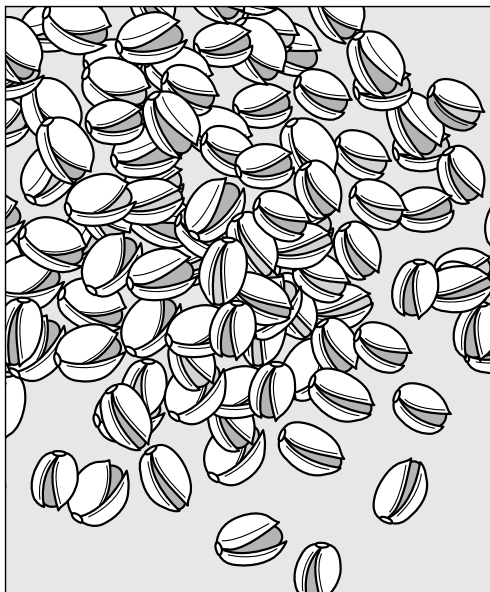
Like other nut trees, the pistachio is alternate bearing—producing a heavy crop one year and a lighter crop the next. Trees reach maturity and peak production after approximately 20 years. In the Middle East, pistachio trees have been known to produce for more than 100 years.

Pistachio nuts grow in grape-like clusters and an outer skin, called the hull, encases each nut. When ripe, the hull turns rosy and the inside shell splits naturally, indicating the nut is ready to be harvested. Harvest usually begins in early September and continues for four to six weeks. California pistachios are mechanically shaken from the tree (in under a minute) and fall directly onto a catching frame. At the processing plant workers use machines to remove the hull and dry the nut within 12 to 24 hours after harvest, ensuring the highest quality standards. Technological advances continue to improve sorting and grading techniques. For example, electric eyes detect any dark-stained shells and blow them away in a jet of air. Further processing may include roasting, salting and dyeing the nut red to meet consumer demand. More than 90 percent of the pistachios sold are roasted and salted.

**History** – Pistachios are native to the low mountains and barren, dry foothills in the elevated deserts of Afghanistan, Iran and Turkey. Historically, they were considered a rare delicacy and a favorite of the Queen of Sheba.

Pistachios were imported to America in the 1880s but did not become popular as a snack food until 50 years later. These nuts were dyed red to draw consumer attention and to cover stains from now obsolete harvesting techniques. The California pistachio industry can be traced back to 1930 with experimental plantings by American plant scientist William E. Whitehouse, who returned from a six-month trip to Persia (modern

day Iran) with 20 pounds of the most distinctive seed he could find. The first commercial crop in California was not harvested until 1976, producing 1.5 million pounds of pistachios.



**Varieties** – California pistachios are of the Kerman cultivar, which originated from seed found in the Kerman region of Iran. Since the state's first plantings, scientists have strengthened the Kerman cultivar by budding it to healthier rootstocks.

**Commodity Value** – In California, more than 115,000 bearing acres produce in excess of 98 percent of the United States pistachio crop, which is second only to Iran in world production. The 2007 harvest of more than 415 million pounds provided returns to California farmers of \$557 million. It is estimated that 65 percent of the California crop is exported, primarily to Europe, Canada and Japan.

**Top Producing Counties** – Kern County leads the state in pistachio production with more than 50 percent of the total crop. Other top producing counties include Madera, Kings, Tulare and Fresno. Pistachios are grown as far north as Tehama County and as far south as San Bernardino County.

**Nutritional Value** – California pistachios provide high-energy nutrients. Each one-ounce serving of shelled pistachios (49 kernels) offers 300 milligrams of potassium, six grams of protein, nine grams of total carbohydrate and three grams of dietary fiber. Pistachios are relatively high in monounsaturated fats (seven grams per serving), which scientists say assist in maintaining good (HDL) cholesterol, while reducing the bad (LDL) cholesterol levels and polyunsaturated fats (four grams per serving). Pistachios have just 1.5 grams of saturated fat per serving, no trans fat, and like all nuts, pistachios contain no cholesterol.

**For additional information:**

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# Pistachio Activity Sheet

## The Historical Development of the California Pistachio

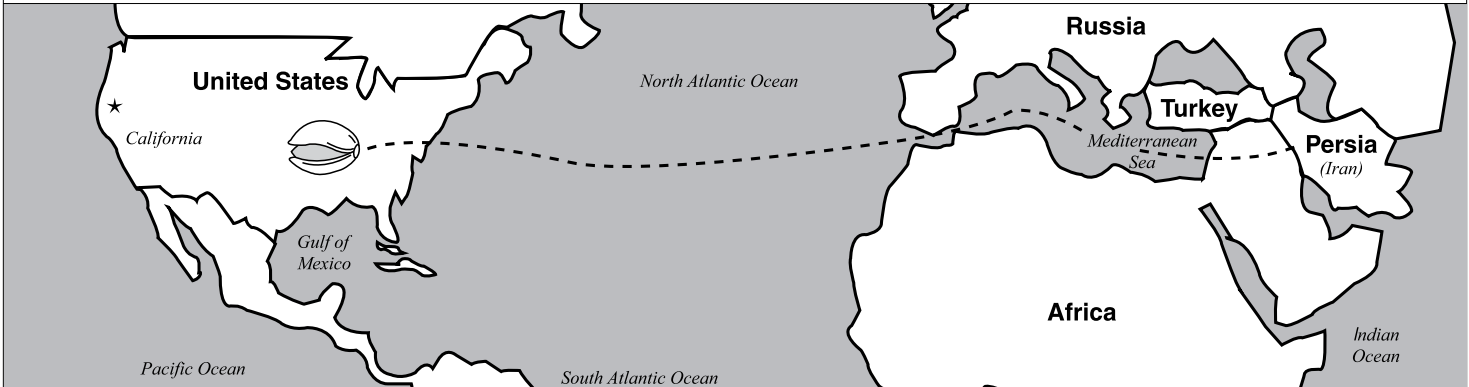
1929 - William E. Whitehouse, as instructed by Knowles Ryerson, entered Persia (Iran) to obtain pistachio seeds.

1929-1930 - Whitehouse explored Persia and collected 20 pounds of individually selected pistachio seeds, which he took to Washington, D.C.

1930-1950 - 3,000 trees grew from 20 pounds of seed. However, only one tree proved to be useful.

1950s - The successful pistachio tree seeds were named Kerman for the famous carpet-making city near Rafsanjan in Iran.

2007 - More than 415 million pounds of California pistachios were marketed for a value of more than \$557 million.



### Lesson Ideas

- Create a timeline showing when pistachios were introduced in California and the events that occurred before commercial production began.
- Create a map of California highlighting the major counties where pistachios are grown. Compare and contrast the growing conditions in these counties to the Kerman region of Iran.
- Explore how other countries use pistachios.
- Make pistachio butter. Have a taste test with other homemade nut butter (peanut, walnut, almond).
- Make pistachio creatures. Write a story about your creature.
- Create a flow chart of the life cycle of pistachios.
- Create and prepare a recipe using pistachios.
- Compare the buoyancy of closed and opened pistachios. Discuss how this principle is used in sorting nuts.

### Fantastic Facts

1. Name two climatic conditions required for pistachio production.
2. How long does it take to hull and dry pistachios?
3. What percentage of the United States' pistachio crop is grown in California?
4. California is second in pistachio production to what country?
5. Why are pistachios sometimes dyed red?
6. How many years does it take for a pistachio tree to reach peak production?
7. What fruit do pistachios resemble while growing on a tree?
8. Approximately what percentage of California pistachios are exported?

- 1) Long, hot summers, winters that chill plant roots, breezy spring
- 2) Within 12-24 hours
- 3) More than 98 percent
- 4) Iran
- 5) To draw the consumer's attention, previously to cover stains from now obsolete harvesting techniques
- 6) 20
- 7) Grapes
- 8) Nearly 50 percent

### Lesson Plan: Let's Compare!

**Introduction:** The agricultural production and economic impact of commodities varies from state to state and country to country. In this activity, students will compare the production, nutritional philosophy and economic impact of the pistachio in the Mediterranean to that of the United States.

**Materials:** World map, access to reference books, encyclopedias and the Internet, chart paper, markers.

#### Procedure:

1. Gather various resources students can use in the lesson described below.
2. Discuss with the students that different cultures throughout the world have different eating habits and varying agricultural practices due, in part, to climate, technological advances and economics. Locate the Mediterranean region on the map.
3. Divide the students into three groups. Each group will compare

and contrast the United States to the Mediterranean in one of the following areas:

- Pistachio production, processing and harvesting techniques.
  - Economic impact of pistachios, including importing and exporting policies and procedures.
  - USDA MyPyramid and Mediterranean Diet Pyramid, which vary in the quantities of recommended daily consumption within the various food groups.
4. After the students have gathered information related to their topic, have them create a visual aid which cleverly describes what they have learned. They should use chart paper and markers to make a visual, which can be displayed for others to learn from.
  5. Have students share their projects with the class. Take this opportunity to discuss that there are many ways to complete a task or look at subjects such as nutrition.

