

CELEBRATING  
**20 YEARS**  
of

20th Edition

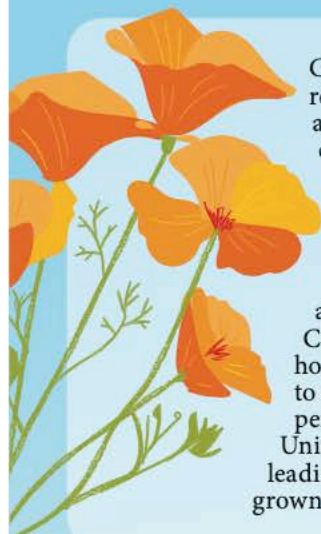
# What's Growin' On?



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Agriculture in the Classroom

# Bountiful California

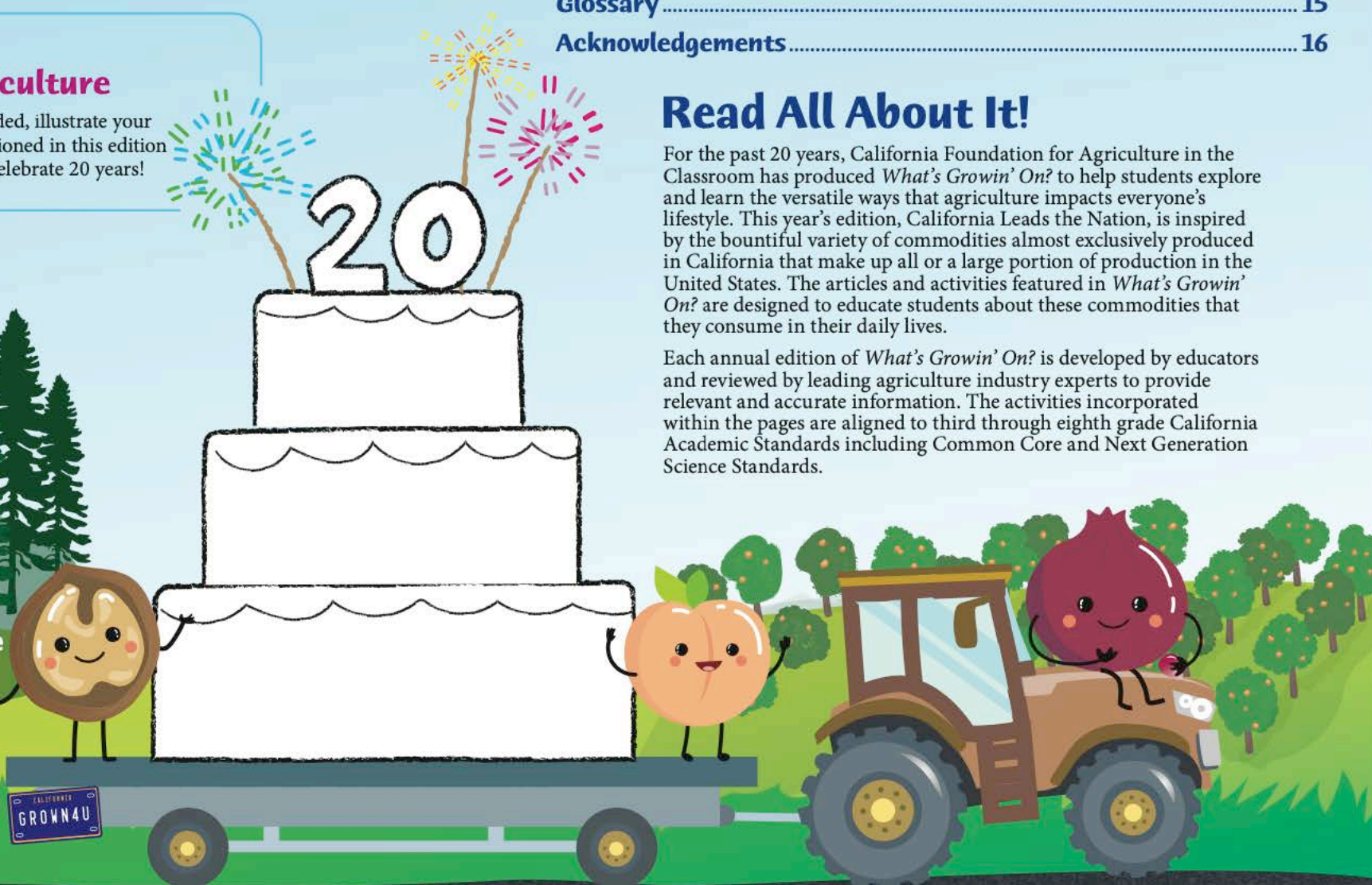


California is known as the Golden State for many reasons—one being the copious amounts of fruits, nuts, and vegetables produced here. What makes California so capable of producing over 400 different commodities? California's Mediterranean climate provides the ideal growing environment to grow the diverse commodities on 69,000 farms with cash receipts of more than \$50.1 billion from their outputs. Nearly half of the nutritious fruits, nuts, and vegetables consumed in the United States are produced right here in our state. From the southern California deserts to mountains in the north, California is home to a variety of soil and climate types that allow the state to rank number one in the nation. California produces 99 percent of 16 commodities that are enjoyed throughout the United States and the world! Learn more about California's leading crops as well as their California ranking of all crops grown by reading this newspaper.

## Celebrating California Agriculture

Using the blank cake provided, illustrate your favorite commodities mentioned in this edition of *What's Growin' On?* to celebrate 20 years!

How many CA Grown license plates can you find throughout the newspaper? To learn more about CA Grown, visit [Californiagrown.org](http://Californiagrown.org)



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## Read All About It!

For the past 20 years, California Foundation for Agriculture in the Classroom has produced *What's Growin' On?* to help students explore and learn the versatile ways that agriculture impacts everyone's lifestyle. This year's edition, *California Leads the Nation*, is inspired by the bountiful variety of commodities almost exclusively produced in California that make up all or a large portion of production in the United States. The articles and activities featured in *What's Growin' On?* are designed to educate students about these commodities that they consume in their daily lives.

Each annual edition of *What's Growin' On?* is developed by educators and reviewed by leading agriculture industry experts to provide relevant and accurate information. The activities incorporated within the pages are aligned to third through eighth grade California Academic Standards including Common Core and Next Generation Science Standards.



### Answers available online!

Visit [LearnAboutAg.org/resources/wgo](http://LearnAboutAg.org/resources/wgo)

### Free Copies for California Teachers!

Place *What's Growin' On?* in the hands of your students by ordering a free classroom set. Order online at [LearnAboutAg.org/resources/wgo](http://LearnAboutAg.org/resources/wgo).

### Extra! Extra!

Download a teacher's guide with classroom extensions and lesson ideas. Available at [LearnAboutAg.org/resources/wgo](http://LearnAboutAg.org/resources/wgo).

# The Amazing Artichoke

**US Production: 99% California Ranking: #48**

The artichoke is acknowledged to be one of the oldest vegetables known to man, as well as California's official state vegetable. It is considered a thistle and the part we eat is the flower head of the plant. Most of the artichokes grown in California today can be found in Monterey County, producing roughly 100% of the nation's supply of fresh artichokes.



## Artichoke Anatomy

Artichokes have many different parts to them. Dissect an artichoke and label all the different parts. If you don't have access to an artichoke, do your best to draw one and label it! **Standards: NGGS: 3-5LS-1; CC ELA: RI.3.6.4, RST.6-8.4**

## True or False

Using online resources, research to answer the information below to be True or False. Indicate your answer next to each statement. Have an adult check your answers online. **Standard: CC ELA RI.3.5**

- \_\_\_\_\_ Artichokes are a great source of fiber & vitamin C.
- \_\_\_\_\_ One artichoke contains 2 grams of protein.
- \_\_\_\_\_ Artichokes contain more antioxidants than any other vegetable.
- \_\_\_\_\_ Artichokes contain a high number of digestible carbs.
- \_\_\_\_\_ One artichoke plant can produce up to 20 artichokes per year.
- \_\_\_\_\_ Artichokes are one of the oldest known foods.
- \_\_\_\_\_ The modern artichoke industry started in the 1980s in California.
- \_\_\_\_\_ Some of California's first artichoke fields were planted by Italian immigrants.

## Did You Know?

Each year, since 1959, an artichoke festival is held each summer in Monterey, California that benefits the local community.



## Did You Know?

Artichokes can be used to make a cake. Check out the recipe on [oceanmist.com](http://oceanmist.com)

## Rambunctious Racemus

Explore how raisins can change their **density** when added into a carbonated beverage. Follow the activity directions by scanning the QR code. Be sure to make observation notes of what happens to the raisins over time in order to have a classroom discussion.

**Standards: NGSS 5-PS1-3, MS-PS1-2**



## Raisin' the Roof

**US Production: 99% California Ranking: #3**

Raisins are made from grapes, also scientifically known as *Vitis Vinifera*, that are dried on the vine or on paper trays until optimal moisture is reached. The word raisin comes from the Latin word racemus which means a cluster of grapes or berries. Raisins were first discovered by accident when they were found dried on the vines in as early as 2000 BC. California has more than 200 raisin growers, producing 100% of the United States raisins in the San Joaquin valley.

**April 30**  
is National  
Raisin Day!



## Raisin' a Trellis

Grapes can be dried on the vine or on sun tarps, helping remove the moisture from the fruit to make raisins. To keep the fruit safe from wildlife, it is important to build a **trellis** to keep the fruit out of their reach. Within the provided space, sketch the draft version of how you would build a trellis to keep your fruit off the ground.

**Standards: NGSS 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3**



# It's Just Peachy!

US Production: **99%** California Ranking: **#30**

California peaches can be enjoyed all year long, whether eaten fresh during the peak season or preserved for when not in season. There are two types of peaches: clingstone, or "cling" when flesh "clings" to the stone (pit) of the fruit, and freestone, where the flesh falls off the pit. Freestone peaches are eaten fresh, while clingstone peaches tend to be processed. Peaches can be canned, frozen, dried or processed into other food products. While fresh fruit may perish quickly, by preserving it, it is possible to enjoy peaches throughout the year. California leads the nation in the production of clingstone peaches, also scientifically known as *Prunus persica*, in the United States.

## Activity

### Peach Scrambler

Using the informational text on this page, unscramble the words below to identify key terms incorporated in the introduction text. Standards: CC ELA: L.4.2.D, L3.3

## Did you Know?

Peaches are a member of the rose family.



gicnl

ncaden

hecapse

lwycol

itp

edcesspro

August is  
National  
Peach Month!



## Nectarines: Facts and Myths

US Production: **99%** California Ranking: **#44**

Nectarines, also known as *Prunus persica* var. *nucipersica*, are mostly grown in the San Joaquin Valley along with a variety of other stone fruit. Nectarines originated in China more than 2,000 years ago and were introduced to Californians in the 1700s by Spanish padres. Nectarines became a thriving industry in the 1950s in California, currently making up 99% of the production in the United States.



Did you Know?  
Germany imports more  
nectarines than any other  
country in the world.

## Canned Peaches Throughout History

Canned clingstone peach labels have been changing in design since the beginning of commercially canned peaches. Using online resources, find five different time periods that illustrate canned peaches differently. Use these labels as inspiration to create your own label on a separate sheet of paper.

Standards: CA Visual Arts: 5-6.MA:Cr.1, CA History-Social Science: 4.4.6



## Nectarine vs. Peach

When driving past a stone fruit tree orchard, it might be hard to distinguish between peaches and nectarines because the trees look identical. That is because they are related! A Punnett Square is used to represent all of the possible combinations of genes that could be inherited by the offspring of two parents. Each parent contributes one gene to the gene combination of the offspring. If a **genotype** contains two of the dominant alleles, (GG) or single genes, the organism will show the dominant trait, creating a peach. If both alleles in the genotype are **recessive**, (gg) the tree will display the recessive trait, creating a nectarine. Using this information, complete the Punnett square provided below to calculate the probability of getting a nectarine or a peach. Standards: NGSS: MS-LS3-2, CC Math 6.SP.A.2


Probability of  
Peaches  
of

Probability of  
Nectarines  
of

## Nectar - The Sweet Food the Gods Eat

A **myth** that has been passed down for ages is that nectarines are the nectar that the Olympian Gods drank. It had the magical property to give immortality to any mortal who had the luck to drink it. It was a grave offense to steal nectar, and those who did, were punished with suffering of hunger and thirst. Research myths to diversify your background to create and illustrate your own myth about nectarines. Standards: CC ELA: RL3.5; W.3.3



# Fig-uring Out Figs

US Production: 99% California Ranking: #4\*

Figs, also known as *Ficus carica*, are grown in the Central Valley of California. They are commonly harvested twice a year and available May through November. The first harvest is typically for fresh market. The second harvest, later in the year, is primarily for dried figs and other fig products (paste, preserves, cookies, etc.). California leads the fig production in the United States, growing 99 percent of the total production.

\*Categorized as Miscellaneous crop

## Did you know?

The two most common varieties grown in California are Golden and Sweet Mission figs.



## Rehydrating Figs

Did you know that dried figs can be used in place of fresh figs in recipes? By simply soaking them in water, it rehydrates the fruit. Before rehydrating the fruit, measure the weight of the dried figs in grams and after soaking them, weigh them again to calculate the amount of water absorption in grams.

Standard: CC Math 3.MD.A.2



2

1

4

SAVE THE DATE!  
November 1-7  
is National Fig Week

## Learning the Lifecycle

Historically, fig trees relied on fig wasps for **pollination** of the fruit, creating a **coevolution** between fig wasps and the figs. Scan the QR code provided to describe each stage of the fig wasp life cycle in the space provided that helps contribute to California's fig production.

Standards: CC ELA: RI.3.1, RI.4.2



3

# The Buzz About Almonds and Bees

US Production: 99% California Ranking: #2

Did you know almonds, roses, and peaches are distant cousins? It's the latest buzz around town! Almonds, also known by the botanical name of *Prunus dulcis*, are part of the *Rosaceae* family and this family needs bees for pollination. Bees and flowers have a **symbiotic** relationship. In spring, honeybees fly from almond flower to flower, cross pollinating almonds in the orchards by sharing pollen to ensure the beautiful blossoms grow into a healthy almond crop.

## Word Bank:

Petals  
Stigma  
Anther  
Ovule

## Flourishing Flower

California produces more than \$6 billion worth of almonds. It all begins with the pollination of flowers that bloom between February and March each year. Each almond we enjoy comes from the pollination by a honeybee that also provided pollen and nectar to their hives. Using online resources, identify the definitions to properly identify the almond flower's anatomical parts. Write them in the space provided.

Standards: NGGS: 3-5-LS1-1; CC ELA: R.1.3-6.4, RST.6-8.4

## An Almond Story

Complete the *California Almonds: An Almond Story Activity Book* incorporated with the QR code, to expand your knowledge about the production, history, lifecycle, nutrition, and industry.



SAVE THE DATE!  
February 16th  
is National Almond Day!

## Did you Know?

In Ancient Greece, winners of athletic events were presented with bunches of celery, much like being presented with a bouquet of roses today!

## Celery-brate Fitness!

Celery can help you be healthy by offering many health benefits! Find out how by participating in the celery fitness game incorporated below. Follow the track activities to celery-brate celery's nutritional benefits.

Standard: CA Health Education: 7-8.1.1.N

## Ancient Celery Challenge

US Production: **99%** California Ranking: **#21**

Celery, *Apium graveolens*, first made its way to the Americas in the early 1800s and was used for medicinal purposes. Monterey and Ventura counties lead the way in crop production, with a total of 99% of the crop produced in California. Celery is primarily harvested by hand throughout the year and is ready for harvest when its stalks are six inches in length.

4

### Water Transportation

The **xylem** and **phloem** are two tissues found in plants that are responsible for transporting water and nutrients to the entire plant to live. Conduct a class experiment to see how the xylem and the phloem function by placing a piece of celery into a cup of colored water. Carry out the experiment for a week to document results and discuss with the class what is occurring. Standards: NGSS: MS-LS1-1, MS-LS-6

1

### Memory

Write down what you ate for breakfast yesterday.

### Did you Know?

Celery seed extract is known to help improve your memory!

3

### Blood Pressure

Stand up and do 10 jumping jacks and sit back down. Did you notice your heart rate go up?

### Did you Know?

Celery can help lower your blood pressure by relaxing the tissues around the artery walls with its natural chemical compounds.

March is  
National  
Celery Month!



Scan the QR code to learn how to take your pulse.

Record your pre-pulse here: \_\_\_\_\_

Record your post-pulse here: \_\_\_\_\_

2

### Hydration

Stay hydrated by consuming celery.

### Did you Know?

Celery is made up of approximately 95% water, making it an ideal way to keep necessary fluids in the body.

## Rice and Shine

US Production: **99%** California Ranking: **#12**

Rice, scientifically known as *Oryza sativa*, is a staple across the world and it is believed to have been first cultivated in ancient Asia and was later brought to the Americas. It was grown in many states as early as the 1900s including California. It is now grown predominately in the Sacramento Valley, making California the front leader in rice production in the United States for medium and short grain rice.

### Creating Rice Acrostic Poems

Scan the QR code to learn more about rice and create an acrostic poem. Using the word RICE, create a structured poem in which the first letter of each line forms a word or phrase, vertically. See the sample to spark your imagination! Standard: CC ELA: RL.4.5



## Activity

### Rice Around the World

Rice has many different names in various countries and cultures. Using online resources, match the country of origin to the correct translation for rice to broaden your rice vocabulary. Standards: CC ELA: RI.3.5; W.3-4.7

September  
is National  
Rice Month!

Country of Origin "Rice" Translated

Italy

Gohan

China

Arroz

India

Riso

Mexico

Baifan

Japan

Caula

# In the Clover

**US Production: 99% California Ranking: #4\***

California produces 99 percent of the Ladino White Clover seed in the United States. It is one of the most important pasture **legumes** and is a member of the pea family. Clover is highly nutritious and appetizing for all types of livestock and wildlife. It is high in protein, phosphorus, and calcium. Ladino clover provides important nourishment in all stages of its production when combined within **silage**. Like most clovers, it has clusters of three leaflets and produces a small, fragrant, white flower in spring or early summer, growing up to 10 inches tall. Seed is typically harvested by swathing, which allows the seed to completely mature and dry before baling future use.

\*Categorized as **Miscellaneous crop**

## Interviewing a Producer

On a separate sheet of paper, use the provided questions to interview a livestock farmer, like Dani Callis, to learn more about how clover benefits livestock. Have an adult check your answers on the provided answer key available at [LearnAboutAg.org](http://LearnAboutAg.org).  
Standard: CC ELA SL.7.3

What are the best cover crops for grazing livestock?

What do cattle need to eat?

What is rotational grazing? Why is it used?

What determines the plants you grow in pastures?

What is grass fed beef?

## Clover Crossword

Use the information on this page and the clues below to complete the crossword.  
Standard: CC ELA: RI.5.4



### Across

4. Color of the Ladino clover flower.

5. Plants with roots that have nodules with nitrogen fixing bacteria.

6. Clover leaves grow in clusters of \_\_\_\_\_.

7. Clover is a good source of protein, phosphorus and \_\_\_\_\_.

### Down

1. Ladino clover is highly nutritious for \_\_\_\_\_ and wildlife.

2. Clover is a legume and member of the \_\_\_\_\_ family.

3. Animal feed made by storing green plant material in a silo.



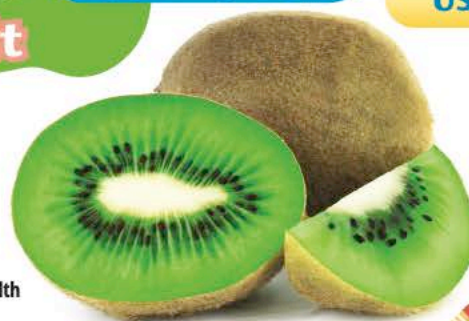
## Nutrition Facts

Serving Size: ½ cup kiwifruit, sliced (90g)	
Calories 55	Calories from Fat 1
	% Daily Value
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 3mg	4%
Total Carbohydrate 13g	11%
Dietary Fiber 3g	
Sugars 8g	
Protein 1g	
Vitamin A 2%	Calcium 3%
Vitamin C 139%	Iron 2%

## Kickin' Kiwifruit

This fruit may be small but it is mighty! Kiwifruit is one of the most nutrient-dense of all fruits available. Use the Nutrition Facts label to identify the key nutrients your body receives by eating kiwifruit. Write your answers in the space provided. Standards: CA Health Education: Grade 4: 3.2.N, Grade 5: 3.2.N

**December 21**  
is National  
Kiwifruit Day!



## Kiwi be Friends?

**US Production: 99% California Ranking: #47**

Kiwifruit, named after a native New Zealand bird, is recognized by its unique fuzzy brown exterior and emerald green flesh. The "Chinese Gooseberry" contains a shocking amount of vitamin C and 40 different varieties can be found around the world. This highly nutritious fruit is harvested in the Central Valley in the fall and is readily available during the winter months.

## Locating Kiwifruit Grown in California

Using a map of California, identify the counties listed where 99% of the nation's kiwifruits are grown in California. Color in each county listed; Butte, Sutter, San Joaquin, and Madera counties.

Standard: CA History-Social Science: 4.1.5



- Serving size: \_\_\_\_\_
- Percent vitamin C: \_\_\_\_\_
- Grams Carbohydrates: \_\_\_\_\_
- Grams fat: \_\_\_\_\_
- Grams sugar: \_\_\_\_\_
- Percent vitamin A: \_\_\_\_\_
- Calories: \_\_\_\_\_
- Percent calcium: \_\_\_\_\_



# The Bountiful State of California



## Figs

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Almonds

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Garlic

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Artichoke

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Honeydew

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Sweet Rice

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Plums

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Raisins

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Walnuts

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Peaches

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Olives

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Nectarines

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Pistachios

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Celery

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Clover

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Kiwis

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Onions

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Flowers

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Apricots

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



## Pomegranates

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

California is known across the nation for its ability to produce a variety of crops because of the ideal Mediterranean climate covering most of the state. Additionally, a sophisticated water system plays a large role in the ability to produce a diverse number of crops from the approximately 200 million acre-feet of precipitation from snow and rain each year. The water is stored in different forms, such as **ground water** and **surface water**. A large portion of this water soaks into the ground and becomes part of the water cycle. The remaining fresh water is distributed through the natural **watershed** systems and sophisticated water systems throughout the state. California's fresh water source is used to grow our food supply, maintain our human health, keep wildlife habitats flourishing, and more.

## Identifying the Water Sources of Commodities

California's water system has been developed over the years to best serve the agricultural, population, and environmental demands for freshwater resources. Using the provided space below each commodity character and the water map.

1. Identify which counties the commodity is produced in.
2. What form of water source is used to produce optimal production? For example, a river, lake, or aqueduct.

3. Identify the name of the water source used.  
*Hint:* Need help with California county identification? Check out California Foundation for Agriculture in the Classroom's *California Grows...* map resource at <https://learnaboutag.org/resources/grab/>

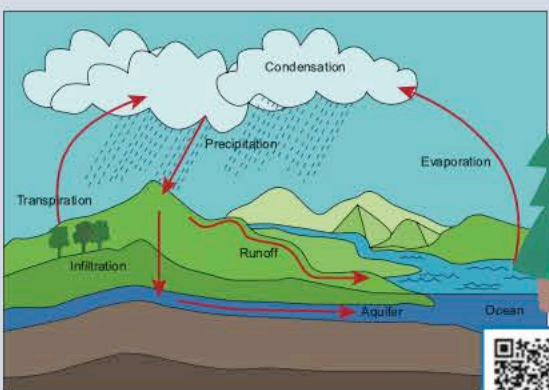
Standards: NGSS: 3-5-ETS1, 3-5ESS2-1, 5-LS2.B, 6-8 MS-ESS2-4

## Know the Waterways by Name

Scan the QR code to help you identify California's waterways that contribute to your school's available water resources provided by California State Department of Water Resources.  
Standards: CC ELA: RI.3.7; RF.3.4.C



To learn more about the individuals involved in all avenues of California agriculture, visit [californiabountiful.com](http://californiabountiful.com)



## Water Cycle In a Cup

Water is always cycling through different forms and phases within the water cycle. Scan the QR code to for instructions on how to create your own water cycle in a cup. Watch each phase occur using the LearnAboutAg Ag-Bite activity.



## Recreating a Watershed

Follow the directions provided by Project WET below to create your own watershed to increase your knowledge of how water naturally flows and collects. After you have completed your watershed experiment, research to see what watershed your school relies on for your fresh water source.

1. Crumple up a piece of paper into a loose ball. Slightly uncrumple your paper. It should not be smoothed out. Imagine that the high points of your crumpled paper are mountains, and the low points of the paper are valleys.
2. Use your blue marker to trace the ridgelines of the mountains (tops of fold lines).
3. Gently spray three to four squirts of water over your watershed model to replicate rain to see where rainwater would travel.
4. With your finger, trace the different watersheds on your model. How many different watersheds can you find? What's happening? Where did your water collect? What might be living in those areas?

Standards: NGSS: 3-5-ETS1, 3-5ESS2-1, ESS2.A, ESS2.C, 5-LS2.B, 6-8 MS-ESS2-4, MS-ESS2.C, MS-ESS3.A



# Glorious Garlic

US Production: **99%** California Ranking: **#27**

Did you know garlic has superpowers? Ancient cultures ate garlic because they thought it would provide them strength, but what they did not know was that it packs a germ fighting capacity documented back to the 9th century! In World War II, lacking conventional medicine on the battlefield, garlic paste was applied to open wounds as a first-aid alternative. Garlic contains an **antimicrobial** compound called **allicin**. The allicin can prevent or kill microorganisms, making it a powerful California produced commodity!

**Did you Know?**  
Garlic and onions belong to the same scientific family, **Allium**.

## Growing Your Own Garlic

Garlic is typically planted in October through November and harvested from June to August. Scan the QR code for instructions on how to start your own garlic plant using a single clove of garlic.



## California Garlic Conversions

California produces 99 percent of the garlic grown in the United States. Gilroy, CA is home to one of the top producing garlic growers, Christopher Ranch. They produce 100 million pounds of garlic each season. Calculate the conversion of weights below. Hint: 2,000 pounds equals 1 ton; 3 cups is 1 pound. Standards: CC Math: 4.OA.A.2, 4 MD.A.1, 6 NS.B.2, 5 MD.A.1

- How many tons are in 100 million pounds of garlic?
- How many cups are in 100 million pounds of garlic?
- If it takes approximately 9 bulbs of garlic to make a pound. How many bulbs of garlic are in 100 million pounds?
- Approximately 14,000 pounds of garlic are produced on one acre. How many acres are needed to produce 100 million pounds of garlic?

## Gilroy Garlic Festival

Since 1978, a garlic festival occurs in Gilroy, California sponsored by Christopher Garlic Ranch. The profits of the festival events are given to local community, charities, and non-profit groups.



# Hone in on Honeydew Melons

US Production: **99%** California Ranking: **#52**

## Nutrition Match Up!

Honeydew melons are full of vitamins and minerals that help your body. Using online resources, draw a line to match the honeydew melon nutrient with its function for the human body. Standard: CA Health Education: Grade 4 – 1.1N

<b>Calcium</b>	Provides antioxidants that protect your body's cells.
<b>Potassium</b>	Regulates the heartbeat and helps with nerve and muscle functions.
<b>Dietary Fiber</b>	Helps maintain strong bones and carry messages from the brain to the body.
<b>Vitamin C</b>	Helps with digestive health.

## 'Honey-dew' List

To start your own melon seed:  
Collect:

- a clean lid
- paper towel
- seeds
- aluminum foil
- water.



Follow the list of steps on the QR code to complete your 'Honey-dew' List.



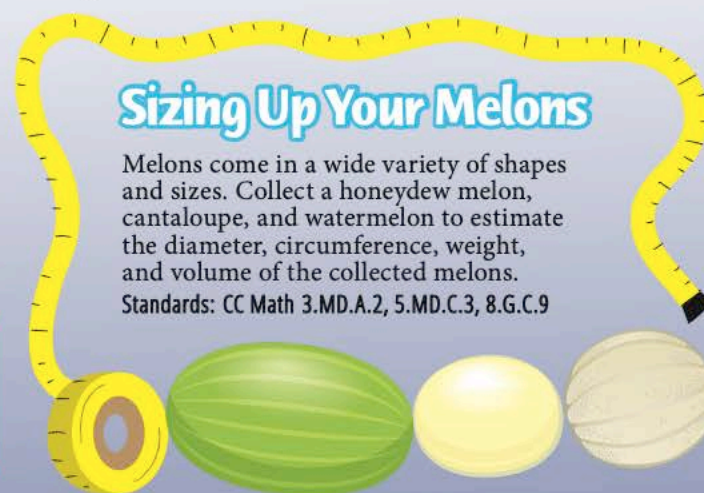
**Celebrate Melon Day**  
the second  
Sunday of August!

Honeydew melons are **botanically** known as *Cucumis melo* and are members of the cucurbit or gourd family. The precise origin is unknown but is documented back to West Africa over 4,000 years ago, with Egyptian tombs mentioning the melon dating back to 2,400 BC. Honeydews were brought to America by Columbus, and Spanish explorers were the first to cultivate them in California. Ninety-nine percent of the honeydew consumed around the world is grown in California in Imperial and Fresno counties from June to November.

## Sizing Up Your Melons

Melons come in a wide variety of shapes and sizes. Collect a honeydew melon, cantaloupe, and watermelon to estimate the diameter, circumference, weight, and volume of the collected melons.

Standards: CC Math 3.MD.A.2, 5.MD.C.3, 8.G.C.9





# Prominent Pistachios

US Production: 99% California Ranking: #7

California is the leading state in the production of pistachios, making up 99 percent of the total commercial production in the United States starting in 1976. Pistachios, also known as *Pistacia vera*, are produced in 22 counties of California that offer the ideal growing environment. This adds up to a total of 485,000 acres of pistachios that are exported all over the world.

SAVE THE DATE!  
**February 26**  
is National  
Pistachio Day!



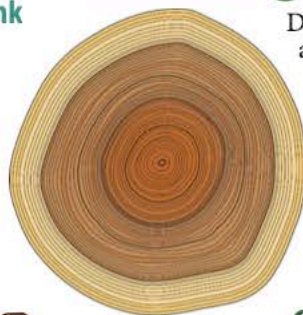
## Pistachio Parts

Pistachio trees reach maturity and peak production after approximately 15 years and have been known to produce for more than 100 years. Using the American Pistachio Grower's website as a resource, identify each part of the pistachio listed in the word bank. Standards: CC ELA: RI.3.7; RF.3.4.C

### Word Bank

Shell  
Skin  
Seed

## Counting the Rings



Did you know you can tell the age by counting the rings of the tree? Some rings are larger, and some are smaller based on the amount of available nutrients. Using the graphic provided, count the number of rings to determine how old this walnut tree is. Standard: CC Math: 3.MD.C.5

### Calculate Tree Age



Boost your tree age identification skills to the next level by learning how to estimate a tree's age while it is still standing! Scan the QR code to learn the steps.

## Pistachio Art

Pistachio shells can be dyed and used as an art medium. Scan the QR code for instructions on how to dye your collection of pistachio shells to create your own art design using only pistachio shells! Standards: CA Visual Arts: 3.VA:Cr2.3, 7.VA:Cr2.



# Way to Go Walnuts!

US Production: 99% California Ranking: #9

English walnuts, scientifically known as *Juglans regia*, were first cultivated in California in the early 1700s, but date all the way back to 7000 BC in Persia, making walnuts the oldest tree nut known to man. With the ideal Mediterranean climate and fertile soil, walnuts flourish throughout California and many in the Central Valley producing over 99 percent of the nation's production. That is more than 784,000 tons of the nation's walnuts.

**Did you Know?**  
There are more than 4,500 walnut growers in California.



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SAVE THE DATE!  
**May 17**  
is National  
Walnut Day!

## Wonderous Walnuts

Walnut trees produce a diverse number of products and by-products from a single tree in addition to the kernel that we consume. Using online resources, identify the parts of the walnut tree provided. Write them in the space provided. Standard: NGSS 3-5-LS1-1



Make your own

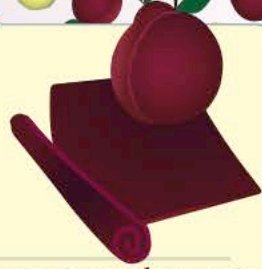
## Plum Hybrid Fruit Leather

This kid-friendly recipe can be modified to other stonefruit, such as peaches or nectarines.

**Ingredients:** Six medium size fruit of your favorite plum hybrid.

**Process:** 1. Wash the fruit, cut into pieces to remove pits, and puree in blender until smooth. 2. Pour mixture on lined pan and spread evenly. 3. Bake for 2 1/2 hours at 200° degrees Fahrenheit or until leather is dry and firm to the touch. 4. Let cool at room temperature and cut into strips.

Source: weelicious.com



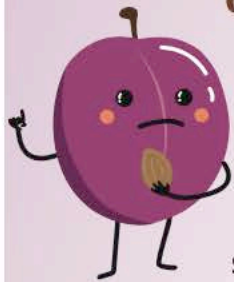
**June 15**  
is National  
Prune Day!

# Plums and Dried Plums

**US Production: 99% California Ranking: #32**

California has 59,000 acres dedicated to the production of plums. Some varieties are grown to be **consumed** fresh, while other special varieties are grown to be dried into prunes. The plums grown for prunes fully ripen on the tree and are harvested when optimal firmness and sugar content are reached. California produces 99% of plums and prunes in the United States and are exported to 50 countries! Plums are known for being a good source of nutrition, particularly fiber.

## Plum Hybrids: To plum or not to Plum?



Some plum varieties that are grown for fresh consumption and have been **genetically** crossed with other related stone fruit to create new fruit varieties that have become popular with consumers. Using the information provided on the three fruits, convert the ratios to fractions and write the answers in the provided space.

Standards: CC Math: 3.NF.A.3.A, 4.NF.B.3.A



**Plumcots** are 50-50 crosses between plums and apricots, with a plum-like flesh and a flavor that contains a touch of apricot.



**Apriums** are more like apricots than plums, with a 75-25 cross between apricots and plums.



**Pluots** (pronounced plew-oughts) are more plum than apricot and have a smooth skin exterior, a 70-30 cross between plums and apricots.

# Olive the Information

**US Production: 99% California Ranking: #43**

Olives, also scientifically known as *Olea europaea*, are classified as stone fruits like peaches, cherries, and plums. There are more than 2,000 varieties of olives including Manzanillo, Sevillano, Mission, Arbequina, and other varieties in California. The olives are made into olive oil and other olive products, or preserved as table olives. California grows nearly 100% of the olives produced in the nation, with 60% of the production grown in Tulare, Fresno, Madera, and Imperial counties.

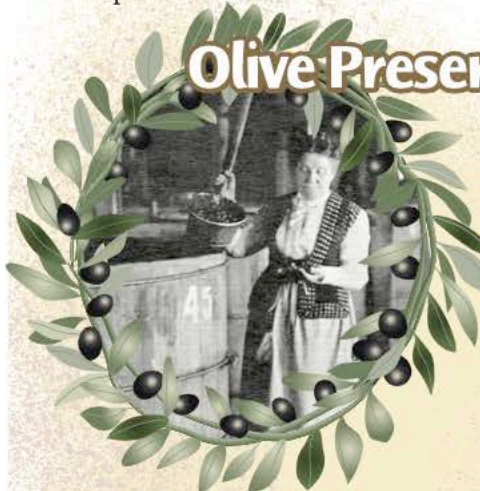
Knock Knock. Who's there? Olive. Olive who? Olive you!



## Olive Preservation History

The **ingenuity** and **perseverance** of Freda Ehmann gave consumers the preserved table olive. Using the sources on this page, research and write a short informational paragraph about Freda's life and her methods of producing the table olives we enjoy today.

Standards: CC ELA RI.3.2, 4.2



## Taste Testing Olive Oils

Olives can be made into many products, with olive oil being a popular product worldwide. Using a variety of different California olive oil types, or flavors – conduct a taste test with your classmates to rank everyone's favorite type of oil. Make sure to look for the California Olive Oil Council seal of certification to ensure you're tasting California olive oil. Scan the QR code to follow along with recommended tasting tips. Create a bar graph illustrating your results.

Standard: CC: Math: 3.MD.B.3



**August**  
is National Olive  
Oil Month!

## Powerful Pomegranates

US Production: **90%** California Ranking: **#4\***

Have you ever taken the time to peel an exquisite, juicy, and healthy pomegranate? They are a good source of fiber and vitamin C. Pomegranates, botanically known as *Punica granatum*, are mainly produced in the San Joaquin Valley from mid-September through mid-November. According to Greek mythology, the goddess Persephone sold her soul for just a handful of arils because of their beauty. \*Categorized as **Miscellaneous crop**

### Pomegranate Parts

Use the word bank to identify the parts of the pomegranate. Fill in the numbered blanks. Standards: CC ELA: RI.3.5, L.4-8.4.B

#### Word Bank

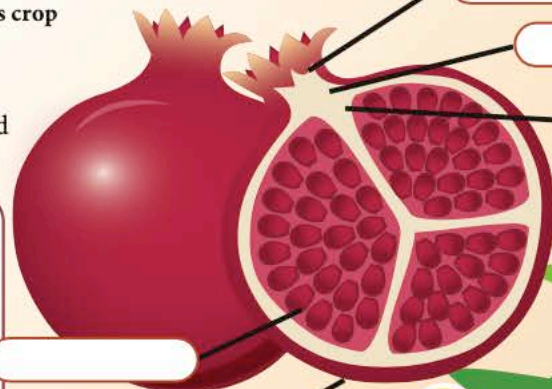
**Calyx:** Also called the "crown," this petal-like structure is evidence of the pomegranate's former blossom.

**Albedo:** Fleshy, thick under-skin of the pomegranate.

**Membrane:** A yellow-ish spongy tissue that separates the fruit into chambers.

**Rind:** The outer skin of the pomegranate, often red in color.

**Arils:** Jewel-like edible seed sacs.



Alexander the Great introduced the apricot tree to ancient Greece in 60 BC.

After World War II the computer industry began to move into the Santa Clara Valley and the apricots were pushed out to northern California.

Today, more than 250 growers in the San Joaquin Valley produce almost 50,000 tons of the nation's apricots in a productive year.

King Henry VIII brought apricot trees to England sometime during his reign from 1507-1547.

The Spanish introduced the apricot to California in the late 18th century. The first major apricot crop in California was in 1792 south of San Francisco.

The apricot tree was brought to the colony of Virginia in 1720. It was not a popular fruit until the 1790s.

The apricot tree originated along the Russian/Chinese border in China in about 3000 BC and traveled the Silk Road.

By the 1920s apricots were flourishing in the Santa Clara valley.

### Mapping Apricots through Time

Apricots can be traced back over 4000 years ago to China's mountains. Using the facts below, number the boxes to place the history events of apricots in the correct order.

Standards: CC ELA: RF.3-5; RI.3.3

## Onions: So Amazing, They Will Make You Cry!

US Production: **29%** California Ranking: **#31**

Onions are used in **cuisine** throughout the world. California is a front leader in the nation's total production. Onions grow in bulbs underground with green leaves rising out of the ground. Onions can be red, yellow, and white! They are known scientifically as *Allium cepa* and are related to shallots and leeks. Onions are vegetables. The word, vegetable, is not a botanical term but refers to edible plant parts that do not contain seeds.

### Onion Haiku

A haiku is a Japanese poem of three lines with a total of 17 **syllables**. 5 syllables in line 1, 7 syllables in line 2, and 5 syllables in line 3. Within the space provided, write your own onion haiku to share with the class.

Standard: CC ELA: RF.3-5.3

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## California Flowers Bulbs, Cut, & Potted... Oh My!

US Production: **77%** California Ranking: **#10**

With the favorable and diverse climate in California, bulbs, cut flowers, potted plants, and tropical plants can be produced year-round! California's floral industry is more than the cut flowers you see at a florist shop. California's Mediterranean climate makes it an ideal state for floral production. Greenhouses contribute to the year-round production of all flowers and plant varieties consumers demand, making California one of the nation's leaders producing 77% of the nation's cut flowers.

### Design Your Own Flower Arrangement

Scan the QR code to watch a video to learn about the color wheel to design your own **monochromatic** floral arrangement. Illustrate your arrangement within the space provided.

Standard: CA Visual Arts: 8.VA.Cr2.1



# Leaders of the Nation

Not quite 99% but still major producers

## Across the World with Apricots

US Production: **95%** California Ranking: **#59**

Packed with a nutritional punch, apricots are filled with vitamins C and A, potassium, iron, and beta-carotene. Apricots, scientifically known as *Prunus armeniaca*, have been grown in California since the 18th century, making them a household staple. Ninety-five percent of all apricots are grown by more than 250 farmers producing on 19,000 acres in the San Joaquin Valley.



## California Quiz

Put your California knowledge to the test by completing the questions below using online resources to find the most current data available. If you are puzzled, make sure to use the sources included on the bottom of the page to help you along the way. **Standards: CC ELA: RI.3.5; W.3-4.7**

What type of climate does California have that allows it to produce so many bountiful crops?

What are California's top-5 valued commodities in cash receipts?

How many farms and ranches are there in California?

How many acres are on the average California farm or ranch?

Bonus: How many acres are in the average farm nationwide?

What percentage of the nation's cash farm receipts does California produce?

Research to find how many dairy cows it takes to make California the leader of the nation in milk production.

Identify three livestock animals produced in California.

How many laying hens are there in California? How many eggs are produced by these hens?

How many bee colonies in California are used for pollinating at least 90 different crops?

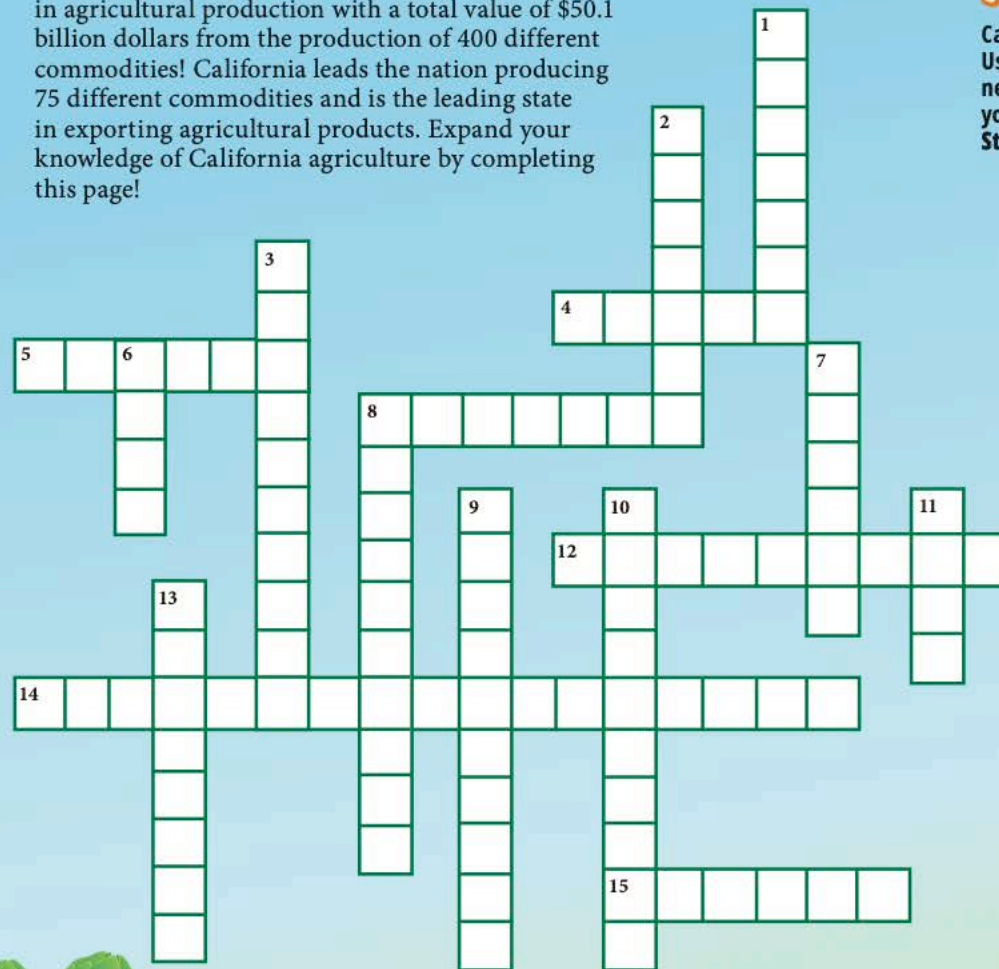
Who is California's Secretary of the California Department of Food and Agriculture?

How many acres of farmland are there in California?

What is the top agriculture producing county in California?

# Celebrating California Agriculture!

For more than 50 years, California has led the nation in agricultural production with a total value of \$50.1 billion dollars from the production of 400 different commodities! California leads the nation producing 75 different commodities and is the leading state in exporting agricultural products. Expand your knowledge of California agriculture by completing this page!



## 99% Club Crossword

California's 99% club consists of 16 commodities. Using the information included within this newspaper, complete the crossword puzzle to test your knowledge about the 99% club! **Standard: CC ELA: RI.5.4**

### Across

4. Are often genetically crossed with Apricots and to generate new varieties of fruit.
5. Used in WW2 as a form of medicine on the battlefield.
8. Requires bees to visit the flower to produce this nut.
12. Named after a native New Zealand bird.
14. Scientifically known as *Prunus persica*.
15. Oil is one of the most popular forms of this commodity to be consumed.

### Down

1. Dried on the vine or paper trays.
2. The oldest tree nut known to man.
3. One gene different from a peach.
6. Planted by airplane and predominately grown in the Sacramento Valley.
7. The stalks of this commodity are sold as a vegetable.
8. California's state vegetable.
9. Is highly nutritious for livestock and wildlife.
10. Contain all nine essential amino acids making them a complete protein.
11. Historically pollinated by a wasp.
13. A melon related to squash and cucumbers.

## What is the state...?

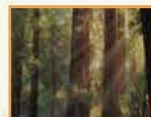
### Vegetable



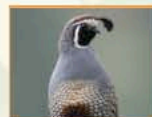
### Flower



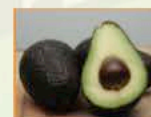
### Tree



### Bird



### Fruit



### Grain



# Glossary

**Allicin:** A compound found in garlic that has anti-bacterial qualities.

**Antimicrobial:** The ability of destroying or preventing the growth of microorganisms.

**Botanical:** Research related to the scientific study of plants.

**Coevolution:** When two species mutually affect each other's evolution.

**Consume:** When an item is used or ingested.

**Cover Crop:** A commodity grown for the protection and enrichment of the soil.

**Cuisine:** A style of cooking or preparing a meal.

**Density:** The mass of a materials volume.

**Flourishing:** Vigorous and healthy grown.

**Genes:** A section of DNA that contains the encoded instructions for making proteins.

**Genetically:** A way that relates to genes.

**Genotype:** The genetic constitution of an individual organism.

**Ground Water:** Water that is stored under the surface of the earth in aquifers.

**Ingenuity:** The quality of being inventive, clever, and original.

**Legumes:** Plants that bear their fruit inside a pod – beans and peas are examples.

**Monochromatic:** The use of only one color at different frequencies.

**Myth:** A symbolic story of historical events that may or may not be true.

**Offspring:** The child or young of two parents.

**Phloem:** A specialized plant cells that transport food throughout the plant.

**Perseverance:** The continued effort to achieve something despite difficulties.

**Pollination:** The act of transferring pollen grains from the anthers to the stigma.

**Recessive:** A trait that can be expressed only when two copies of the gene is present.

**Silage:** A grass or other green plant that was chopped up and stored in airtight conditions to be fed to animals.

**Surface Water:** Fresh water on the surface of the earth including lakes, ponds, rivers, and creeks.

**Swathing:** The act of cutting grass fields and laying it into rows to dry out.

**Syllables:** Part of a word that contains a single vowel sound that is pronounced as a unit.

**Symbiotic:** The interaction between two different organisms that are interdependent on each other.

**Trellis:** A wood or metal framework used to support vine, trees, or climbing plants.

**Watershed:** Land area that drains rain and melted snow into a creek, river, lake, or ocean.

**Xylem:** A specialized plant cells that transport water throughout the plant.



Choose ten words in the glossary and create an illustrated dictionary. Identify whether each word is a noun, adjective, or verb.  
Standards: CC ELA: L.3-8.6

## Resources

Agriculture Marketing Resource Center – [agmrc.org](http://agmrc.org)  
Almond Board of California – [almonds.com](http://almonds.com)  
American Pistachio Growers – [americanpistachios.org](http://americanpistachios.org)  
Apricot Producers of California – [apricotproducers.com](http://apricotproducers.com)  
California Canning Peach Association – [calpeach.com](http://calpeach.com)  
California Cut Flower Commission – [ccfc.org](http://ccfc.org)  
California Department of Food and Agriculture – [cdfa.ca.gov](http://cdfa.ca.gov)  
California Farm Bureau – [cfbf.com](http://cfbf.com)  
California Fresh Fruit Association – [cafreshfruit.com](http://cafreshfruit.com)  
California Foundation for Agriculture in the Classroom – [learnaboutag.org](http://learnaboutag.org)  
California Grown – [californiagrown.org](http://californiagrown.org)  
California Olive Committee – [calolive.org](http://calolive.org)  
California Olive Oil Council – [cooc.com](http://cooc.com)  
California Prune Board – [californiaprunes.org](http://californiaprunes.org)  
California Rice Commission – [calrice.org](http://calrice.org)  
California Walnut Board and Commission – [walnuts.org](http://walnuts.org)  
Christopher Ranch – Have A Plant – [fruitandveggies.org](http://fruitandveggies.org)  
National Agriculture in the Classroom – [agclassroom.org](http://agclassroom.org)  
National Library of Medicine – [nlm.nih.gov](http://nlm.nih.gov)  
National Onion Association – [onions-usa.org](http://onions-usa.org)  
Ocean Mist Farms – [oceanmist.com](http://oceanmist.com)  
Raisin Administrative Committee – [raisins.org](http://raisins.org)  
Sun-Maid Growers of California – [sunmaid.com](http://sunmaid.com)  
University of California Agriculture and Natural Resources – [ucanr.edu](http://ucanr.edu)  
United States Department of Agriculture – [usda.gov](http://usda.gov)



To request a free copy of What's Growin' On? Extra! Extra! Extensions to enhance the use of this newspaper, visit [LearnAboutAg.org/resources/wgo/](http://LearnAboutAg.org/resources/wgo/) or call (916) 561-5625.



Illustrate your own agripod featuring your favorite commodity. Snap a photo and have an adult post it to social media. #LearnAboutAg

## Decoding California Agriculture Plates

License plates can be designed to have hidden messages. Do your best to interpret what these agriculturally-based license plates say as inspiration to create your own special agriculture license plate describing your favorite agriculture commodity.

Standards: CC ELA: L.4.2.D, L3.3



## Design Your Own Agriculture Plate

Specialized license plates range from two to seven characters. Using your favorite commodity, create a one-of-a-kind license plate and illustrate your commodity in the background within the provided space. **Standard: CA Visual Arts: 8.VA.Cr2.1**

### About California Foundation for Agriculture in the Classroom

California Foundation for Agriculture in the Classroom is a 501(c)(3) nonprofit organization that provides educators with free standards-based resources about California agriculture. Our mission is to increase awareness and understanding of agriculture among California's educators and students. Our vision is an appreciation of agriculture by all.

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