Commodity Fact Sheet

Citrus Fruits

Information compiled by Sunkist Growers

How Produced – Citrus trees are propagated asexually through a method called grafting. Grafting is the process of fusing two different varieties of plants together. In the case of citrus trees, one variety is selected for its hardiness and is called rootstock. The rootstock is typically a two to three year-old seedling grown from a seed. The other variety is selected for its high-quality fruits and is called scion. The scion is a bud from an already mature tree. Through grafting, the scion fuses to the rootstock and becomes a new tree. In approximately five years, the tree will produce 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 271,000 bearing acres of citrus trees in California.

Citrus Varieties

History – Oranges and lemons can be traced back to the ancient Middle East. In ancient Sanskrit language, the orange and lemon were called "Nagrunga" and "Nimbu" and their nectar was used as a drink and 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 remains standing 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, Florida and Arizona. Navel oranges, a California favorite, are sweet, seedless and easy to peel. Navel oranges have a distinctive "button end" and are winter oranges available November through May. Cara Cara, a type of Navel orange generally has a rich pink pulp, are naturally sweet, low in acid, seedless and available December through April. Valencia oranges, known for juicing and eating fresh, are summer oranges available February through November. California also produces Moro or "Blood" oranges, so named for their burgundy flesh.

Traditional lemons, such as the Eureka variety, are a California classic. They have tart juice and a zesty peel. Traditional lemons are typically too tart to be eaten as a whole fruit. Meyer lemons are less tart than traditional lemons and provide abundant fruit nearly year-round.

Desert grapefruit, can be found June through July, while summer grapefruit is available June 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, are the largest of all citrus fruits and considered a delicacy among many Asian cultures.

Almost a dozen different Mandarin tangerine varieties, such as Clementines, are available November through May. Most Mandarins 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. Oranges rank 17th on the California Department of Food and Agriculture's commodity list, valued at $518 million. Oranges and their products are California's 12th leading agricultural export, valued at $260 million. Canada is the top importer of California oranges, importing approximately 29 percent of total orange exports. Lemons are California's 16th leading agricultural export, valued at $168 million. Japan is the top importer of California lemons, importing approximately 22 percent of total lemon exports.

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 – From the smallest tangerine to the largest grapefruit, citrus is well known for its high vitamin C content. In fact, just one orange supplies a full day's requirement of this important vitamin. Vitamin C, also known as ascorbic acid, is required for strong gums and health body tissues and for the prevention of 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 a natural source of lycopene.

For additional information:
Sunkist Growers
Website: www.sunkist.com

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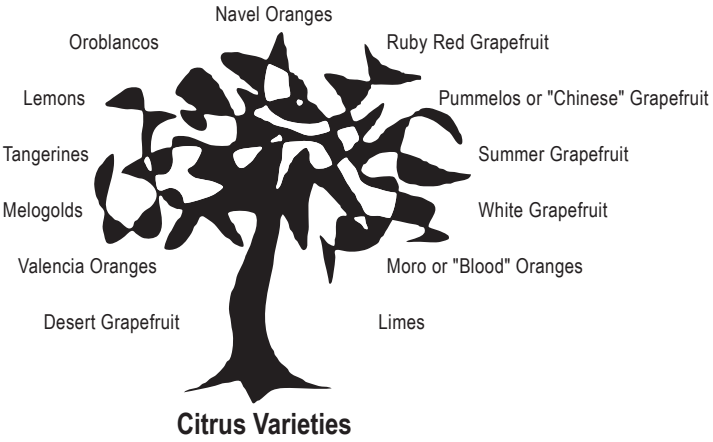
This is one in a series of fact sheets composed by the California Foundation for Agriculture in the Classroom (CFAITC). For additional educational materials: CFAITC, 2300 River Plaza Drive, Sacramento, CA 95833-3293 (916) 561-5625 ✣ (800) 700-AITC ✣ Fax: (916) 561-5697
Email: info@learnaboutag.org ✣ Website: www.LearnAboutAg.org ✣

Citrus Fruits Activity Sheet



Citrus Varieties

Varietal Calendar

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ORANGES												
NAVEL ORANGE	■	■	■	■	■						■	■
VALENCIA ORANGE		■	■	■	■	■	■	■	■	■		
CARA CARA ORANGE	■	■	■	■								■
MORO ORANGE	■	■	■	■								■
GRAPEFRUIT												
WESTERN GRAPEFRUIT	■	■	■	■	■	■	■	■	■	■	■	■
PUMMELO	■	■	■	■	■					■	■	■
ORO BLANCO	■									■	■	■
SWEETIE		■	■	■								
MELO GOLD	■	■										■
TANGERINES												
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 or popsicles.
- Make a bar graph comparing the vitamin C content of various fruits, including citrus fruits.
- Observe and practice various grafting techniques used in growing citrus trees.
- Research how snails and slugs are controlled in citrus groves.
- 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. How are citrus fruit trees reproduced?
2. Which variety of lemons is known for its sweet taste and availability nearly year round?
3. What vitamin do all citrus fruits have in high quantities?
4. How did the navel orange get its name?
5. Name two western states that produce most of the United States' fresh citrus fruit.
6. Which state produces the most citrus fruit?
7. How many oranges must one eat to get 100 percent of the recommended daily intake of vitamin C
8. Which variety of oranges is known for its burgundy colored flesh?

1) By grafting 2) Meyer lemons 3) Vitamin C 4) The button end resembles a belly button 5) California and Arizona 6) Florida 7) One 8) Moro or "Blood" oranges

Lesson Plan: What's Inside?

Introduction: This activity encourages students to use estimating and predicting skills before examining a variety of citrus fruits. Measuring, charting and graphing skills, as well as the scientific method, are emphasized throughout the lesson.

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.
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.

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