

Bell Peppers

Information compiled by California Foundation for Agriculture in the Classroom

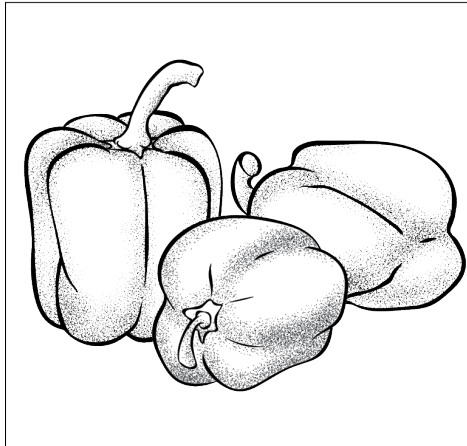
How Produced – The pepper plant is a member of the *Solanaceae* or nightshade family, which also includes tomatoes and potatoes. Pepper plants are planted in the field as seeds or as young plants, called transplants. Bell peppers are warm-season crops, sensitive to freezing temperatures at any growth stage. The ideal growing temperature is between 75° and 85°F, with night temperatures between 55° to 65°F. If planting seeds directly into the ground, the producer typically sows seeds March through May. If planting by transplant, plants are grown in greenhouses for two months before being transplanted out in the field from March through July.

Bell peppers are a slow-growing crop, with up to 180 days until the final harvest. Due to their slow-growing nature, they face greater exposure to elements such as inclement weather, pests, and weeds. Therefore, bell pepper fields require significant input costs such as water, labor, and crop protection. Bell peppers are also susceptible to sunscald, which occurs when ripening fruit is not adequately shaded by leaf cover. Adequate fertilization to increase canopy coverage helps control this problem. The color of bell peppers change as they ripen on the plant. Most bell peppers are primarily sold as green peppers, but red, yellow, orange, purple, and black colors will show as the plants ripen. Peppers are ready for harvest between early July and October. Fresh market peppers are harvested by hand, with multiple harvests occurring within a single season. Peppers intended for processing are often harvested mechanically. In this process, each plant is cut at the base and peppers are shaken from the plants. The shaken peppers are hand-sorted on the machine. Conveyor belts transfer the peppers into produce bins pulled by a tractor following alongside.

The bins are transferred onto flatbed trucks using a forklift. Trucks haul processing peppers to a facility where they are peeled, sliced, or diced into the familiar frozen, canned, or dehydrated pepper products seen on store shelves. Fresh market peppers are graded and packed in sheds located near the fields to assure maximum freshness.

History – About 9,000 years ago, the wild pepper plant originated near Bolivia and Peru. It was later cultivated for its fruits by the Olmecs, Toltecs, and Aztecs. The seeds spread throughout Central America by both nature (wind, animals) and human activity (migration, exploration).

Bell peppers were carried throughout the world by Spanish and Portuguese explorers. The misleading name “pepper” was given by Europeans when Christopher Columbus brought the plant back to Europe. Due to the versatility of the bell pepper, it quickly became a staple in diets throughout the world including Central Europe where they were dried and ground to make paprika. Commercial bell peppers were first grown in the United States in the early 1920s.



Varieties – Varieties are selected on the basis of yield potential, quality, market acceptability, and disease resistance or tolerance. There are nearly 200 different varieties of bell peppers grown throughout California for both fresh market and processing. These include varieties with the traditional multi-lobed shape as well as longer more pointed

varieties. Common bell pepper varieties used for commercial production include: Huntington, Classic, and Baron.

Commodity Value – California is the nation's leading producer of bell peppers. Last year, California's pepper growers harvested more than 340,200 tons on 13,500 acres throughout the state. The state's crop value reached \$210 million in 2018. Most of California's peppers are consumed within the US. Canada is the top export market, valued at approximately \$20 million.

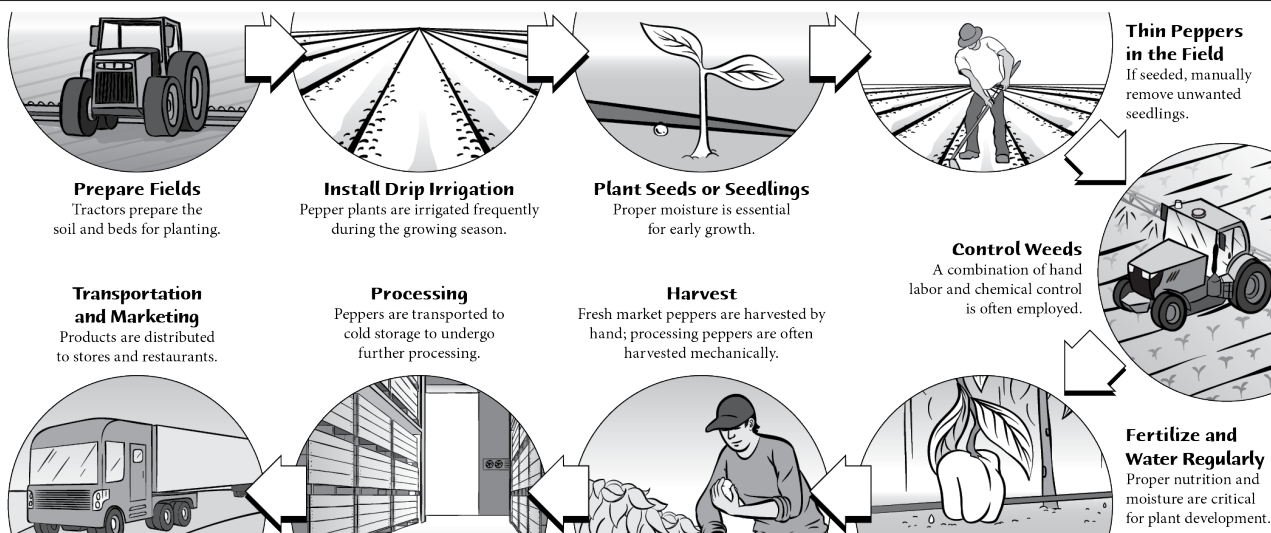
Top Producing Counties – Riverside is the top producing county in California generating nearly \$79 million. The second highest producing counties are Ventura and Kern, both generating \$42 million.

Nutritional Value – One serving of red bell peppers is an excellent source of vitamin A and vitamin C and a good source of vitamin B6. Vitamin B6 helps the body break down or metabolize protein, aids in the formation of red blood cells, and helps maintain normal brain function. Bell peppers are also an excellent source of dietary fiber and provide small amounts of several other vitamins and minerals.

For additional information:

California Pepper Commission
(559) 591-3925
Website: calpeppers.com

Bell Peppers Activity Sheet



Lesson Ideas

- Research preserved peppers throughout history and plot significant dates on a timeline.
- Study the anatomy of the bell pepper. Label the different parts.
- Examine the capsicum genus and compare the different species of peppers.
- Create an alliterative phrase about peppers. Try to say it three times fast.
- Compare the edible mass of a traditional bell pepper and a sweet mini pepper.
- Explore different types of preserved peppers and compare price per ounce.
- Identify cultures that use peppers in cooking and locate them on a map.
- Research the Scoville rating for a variety of peppers, make a bar graph to illustrate.

Fantastic Facts

1. Peppers are fruits because they are produced from a flowering plant and contain seeds.
2. Columbus and Spanish explorers named bell peppers while searching for peppercorn plants to make black pepper.
3. Bell peppers are called by different names throughout the world (US: bell pepper; England: pepper; Japanese: papurika; Australia: capsicum)
4. Red bell peppers have twice the vitamin C content as green bell peppers.
5. Bell peppers are the only member of the pepper family to not contain capsaicin, the main compound that gives chili peppers their heat.
6. Green bell peppers are less sweet and almost bitter since they have not been able to fully ripen.

Lesson Plan: Sort Your Salsa

Introduction: Peppers add color, flavor, and texture to salads, pizza, pasta, and ethnic foods. In recent years, salsa has become one of America's favorite condiments. For every bottle of ketchup purchased, Americans are purchasing two jars of salsa. Along with fresh tomatoes, salsa often contains bell and chili peppers.

Objective: Students will analyze, determine ingredient ratios, and explore the essential role of peppers in salsa.

California Standards: CC Math: 3-4.MD.2, 6-7.RP.3

Materials: Fresh salsa that contains peppers, paper plates, toothpicks, cheesecloth, magnifying lenses

Procedure:

1. Before the lesson, use the cheesecloth to drain as much liquid as possible from the salsa.
2. Ask students to raise their hand if they have salsa in their home right now. Discuss the different styles of salsa. Have students raise their hands to vote for their favorite style.

3. Brainstorm ingredients of salsa and record them.
4. Predict the ratios of each ingredient in a salsa recipe.
5. Distribute toothpicks, a paper plate, and two tablespoons salsa to each group. Instruct groups to weigh and record the mass of their salsa.
6. Using toothpicks and magnifying lenses, instruct students to separate their salsa by ingredient. Find the mass of each ingredient. Record data.
7. Use proportional reasoning to convert weights to percentages (or degrees) and create a pie chart.
8. Compare results and discuss how peppers change the color, flavor, and texture of salsa.