



..... THIS MONTH
WE'RE HARVESTING

Citrus!

In This Issue



AND MORE!

Farmer Spotlight

**JERRY ANDRADE - SWEET TREE FARMS, LLC
REEDLEY, CA**

Twelve years ago, fourth generation farmer Jerry Andrade made a big change on his farm—he pulled out the grapevines his great-grandparents planted and replaced them with citrus trees. “The price of grapes would fluctuate so much, sometimes we couldn’t even break even. After four generations, we decided it was time,” said Andrade. Today, he and his family grow three different varieties of mandarin oranges—Satsumas, Tangos, and Murcotts—on their 40-acre farm.



For Andrade, growing citrus fruit is a year-round job. In March, the earliest varieties begin to bloom. “If the trees are cross-pollinated, the citrus develops seeds inside,” said Andrade. Avoiding cross-pollination is so important, Andrade covers the rows of Murcott trees, an uncommon variety particularly susceptible to seed development, with netting designed to keep pollinators out.

Soon, tiny fruits replace the blossoms. As the

fruit grows, truckloads of compost are spread evenly throughout the orchard. “The compost is a natural fertilizer that provides important nutrients to the trees,” explained Andrade. Technology also plays an important role during the growing season—solar-powered pumps and a carefully monitored drip irrigation system helps Andrade save time, money, and water.

Harvest begins in the fall. Satsumas are harvested in October, followed by Murcotts, and finally Tangos in February. As temperatures plummet, large orchard fans keep the fruit from freezing. During harvest, crews use tall ladders to pick each fruit from the tree. Each tree can be harvested up to four times as fruit gradually ripens.

While most large-scale citrus growers send their produce to a packinghouse for nationwide distribution, Andrade packs his produce on-site. Twice a week Andrade delivers his mandarins to farmers markets and independent grocery stores in the San Francisco Bay Area. Soon after the last fruit is sold, the first trees are coming into bloom again. Andrade observes, “We don’t get much down time. It’s hard, but we’re also proud of the citrus we produce.”

FOOD for FUEL



All citrus fruits are rich in vitamin C—in fact, one medium orange or grapefruit provides 100% of your daily vitamin C needs.

HERE ARE SOME OF THE HEALTH BENEFITS OF
INCLUDING CITRUS FRUITS IN YOUR DIET:

Strong BONES

Vitamin C, potassium, and magnesium (all found in citrus fruits) play an important role in bone structure, density, and strength.

Radiant SKIN

The vitamin C found in citrus helps protect our body’s cells from sun damage, while improving skin elasticity and tone.

Immune System SUPPORT

The vitamin C, flavonoids, and carotenoids found in citrus fruits and juices support healthy immune systems by fighting inflammation and helping produce white blood cells, which are necessary to fight infections.



MANDARIN TURKEY WRAP

Bored by the thought of another sandwich for lunch? Wraps provide similar nutrition in an enticing package, perfect for little hands. With a combination of sweet and tart fruit—mandarins, apples, and cranberries—and whole grains, this wrap will tickle your tastebuds while keeping you satisfied throughout the day.



Ingredients:

- 1 mandarin orange
- ½ medium apple
- 2 tablespoons dried cranberries
- ¼ cup Greek yogurt
- 1 tablespoon lemon juice
- 1 whole wheat tortilla
- 8 spinach leaves
- 2 slices thinly sliced turkey
- 1 tablespoon feta cheese (optional)

Tools: Two small bowls, spoon, chef's knife, vegetable peeler, cutting board

Directions:

1. Wash your produce under running water.
2. Peel and segment the mandarin orange. Use a knife to dice each segment. Peel and dice the apple.
3. In a small bowl, combine the diced mandarin, diced apple, and cranberries.
4. In the second bowl, combine the Greek yogurt and lemon juice.
5. Spread the yogurt mixture on top of the tortilla.
6. Layer the remaining ingredients on top of the yogurt: spinach, fruit, turkey, and feta cheese.
7. Roll up tightly and enjoy!

(Adapted from sunkist.com)

CLASSROOM ★ Connection ★

The Origin of 'Orange'

see the evolution of the word 'orange' and how the word has influenced modern language.

Compared to other fruits, the orange and humans have had a relatively short relationship. The first written evidence of the fruit appeared in 314, while other fruits—figs, for example—date back to early history. Using ancient writings, linguists have been able to track the evolution of the fruit's name. By plotting the unique names on a map, students will

Materials: Mandarin oranges (one per student, optional) and student worksheet (page 3)

Procedure:

1. Read the mini book, *Citrus Fruit: Sweet to Sour*. Ask students to infer the origin of the different fruit names. For example, what does the name 'Buddha's Hand' tell us about the geographic origin and shape of the fruit?
2. When students discuss the orange, explain that the fruit name actually came before the color. It wasn't until the arrival of the orange in Europe that the color got its name. Explain that today they are going to explore the origin of the word 'orange' and learn more about its influence on modern language.
3. Distribute mandarins to the class. Explain that the orange's early name, "ārañcu," originates from Tamil, thought to be the world's longest surviving language. In Tamil, the word ārañcu translates to "six and five," implying 11. Invite students to investigate their mandarin and determine why the name is suitable for the fruit.
4. Explain that oranges typically have 11 segments and were named accordingly. Survey the class to determine the number of segments in each orange. Typically, a mandarin will have between 10 and 12 segments. But remember, the oranges we eat today do not have the exact genetics as their ancient relatives, which accounts for some variability.
5. Distribute the related worksheet to the class. Students should read the informational text, plot the locations, and answer the discussion questions.
6. Review the answers to the worksheet. Have students plot the different name locations on a projected world map.

Objectives:

In this lesson, students will read an informational text about the history of the word 'orange' and chart the evolution of the word on a map of the Eastern Hemisphere. Students will draw inferences about how oranges became known worldwide.

California Standards:
CC ELA: RI.5-8.3, RF.5.3,
RH.6-8.3; CA HSS: 7.2

The Origin of 'Orange'

On the map below, plot the different forms of the word 'orange' near the corresponding locations.

1

In Southern India, the word **ārañcu** is first record in the Tamil language. Tamil is thought to be one of the world's longest surviving languages.

2

A Sanskrit medical text describes oranges as **nāraṅga**, a combination of the original Tamil word and the word *naru*, which means 'fragrant.' Sanskrit was used in northern India between 400 BC and 300 AD.

3

Next, locals adapted the word into Persian **nārang** and Arabic **nāranj**, as Muslim merchants brought the fruit westward to the Mediterranean.



4

The Arabic word *nāranj* was localized in various European languages, such as Spanish (**naranja**) and Italian (**arancia**). In some cases, the first 'n' in the word disappears.

5

In Southern France, the Provençal word for the fruit was **auranja**. Over time, the name evolved to **orenge**.

6

Only in the 17th century, after the arrival of the fruit to England, is the word **orange** used to name the reddish-yellow color.

Questions for Discussion

1. In which direction on the map does the name evolve?
2. What does this tell us about ancient trade routes?
3. How do you think the fruit, and the name of the color, eventually spread worldwide?

virtual



When it comes to navel oranges, there's a good chance the oranges in your kitchen came from the Bailey Brothers' grove—their orchards produce more than 40 million pounds of fruit each year. Produced by America's Heartland, this video introduces viewers to four generations that harvest citrus fruit on this Central California farm.



DIG DEEPER

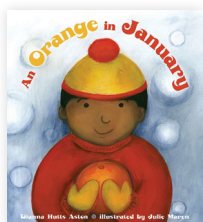
These books, websites, and other resources will help you and your students learn more about citrus fruits.

BOOKS

An Orange In January

written by Dianna Hutts Aston
and illustrated by Julie Maren

Readers follow an orange from blossom to ripe fruit, from tree to truck to market, and into the hands of a boy who shares this treat with his friends on the playground—so that everyone could taste the sweetness of an orange in January.



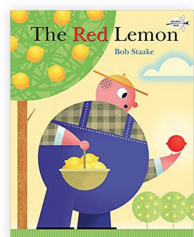
learnaboutag.org

The California Foundation for Agriculture in the Classroom provides free resources to teachers. The resources highlight many of California's 400 agricultural commodities, including citrus fruits.

sunkist.com

For more than 125 years, Sunkist has supported citrus growers as an agricultural cooperative. Their website provides a wealth of information including "family stories" videos featuring Sunkist growers, recipes incorporating citrus, ideas for using citrus to promote health, and much more.

RESOURCES



The Red Lemon

written and illustrated by Bob Staake

In this brightly illustrated book, Farmer McPhee is horrified to discover an anomaly in his orchard, and immediately discards it. Through rhyming text, readers discover that even unusual things can be appreciated with the right perspective.

Lesson Plan: Sour Subject (Grades 5-6)

By California Foundation for Agriculture in the Classroom

In this science investigation, students reinforce their skills of observation, mathematical computation, and written expression by comparing and contrasting grapefruits and lemons.

Lesson Plan: Focus on Fruits (Grades K-3)

By Iowa Department of Public Health

In this lesson, students will learn basic characteristics of kiwis, tangerines, and grapefruit, and how they are grown. Includes kid-friendly instructions for preparing as a snack.

Lesson Plan: Lemon Battery (Grades 4-8)

By North Dakota State University

Build a fully functional lemon battery and use it to learn about electricity as you power a light bulb in this science experiment for kids.

From Oranges to Orange Juice

written by Kristin Thoennes Keller

In this nonfiction text, readers discover how oranges from an orange grove are taken to a factory and made into orange juice. Introduces basic concepts of food production.

