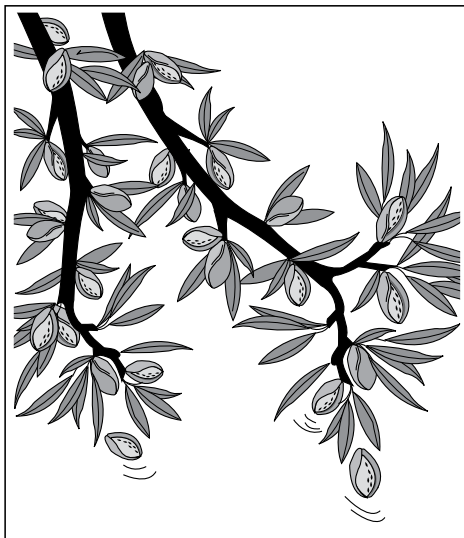


Almonds

Information compiled by the Almond Board of California

How Produced – Following the winter dormant season, early spring weather coaxes the first almond blossoms from their buds. Because the trees are not self-pollinating, at least two varieties of almond trees are planted in alternate rows in each orchard. Almonds grow best when the weather from February onward is frost-free, has mild temperatures and minimal rain so blossoms can flourish and bees can cross-pollinate the blossoms. After the petals have dropped and the trees have leafed out, the first signs of the fuzzy gray-green fruit appear. The hulls that cover the growing almonds continue to harden and mature. In July, the hulls begin to split open. Between mid-August and late October, the splits widen, exposing the shells, which allow the almond kernels to dry. The whole nuts eventually separate from their stems and the hulls open completely.



Before harvest, orchard floors are swept and cleared. Mechanical tree shakers knock the almonds to the ground, where they are allowed to dry before they are swept into rows and picked up by machine. They are transported to carts and towed to the huller, where the hull is removed.

The almonds are packaged raw, roasted or flavored. Some varieties are prepared into various forms including sliced, diced, slivered, ground (almond flour), blanched, as pastes and as butters.

History – Almonds are mentioned far back in history, even in the Bible. They were a prized ingredient in breads served to Egyptian pharaohs. The ancestry of the almond is unknown, but almonds are thought to have originated in China and Central Asia. Explorers ate almonds while traveling the Silk Road between Asia and the Mediterranean. Before long, almond trees flourished in the Mediterranean, especially in Spain and Italy.

The almond tree was brought to California from Spain in the mid-1700s by Franciscan Padres. However, the moist, cool weather of the coastal missions did not provide optimum growing conditions. It was not until the following century that trees were successfully planted inland. By the 1870s, research and cross-breeding had developed several prominent almond varieties. By the turn of the twentieth century, the almond industry was firmly established in California's Central Valley.

Varieties – Almond growers have sought to produce delicious varieties that would be hearty in the fields and work well as a cooking ingredient. Research in the 1870s resulted in some of today's varieties including Mission, Price, Carmel and today's most popular, the Nonpareil. Since then, more than 40 varieties have been developed and grown commercially. Most research today focuses on developing varieties that are more resistant to crop damaging insects. Almonds are related to the peach and rose families. In fact, most almond trees are grafted to peach rootstock, which is more resistant to pests.

Commodity Value – California produces the largest supply of almonds in the world. Its 6,000 growers produce 99 percent of the commercial supply of almonds in the United States and 80 percent of the worldwide production. The United States is the largest consumer of

almonds. Spain is the largest importer consuming 13 percent of the export crop. More than 80 nations import California almonds, including Japan, the Netherlands, France, Spain, the United Kingdom and India.

Top Producing Counties – The largest almond-growing region of the world is California's Central Valley, an area stretching nearly 500 miles. Its hot, dry summers make it an ideal location for growing almonds. Top producing counties include Kern, Fresno, Stanislaus, Merced and Madera.

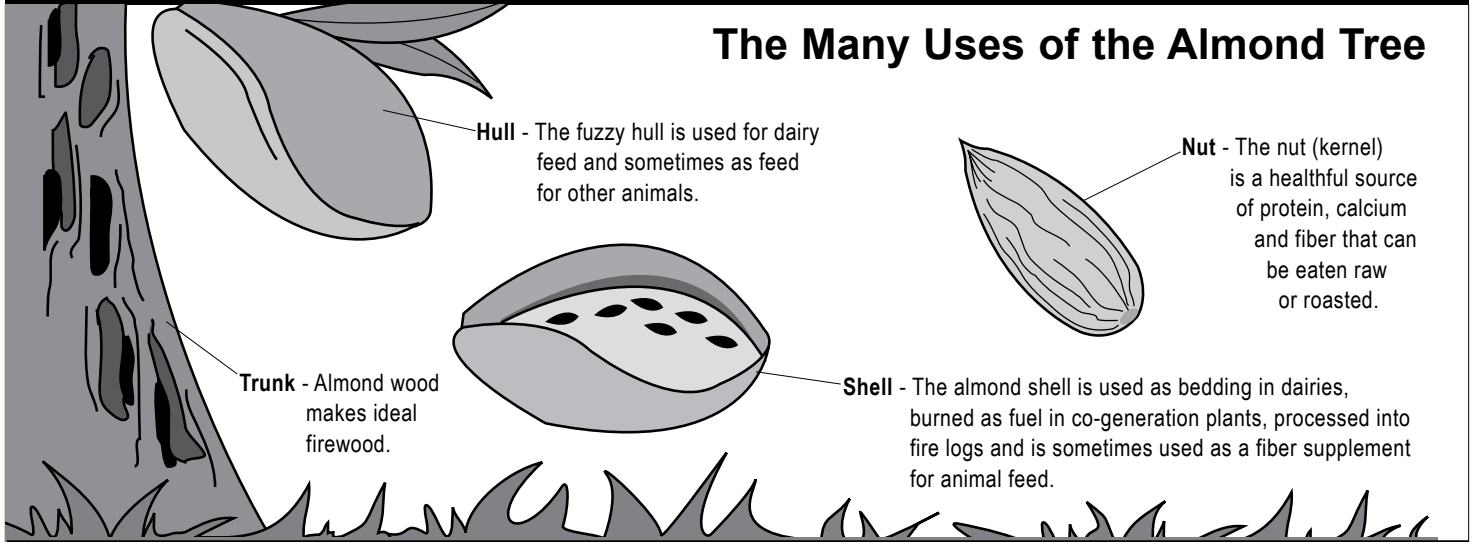
Nutritional Value – Almonds are an excellent source of vitamin E and magnesium. Studies have shown that almonds can actually lower cholesterol levels. A handful (one ounce, about 23 almonds) has the same amount of calcium as one quarter cup of milk and the same amount of fiber as an apple or orange. Almonds are also a good source of protein and are listed in the "meat, eggs, poultry, fish, dry beans and nuts" category of MyPyramid which recommends that most nine to 18-year-olds should eat five to six ounce equivalents from this category each day.

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Almond Activity Sheet

The Many Uses of the Almond Tree



Lesson Ideas

- Visit your local market and see how many different almond products you can find.
- Examine the nutritional labels for almonds and milk. Create a graph comparing the nutritional value of the two. Remember to use equivalent serving sizes.
- Investigate which countries import California almonds. Identify the locations on a map and illustrate the flow of goods.
- Taste test a variety of almonds including raw, roasted unsalted, and roasted with salt or other flavors.
- Study the process of cross-pollination and learn how it is used in the almond industry.
- Create a mural or book about the life cycle of an almond tree.
- Create recipes using almonds. Make a class "Almond Cookbook."
- Study the scientific processes involved in the blanching (removing the skin) of almonds.

Fantastic Facts

1. Name one plant that is related to the almond.
 2. Name one use of the fuzzy almond fruit.
 3. Why didn't almond trees become a staple tree at California missions?
 4. How are almonds removed from trees?
 5. Why are at least two varieties of almond trees planted in almond orchards?
 6. What is the most popular variety of California almond?
 7. Name one nutrient almonds have that is important for strong bones and teeth.
 8. What percentage of United States almonds does California produce?
- 1) Peach, rose 2) Dairy feed 3) The coastal climate in which missions were located was too mild for optimum production 4) With mechanical shakers 5) Almonds must cross-pollinate 6) Nonpareil 7) Calcium 8) 99 percent

Lesson Plan: A Look at the Nutrients of an Almond

Introduction: Almonds contain five of the six classes of required nutrients—carbohydrates, fats, protein, fiber, vitamins and minerals. Your students will examine the nutrition information of whole-shelled almonds and learn about the nutrients they provide to the human body.

Materials: One pound package of whole uncooked almonds with nutrition label, one almond in shell for each student, construction paper, markers, nutrition reference books or encyclopedias.

Procedure:

1. Distribute one almond with a shell and one almond without a shell to each student. Have students make observations of the shell and discuss its uses. Have students compare their two almonds. Are they the same varieties or do they appear different? Discuss the varieties of almonds, their uses and the cross-pollination needed to produce almonds.

2. Have each student observe the nutrition label for one serving of almonds.
3. Assign pairs of students one of the nutrients contained in an almond and research the human body's need for that particular nutrient.
4. Create a class book showing how these nutrients assist the human body to grow, repair, furnish energy and regulate body processes. Incorporate artistic techniques, word processing, use of the Internet, library research and group problem solving.

