

Fresh Carrots

Information compiled by the California Fresh Carrot Advisory Board

How Produced – Carrots, an annual root crop, must be planted in soil that is free of disease and organisms that might affect their color, shape, or texture. This sometimes requires fumigation of the soil. The tiny carrot seeds, 2-3 millimeters in length, are planted in raised beds so the carrots are in position for mechanized harvesting. The growing season ranges from 110 to 180 days, depending upon the time of year, growing conditions, and desired size.

After loosening the earth under the mature carrots, large, self-propelled harvesters lift the carrots by their tops, remove the tops, and load the carrots into a truck and trailer which travel alongside the harvester. The carrots are rushed to packing plants, cooled to 34°F, sorted, cleaned, and packaged within 24 hours of harvest.

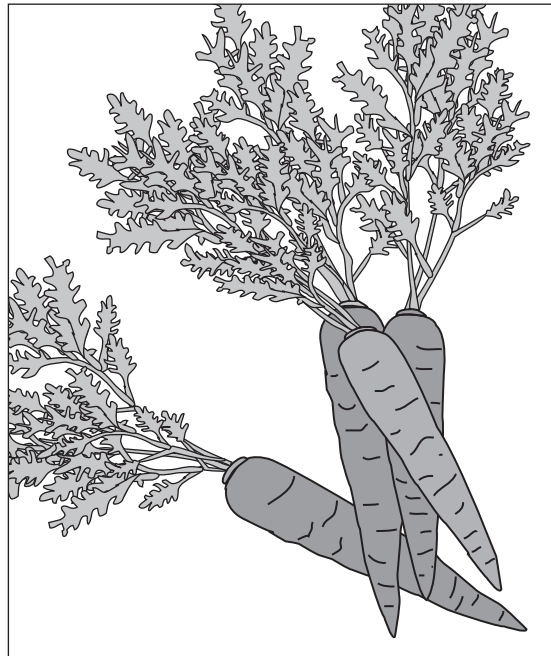
History – Carrots, originally cultivated in Central Asia and the Near East, were introduced to the American colonies in the seventeenth century.

They were not originally yellow-orange, but a range of purple colors. It is thought that the yellow root evolved from a mutant variety which lacked the purple pigment. Ancient Greeks and Romans used both the purple and yellow varieties for medicinal purposes.

Carrots were first used for food by Europeans during the Middle Ages. In the nineteenth century, carrots were identified as a rich source of beta-carotene. During World War II, British aviators were fed a specially developed English carrot, high in beta-carotene, to overcome night blindness. Plant geneticists continue to develop carrots with higher beta-carotene content, as well as strains that are sweeter and more tender.

Varieties – While there are many varieties of carrots, most consumers are unable to tell one from another since there are only slight differences in taste, shape, or size. Varieties are bred for particular growing regions or specific uses. Normally, carrots grown for the supermarket produce shelf are found in cello bags and are purposely cultivated to be larger than carrots for the baby-cut market. Baby-cut carrots are not necessarily small carrots, but are made from full-grown, small diameter carrots by peeling and cutting them to the desired length. Farmers plant carrots intended for the baby-cut market closer together so the roots stay slim and there is less waste

when the carrots are cut to size. Conveniently packaged to be ready-to-eat, baby-cut carrots keep in the refrigerator in their original bag for up to three weeks.



Commodity Value – Production increased by approximately 30% during the late 1990s because of the rather sudden popularity of baby-cut carrots. The market for fresh carrots has leveled off since the turn of the century. California leads the nation in carrot production, accounting for 92% of the nation's total. In 2020, California's carrot growers grew approximately 60,000 acres, producing 1.2 million tons of carrots valued at more than \$657 million. Canada is the top export market, valued at \$78.6 million. Besides fresh carrots still being available in the familiar cello package as well as the very popular baby-cut carrots, consumers are now also able to find fresh carrots in other convenient shapes such as sticks, coins, and chips, as well as shredded carrots

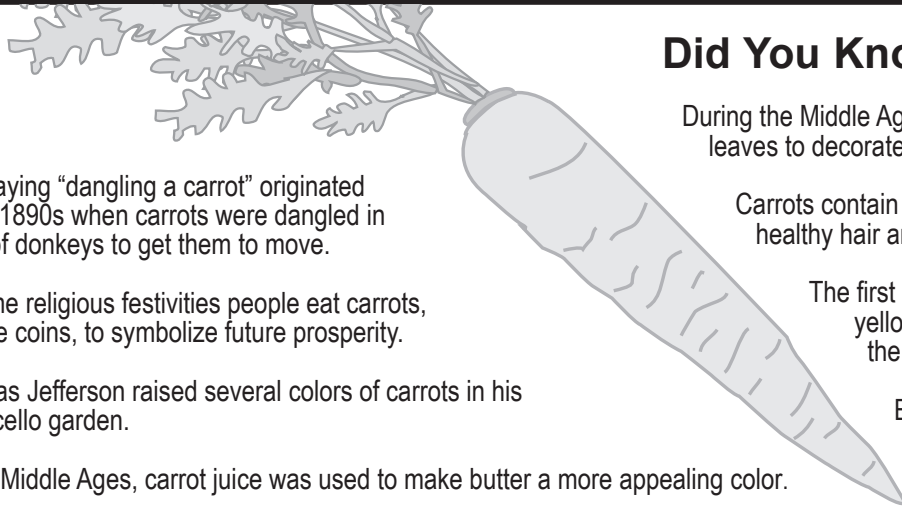
for salads.

Top Producing Counties – Approximately 80% of the nation's fresh carrots are grown year-round in California. Most are grown in and shipped from Kern County. Other growing regions include Imperial County, Riverside County, Monterey County, and Madera County.

Nutritional Value – Carrots are an excellent source of beta-carotene and a good source of fiber. Beta-carotene, the plant pigment that gives carrots their vivid orange color, is converted by the human body to vitamin A. Surplus amounts of beta-carotene are stored in the body's fat cells. One medium carrot provides four times the daily value of vitamin A which helps maintain the health of eyes and skin and reduces the risk of certain cancers. Carrots are fat-free and contain other essential elements in low amounts including vitamin C, potassium, calcium, phosphorus, and magnesium.

For additional information:
California Fresh Carrot Advisory Board
(559) 591-5675

Fresh Carrot Activity Sheet



Did You Know?

During the Middle Ages, French women used carrot leaves to decorate hair and hats.

Carrots contain beta-carotene, which helps build healthy hair and nails and keeps eyes healthy.

The first carrots were white, purple, and yellow. In the 1600s, the Dutch developed the orange carrot we eat today.

Early American colonists grew carrots between rows of tobacco to repel beetles.

The saying “dangling a carrot” originated in the 1890s when carrots were dangled in front of donkeys to get them to move.

In some religious festivities people eat carrots, cut like coins, to symbolize future prosperity.

Thomas Jefferson raised several colors of carrots in his Monticello garden.

In the Middle Ages, carrot juice was used to make butter a more appealing color.

Lesson Ideas

- Read “The Carrot Seed” by Ruth Kraus.
- Make a list of edible roots.
- Research taproots and fibrous roots and find examples in your garden.
- Make a carrot-shaped book showing the history of the carrot and interesting carrot facts.
- Visit the cafeteria to see how carrots are prepared.
- Ask a professional chef to discuss and demonstrate the many uses of fresh carrots.
- Place a freshly cut carrot top in a shallow dish of water and watch it grow.
- Estimate, then count, the number of baby carrots in a bag.
- Visit a grocery store and make a list of the ways fresh carrots are available to consumers.
- Inside a large drawing of a carrot, write the many nutrients provided by carrots.
- Research and discuss how scientists determine the amount of beta-carotene in a carrot.

Fantastic Facts

1. Most of the nation’s fresh carrots are grown in Kern County.
2. Beta-carotene is known to improve night vision.
3. The main reason for the recent increase in carrot production is ready-to-eat, convenient packaging of baby carrots.
4. Carrots come in many colors including orange, white, yellow, and purple.
5. Commercial carrots are mechanically harvested by first loosening the soil underneath the root, then lifting the carrots by their tops.
6. Baby carrots are long, small-diameter carrots peeled and cut into pieces.
7. Ancient Greeks and Romans used carrots for medicinal purposes.

Lesson Plan: Growing Carrots on the Mayflower

Introduction: Grow boxes are used where the soil is in poor condition or when weather is unsuitable for growing crops. Pilgrims used grow boxes on the Mayflower.

Objective: Students will grow carrots in grow boxes and record growth and other observations in a journal.

California Standards: CC ELA: W.3-8.7, SL.3-8.1, RST.6-8.3, WHST.6-8.2, 7; CC Math: 3.MD.4, 4.MD.4, 5.MD.2; NGSS: 3-LS1-1, 4-LS1-1, 5-LS1-1

Materials: 12-inch wide redwood boards, an area to build and place a garden box, nails, hammer, saw, soil mixed with nitrogen-based fertilizer, carrot seeds, water, journals for each student, and resource materials about the Mayflower, Pilgrims, and early colonists.

Procedure:

Explain what a garden box is and brainstorm why and where people use them. Discuss the food conditions and challenges

Pilgrims encountered during their voyage to America and the building of their settlement. Why did they use grow boxes?

1. As a class or group, build a grow box that is at least 12 inches deep. Fill the box with soil and moisten.
2. Make rows four to five inches apart. Make a shallow furrow in each row and sprinkle seeds in the furrow. Cover the seeds with a dusting of soil.
3. As the carrots grow, thin the crop when the carrots are as thick around as an index finger, allowing four inches between plants.
4. Keep garden well watered and weeded. Harvest in 70-80 days.

NOTE: Throughout the growth of the carrots, have the students perform various assignments in their journals—observations, poems, find or create recipes, measure and graph root length and stem length, find out what to do with the carrot tops and peelings, etc.