

Pistachios

Information compiled by the Administrative Committee for Pistachios

How Produced – Pistachio trees often begin in the nursery where rootstock seeds are planted, germinated, and grown in pots for 15 months. In recent years, some rootstock trees are grown clonally in sterile cultures inside a laboratory before being grown in a greenhouse. 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 are either male or female and the pollen is distributed throughout the orchard by the wind. Trees need long, hot, dry summers, and moderately cold winters for optimum yield.

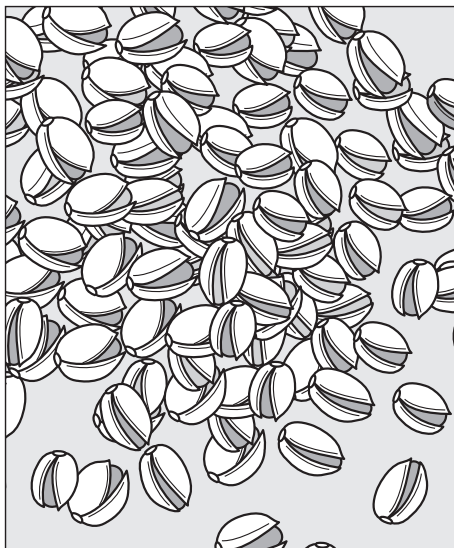
Like other nut trees, the pistachio is alternate bearing—producing a heavy crop one year and a lighter crop the next. Trees reach maturity and peak production after approximately 15 years. In the Middle East, pistachio trees have been known to produce for more than 100 years.

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 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. Several new varieties have been released and are being evaluated. The two most widely planted new varieties include Lost Hills and Golden Hills. They are harvested earlier than the Kerman variety and can thrive in warmer climates.

Commodity Value – California leads the nation in pistachio production - it is the sole producer (99% or more) of pistachios. In 2015, 233,000 acres produced 135 million pounds of pistachios and provided California farmers with more than \$669 million in returns. In 2015, total export value of pistachios was \$848 million. Major destinations for export of pistachios were Europe, China, and Canada.

Top Producing Counties – Kern County leads the state in pistachio production with 27 percent of total state sales, followed by Tulare County with over 23 percent. Other top producing counties include Madera, Fresno, and Kings.

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 carbohydrates, 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:

Administrative Committee for Pistachios
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Pistachio Activity Sheet

The Historical Development of the California Pistachio

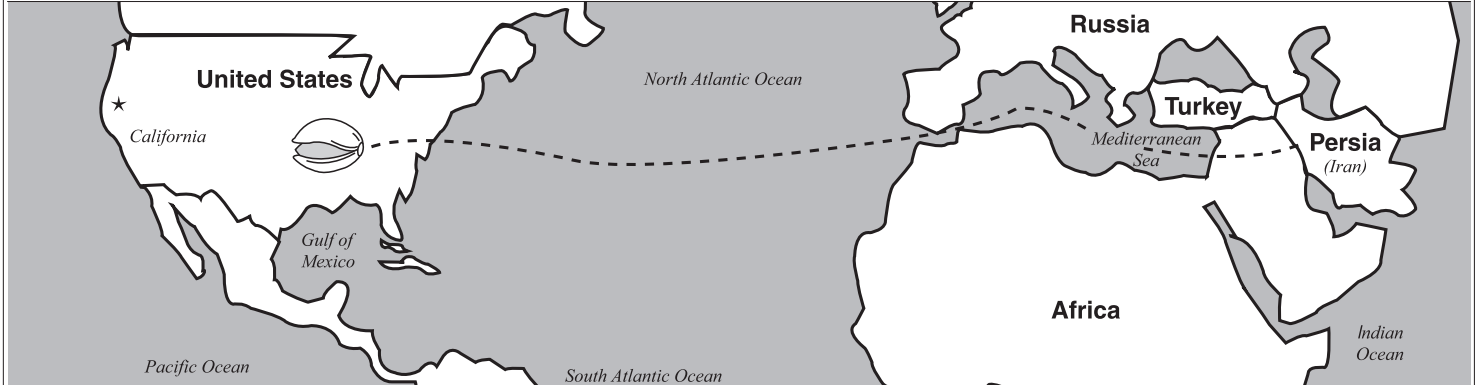
1929—William E. Whitehouse, as instructed by Knowles Ryerson, entered Persia (Iran) to obtain pistachio seeds.

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.

2010—More than 550 million pounds of California pistachios were marketed for a value of more than \$1.4 billion.



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. Pistachio production requires long, hot summers, cold winters, and a breezy spring.
2. It takes 12-24 hours to hull and dry pistachios.
3. California produces 99 percent of the United States' pistachio crop.
4. The first commercial crop of pistachios in California was not harvested until 1976.
5. It takes 20 years for a pistachio tree to reach peak production.
6. Pistachios resemble grapes while growing on a tree.
7. Approximately 65 percent of California pistachios are exported.

Lesson Plan: Let's Compare!

Introduction: The agricultural production and economic impact of commodities varies from state to state and country to country.

Objective: Students will compare the production, nutritional philosophy, and economic impact of the pistachio in the Mediterranean to that of the United States.

California Standards: CC ELA: W.3-12.2, W.3-12.7, SL.3-12.4, SL.4-8.5

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 MyPlate 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 write a multi-paragraph report and create a related visual aid. 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.

