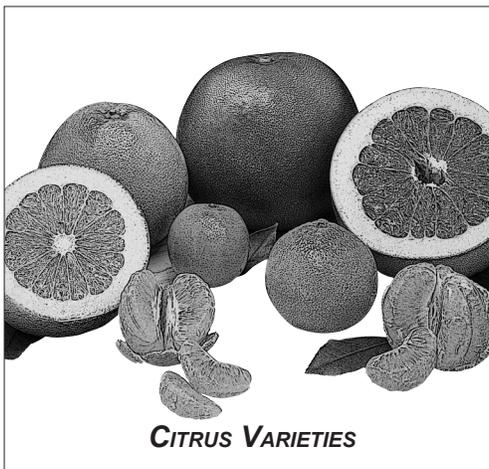


## Commodity Fact Sheet

# Citrus Fruits

Information compiled by Sunkist Growers

**How Produced** – Citrus trees are propagated asexually through a procedure known as grafting which fuses two different varieties of plants. In the case of citrus trees, one variety, the rootstock, is selected for its hardiness and the other variety, the scion, is selected for its high-quality fruits. The rootstock, grown from a seed, is typically a two- to three-year-old seedling while the scion is a bud from a mature tree. Through grafting, the scion fuses to the rootstock and becomes a new tree. In approximately five years, the tree produces the same variety of fruit that was budded onto the rootstock. The successfully grafted trees are sold to citrus growers through wholesale nurseries and are certified disease-free. There are approximately 270,000 bearing acres of citrus trees in California.



**History** – Oranges and lemons can be traced back to the ancient Middle East. In Sanskrit, the orange and lemon were called “Nagrunga” and “Nimbu” and their nectar was used both as a drink and as medicine. The Arabs called oranges “Naranji” while the Romans called them “Arancium.”

All navel oranges are related to each other and can be traced back to the Washington navel tree that still stands today in Riverside, California. Eliza Tibbets, a Riverside pioneer, is credited with planting California’s first two Washington navel trees in 1873. The resulting sweet seedless oranges helped launch Southern California’s modern citrus industry.

**Varieties** – Citrus fruits of one variety or another are available year-round from California, Arizona, and Florida. Navel oranges, a consumer favorite, are sweet, seedless and easy to peel. They are winter oranges, available November through May, and derive their name from their distinctive “button end.” Cara Caras are a type of Navel orange which is available December through April. They have a rich pink pulp, are naturally sweet, low in acid and seedless. Valencia oranges, which are excellent for juicing as well as for eating fresh, are summer oranges available February through November. California also produces Moro and Sanguinelli “Blood” oranges, named for their burgundy flesh.

Traditional lemons, such as the Eureka and Lisbon varieties, are a California classic and available all year long. They have a tart juice and a zesty peel. Traditional lemons are not typically eaten as a whole fruit but are wonderful flavor enhancers. Meyer lemons have a golden peel and, as a cross between a

mandarin orange and a lemon, are less acidic than traditional lemons.

Desert grapefruit are harvested October through March while summer grapefruit are available May through September. Specialty citrus include Melo Golds and Oro Blancos, grapefruit varieties that are popular with those preferring a sweeter taste. Pummelos, or “Chinese” grapefruit, considered a delicacy among many Asian cultures, are the largest of all citrus fruits.

Almost a dozen different mandarin and tangerine varieties, such as Clementines, Gold Nuggets, and Pixies, are available November through May. Most are easy to peel and have a lively flavor.

**Commodity Value** – While Florida is the number one producer of citrus fruits, the majority of their crop is made into processed juice products. California ranks second in the nation in total citrus production and is the leading producer of fresh citrus fruits. Both oranges and lemons are among the top 20 commodities produced in the state as listed by the California Department of Food and Agriculture. Oranges and their products are also one of California’s leading agricultural exports. Canada is the top importer with Korea, China, and Japan following closely. Lemons are also a high value export crop. Japan is the largest importer of California lemons.

**Top Producing Counties** – Most of the nation’s fresh citrus products are produced in California and Arizona. The ideal climate in these areas permits the growth of fruit that is as pleasing to the eye as it is to the taste. The leading counties in California citrus production include Tulare, Kern, Fresno, Ventura, and San Diego.

**Nutritional Value** – Citrus is well known for its high vitamin C content. In fact, just one orange supplies a full day’s requirement. Vitamin C, also known as ascorbic acid, is required for strong gums and healthy body tissues and for preventing a disease called scurvy. Oranges, lemons, grapefruit, and tangerines are great tasting, low calorie foods which are good sources of carbohydrates and fiber, and are low in sodium, cholesterol, and fat. Cara Cara “Power Oranges” are packed with vitamin C, A, fiber, and are a natural source of lycopene.

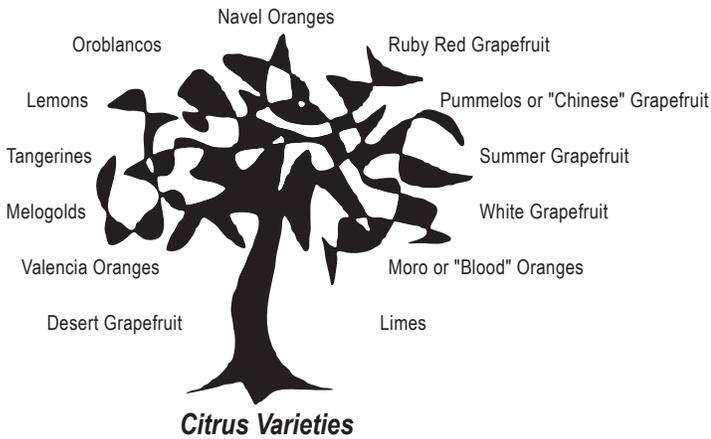
### For additional information:

Sunkist Growers

Website: [www.sunkist.com](http://www.sunkist.com)



# Citrus Fruit Activity Sheet



Availability of Citrus Varieties by Month												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<b>ORANGES</b>												
NAVEL ORANGE												
VALENCIA ORANGE												
CARA CARA ORANGE												
MORO ORANGE												
<b>GRAPEFRUIT</b>												
WESTERN GRAPEFRUIT												
PUMMELO												
ORO BLANCO												
SWEETIE												
MELO GOLD												
<b>TANGERINES</b>												
DANDY TANGERINE												
FAIRCHILD TANGERINE												
MINNEOLA TANGELO												
CLEMENTINE MANDARIN												
ROYAL MANDARIN												

## Lesson Ideas

- Test the pH of a citrus variety and two non-citrus fruits. Create a hypothesis and compare your findings.
- Experiment with the effect lemon or lime juice has on cut avocados or apples. Explain the significance of pH and enzymes in cut fruit preservation.
- Use the citric acid of a citrus fruit to create electricity.
- Make orange, lemon, or grapefruit juice popsicles.
- Make a bar graph comparing the vitamin C content of different fruits, including citrus fruits.
- Observe and practice various grafting techniques used in growing citrus trees.
- Perform experiments that show the effects of freezing on citrus fruits.
- Compare the climates of different citrus growing regions of the world.
- Determine the percentage of water in a citrus fruit.
- Measure and graph the peel to fruit weight ratios of several different citrus fruits.

## Fantastic Facts

1. Citrus fruit trees are reproduced by grafting.
2. Meyer lemons are known for being less acidic and golden in color.
3. All citrus fruits have high quantities of vitamin C.
4. The navel orange got its name due to the button end resembling a belly button.
5. California and Arizona produce most of the United States' fresh citrus fruit.
6. Florida produces the most citrus fruit.
7. One orange contains 100 percent of a person's recommended daily intake of vitamin C.
8. Moro and Sanguinelli orange varieties are known for their burgundy colored flesh.

## Lesson Plan: What's Inside?

**Introduction:** From pummelos to pixies, citrus fruits come in a wide range of sizes. They also differ in quantity of segments, presence of seeds, and volume of juice.

**Objective:** Students will examine a variety of citrus fruits. They will estimate and then measure the quantitative characteristics of the fruit.

**California Standards:** CC Math: 3-4.MD.2,4; 5.MD.2; 6.SP.4; HS.N-Q.1,2,3

**Materials:** A variety of whole citrus fruits (oranges, limes, grapefruit, lemons and tangerines), knife, paper towels, juicer (optional), string, ruler, balance, crayons.

### Procedure:

1. Have students predict how many segments and seeds they will see when the fruits are cut cross-wise. Plot the estimates on a graph. Use unit fractions as appropriate.

2. Weigh each fruit whole and record the results. Measure the circumference using a string and a ruler. Plot the results on a graph.
3. Cut the fruit cross-wise and count the number of segments and seeds. Record and chart the results and compare to the estimates.
4. If seeds are present, remove and dry for planting at a later date.
5. Use the juicer to remove the juice from the fruit. Reweigh the citrus halves to determine the juice content of the citrus fruit. Plot the fruit weight and juice weight on a graph.
6. Mix the juices to make a citrus drink for the class to enjoy.

