Commodity Fact Sheet

Walnuts

Information compiled by the California Walnut Board

How Produced – After an orchard is planted, it takes approximately four years until it produces its first major crop. Constant attention is given to each tree every step of the way—from pruning, spraying, and fertilizing to irrigation—to ensure a healthy orchard. Once a walnut tree has been planted and stabilized, it will continue to bear fruit for as long as a century.

Harvest begins in September when the protective outer covering, called a hull, splits, signaling that the nuts are ready to be removed from the trees. Nuts are often harvested by a mechanical shaker. After walnuts have been shaken to the ground, they are blown into a row to allow mechanical harvesters to pick them up for cleaning and hulling. The harvest season usually continues into early November.

After hulling and washing, the nuts are transferred from the mechanical harvester into a hopper where they are mechanically dehydrated (air-dried). This protects the nut during transport and storage. Mechanical dehydration is quick, thorough, and scientifically controlled—a major improvement over the sun-drying method formerly used. Walnuts with desirable traits such as big beautiful shells are selected for the inshell market. Other walnuts are shelled and processed into walnut halves and pieces, and chopped walnuts to be sold in supermarkets across the country.

History – Walnuts are recognized as the oldest known tree food, dating back to 7000 B.C. In fact, walnuts are one of only a handful of trees and plants that can be found growing naturally in both eastern and western hemispheres—strong evidence that the trees existed before the continents split apart. Records indicate Persian nuts (English walnuts) were known during the reign of Tiberius. Remains of this nut have also been unearthed in ancient Rome where walnuts were considered food for the gods and called "Juglans Regia" in honor of Jupiter.

The term "English" applied to the Persian nut is a misnomer. The name "English walnut" refers to the English merchant marines whose ships transported the product for trade around the world. It is thought that the first English walnuts were brought to California by Mission Fathers around 1770. Joseph Sexton planted the first commercial walnut orchard in California in 1867, near Goleta in Santa Barbara County.

Varieties – In recent years, Chandler has been the most popular variety used for shelled walnuts. However, there are more than 30 varieties of commercially produced walnuts, hybrids of the English (Persian) walnut. The varieties were developed to have specific characteristics such as early or late harvest times, thin or thick shells, high percentages of walnut meat, or specific pest tolerances. Five varieties account for more than 80% of production: Chandler, Howard, Hartley, Serr, and Tulare.

Commodity Value – In California, 280,000 bearing acres, primarily from Redding to Bakersfield, produce three-quarters of the world's trade in walnuts. California's crop generates more than $1.5 billion in farm gate revenue. Approximately 60 percent of the crop is exported. China, Turkey, Spain, Germany, and Korea are some of the largest export markets.

Walnut shells can be burned to generate power and heat, or ground and used as pet litter and in sandblasting. In Japan, the shells are used in snow tires to aid traction. Walnut oil is used in gourmet cooking and cosmetics.

Top Producing Counties – San Joaquin County leads production. Other top counties include Butte, Tulare, Stanislaus, and Sutter.

Nutritional Value – In March 2004, the United States Food and Drug Administration affirmed that eating 1.5 ounces per day of walnuts as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease. A one-ounce handful of walnuts (12-14 halves) contains good polyunsaturated fats (PUFAs) and is an excellent source of the plant-based essential omega-3 fatty acids ALA (2.5 grams). Walnuts contain many antioxidants and are naturally cholesterol and sodium free. They also have four grams of protein and two grams of fiber per serving.

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Walnut Activity Sheet

Year 1
Seedling grafted to Paradox or Black Walnut rootstocks. ➤

Year 2
Orchard leveled, irrigation system installed, trees planted. ➤

Years 2-6
Trees pruned, irrigated and fertilized: weeds and insects controlled by biological chemical and/or mechanical, methods; limited nut production. ➤

Years 7-100
Trees produce full crops averaging 2.14 tons/acre.

Harvest
Orchard floors cleaned to remove vegetative growth.
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Shaker shakes nuts from trees; walnuts swept into windrows by a sweeper, picked up by harvester and delivered to a hauler.
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Large wire brushes remove remaining husks from walnuts; walnuts dried to moisture content of 8 percent.
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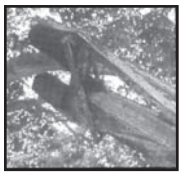
Walnuts packaged for market or sent to processors.



Annual Practices

September-October
Early harvest begins.

April-August
Fertilizaion, irrigation and pest management strategies implemented.

November
Late harvest completed; orchard floors cleaned; pruning begins.

December-March
Pruning continues; dormant sprays control mites and other insect pests.

Lesson Ideas

- Make a list of different uses for walnuts and walnut by-products.
- Go to the school cafeteria and interview the cook.
- How are walnuts used at your school?
- Share your favorite walnut recipe with your class. Have a walnut tasting party.
- Use walnut shells in math and art activities.
- Discuss the importance of polyunsaturated fats. Walnuts are an excellent source of omega-3 fatty acids, which are necessary because they cannot be produced by the body.
- Bring products made from walnuts or walnut by-products to class.
- California exports walnuts to more than 100 countries around the world. Discuss how walnuts can be used as a communication tool between countries.

Fantastic Facts

1. What is the oldest known tree food?
2. How much cholesterol is contained in a walnut?
3. Eating walnuts helps reduce the level of _____ in the blood.
4. How much of the world's trade of walnuts is produced in California?
5. How many years can a healthy walnut tree produce a productive crop?
6. Name three by-products of walnuts.
7. After a walnut orchard is planted, how long does it take to produce the first crop?
8. What is one of the best non-fish sources of omega-3? (Omega-3 helps with the prevention of heart disease.)
9. What are the physical attributes of walnuts used for the inshell market?

1) Walnuts 2) None 3) Cholesterol 4) Three-Quarters 5) Approximately 100 years 6) Cosmetics, oil, sand blasting materials, snow tires, pet litter 7) Four years 8) Walnuts 9) Big beautiful shells

Lesson Plan: Walnut Shell Dye

Introduction: Walnuts are a delicious and healthful snack, and provide valuable by-products for a variety of purposes. Walnut shells can be burned to generate power and heat or ground up to be used as pet litter, sand paper and snow tires. Processes walnut shells can be used for dyeing fabrics and other textiles, as well as staining wood. Students can easily create this dye for art or woodworking projects. The color of the dye will change slightly from harvest season to harvest season depending on the health of the walnut tree and nuts.

Materials: Two cups of walnut shells, 1 quart water, stove or heating source, large enamel or stainless steel (not aluminum) pot, sturdy wooden spoon, sieve, container to collect dye, material to dye.

Procedures:

1. Review class safety procedures before beginning this experiment. In a large pot, combine two cups walnut shells and one quart water.
2. Soak the shells in the water overnight.
3. The following day, boil the shells in the water for one hour. Be careful not to let the water evaporate completely.
4. Use the sieve to strain the mixture and discard remaining shells. Add the material to be colored directly into the dye. Let the material soak in the dye until the desired color intensity is reached. The dye may also be applied to hard surfaces using a paint brush.
5. Challenge students to compare the affects of different varieties of walnuts, walnuts grown in different regions and walnut shells cracked into various sized pieces.

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