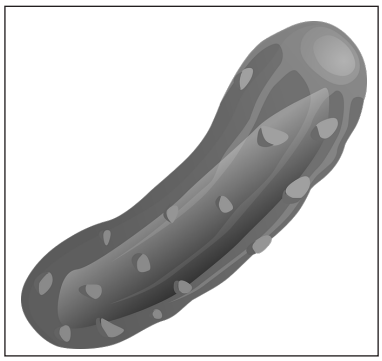
Commodity Fact Sheet

Pickling Cucumbers

Information compiled by Kruger Foods

How Produced – Cucumbers are an annual plant typically planted in mid-March up until August. The time from seedling to harvest is roughly 55 to 70 days depending on the seed variety. Due to the short season, many growers (farmers) plant two crops of cucumbers yearly, while others use cucumbers as a crop rotation – meaning they plant it after a different crop has been planted and harvested. Cucumber harvest runs from May through November. Cucumbers are grown for fresh market (slicing cucumbers) and processing (pickling). Pickling cucumbers are typically harvested by machine. The perfect cucumber for pickling is the right color and size, and doesn't have a lot of seeds. After harvest, pickling cucumbers are transported to a briner where they will be washed, graded, sized, and placed in a tank of brine (a mixture of vinegar, salt, garlic, and spices) to be fermented and turned into pickles.



Approximately 100,000 to 125,000 acres are devoted to growing pickling cucumbers in the United States. They are grown in more than 30 states, with the biggest producers being California, Colorado, Florida, Indiana, Michigan, Ohio, North and South Carolina, Texas and Wisconsin. California ranks fifth in the nation for pickling cucumber production. They are mainly grown in the agriculture-rich Central Valley.

History – Cucumbers are one of the earliest known cultivated vegetables and originated in India. They were used not only as food but also for medicine. Ancient Mesopotamians pickled cucumbers about 4500 years ago. Cleopatra thought that pickles enhanced her good looks. Julius Caesar and Napoleon both fed pickles to their troops for physical and spiritual strength. Christopher Columbus brought cucumbers to the New World - he even grew cucumbers to pickle in Haiti. Columbus's ship stocker, Amerigo Vespucci, stocked the ships with plenty of pickles to prevent scurvy outbreaks. The name "America" actually came from Amerigo Vespucci, the pickle merchant!

In 1659, New York Dutch farmers grew cucumbers in what is now known as Brooklyn. They were cured in barrels and sold at market stalls as Kosher Dills. In 1900, Henry J. Heinz of catsup fame, set up one of New York's first large electric signs on the corner of Fifth Avenue and 23rd Street. It featured a 40-foot long pickle and 1,200 light bulbs.

Varieties – Cucumbers are part of the Cucurbitaceae family which includes gourds, pumpkins, watermelon, and squash. There are hundreds of varieties, but there are basically four types: slicing, pickling, burpless, and specialty. Slicing cucumbers are generally longer, with thicker, waxed skin. They are good for eating fresh. Pickling cucumbers are generally shorter, firmer, and crisper. Varieties planted in California include Eureka and Valaspik. Burpless cucumbers are generally longer and thinner, easy to digest, mild-tasting, and contain fewer seeds. Specialty cucumbers are unique in shape, color, and taste. An example is the lemon cucumber.

Dill weed is added to the tanked cucumbers during the last stage of fermentation to create dill pickles. Kosher dill pickles have been manufactured and certified in accordance with Jewish dietary laws. They are made with dill and garlic added to the brine, and are more robust than typical dill pickles. To make sour or half-sour pickles, cucumbers are placed into a brine mixture that doesn't include vinegar and then refrigerated. The longer they remain in the mixture, the more sour they will become. Sweet pickles are placed into a sweet mixture of vinegar, sugar and spices. Some variations include Bread and Butter, Candied, and Hot.

Commodity Value – California produces about 6% of the nation's cucumber crop. Michigan tops the list for pickling cucumbers, followed by Florida. Approximately 35,000 tons of pickling cucumbers are grown in California every year. The national average price per ton is $324. Exports are mainly to Canada and Mexico. China produces nearly 80% of the world's output.

Top Producing Counties – Pickling cucumbers are mainly grown in the Central Valley. The top producing counties for pickling cucumbers include: San Joaquin, Stanislaus, Solano, Yolo, San Benito and Imperial counties. Cucumbers grow well in the Central Valley because of the moderate Mediterranean climate, low humidity, and heavy, dry ground.

Nutritional Value – Cucumbers are 96% water and are low in fat, sodium, and calories. A one-half cup serving has 8 calories. Pickles are also low in fat. One large dill pickle, approximately 4 inches long, contains 16 calories, 0.19 grams of total fat, and 0.05 grams of saturated fat. It also has 0.81 grams of protein, 3.5 grams of total carbohydrates, 1.5 grams of dietary fiber, 124 mg of potassium and 57 mg of calcium. Pickles have 1,181 mg of sodium.

For additional information:
Pickle Packers Intl. Inc.
(202) 331-2456
Website: www.Ilovepickles.org

08/16
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
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Pickling Cucumbers Activity Sheet

From Plant to Pickle

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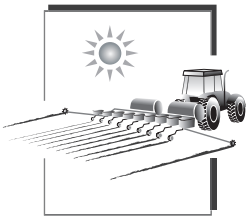

Cucumber planting takes place from March to August.

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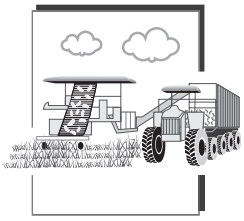

Mechanical harvesting takes place from May to November.

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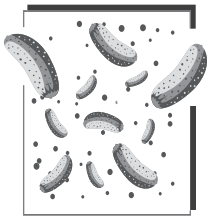

Perfect cucumbers are selected for pickling based on size, shape and color.

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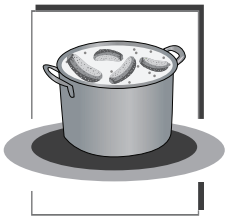

Cucumbers are processed in a brine bath of vinegar, salt, garlic, and spices for 6 to 8 weeks.

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Additional seasoning is added and pickles are packaged and ready to be shipped to stores and restaurants.

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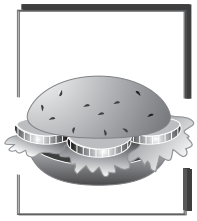

Ready to eat! Enjoy pickles on your sandwiches or hamburgers!

Lesson Ideas

- Illustrate and label postcards with the scientific names of various fruits and vegetables.
- Grow cucumbers in your classroom. Observe and plant outdoors when ready.
- Study bees and pollination and their importance to cucumbers and other fruits and vegetables.
- Research canning and food preservation; invite a master preserver to your class.
- Make a plan for your school or community to decrease food waste.
- Illustrate the steps from farm to fork of different commodities that are preserved.
- Invite a farmer to your class to discuss their work.
- Create a timeline of the history of cucumbers or other vegetables.
- Create classroom recipes using cucumbers such as infused water, salads, or sandwiches.

Fantastic Facts

1. Pickle fans include: Queen Elizabeth, George Washington, Thomas Jefferson, John Adams and Selena Gomez.
2. Although most people consider cucumbers a vegetable, it is in fact a fruit.
3. Pickle history dates back more than 4,000 years to 2020 BC when inhabitants of Northern India brought cucumber seeds to the Tigris Valley.
4. Miniature sweet or kosher dill pickles are called gherkins.
5. People have been pickling food for nearly 5,000 years.
6. Pickled cabbage is called sauerkraut.
7. Fifty percent of cucumbers grown in the US are made into pickles each year.
8. There is a Christmas tradition of hanging a pickle on the Christmas tree and the child to find it first gets to open presents first.
9. During WWII, pickles were rationed and 40 percent went to the armed forces.
10. Pickle juice can be made into pickle popsicles!

Lesson Plan: Refrigerator Pickles

Introduction: Pickling is one way to preserve food. By adding vegetables to a brine bath (vinegar, salt, and seasoning) and allowing time, vegetables can last longer. Choose a firm vegetable, such as cucumbers. Other suggestions are olives, radishes, green beans, and asparagus.
Discuss why food is preserved, different methods of food preservation (examples: canning, freezing, drying, pickling, dehydrating) and different types of foods that are preserved. Examples could include tomatoes preserved as sauce or catsup, grapes preserved as juice or raisins, peaches as canned or frozen, and meat as jerky.

Objective: Students will learn and report on the process of food preservation by pickling.

California Standards:
CC ELA: SL.3-12.4, RST.6-12.3
NGSS: MS-LS1-5, HS-LS1

Materials: recipe, cutting board, paper towels, bowl, knife, 3-4 pint jars, lids, labels, marker, measuring cup and teaspoon, vinegar, water, mustard seed, peppercorns, kosher salt, fresh or dried dill, cucumbers. (optional seasoning to include: garlic clove, coriander, dried red peppers)

Procedure:

1. Prepare a sample ahead of time to show your students. Ask students to bring in supplies. Students will work in groups of 3-4.
2. Discuss food safety – washing hands, vegetables, and tools. Discuss how to handle kitchen tools safely such as cutting with sharp knives.
3. Gather materials for a demonstration on how to prepare the pickles.
4. Wash and dry cucumbers and dill. Slice cucumbers into wedges.
5. Place the cucumbers in a bowl with the dill and salt, mix by hand.
6. Using 3-4 pint-size jars, divide the remaining ingredients (vinegar, water, mustard seed, peppercorns) evenly into each. (You can also use 2 quart-size jars; adjust the recipe accordingly)
7. Equally distribute the dill/salt/cucumber mixture to each jar.
8. Seal the lids, mix the pickles, and refrigerate at least a week before you eat them!
9. Have a pickle tasting! Have students use their 5 senses to describe the pickles. For sound, think about what it sounds like as you eat!
10. Have student groups report to the class on their experience making and tasting pickles.
11. Extension idea - research the role of bacteria in preserving food.

Recipe: ½ cup vinegar, 2 cups water, 6 black peppercorns, ½ tsp of mustard seed, 8 tsp kosher salt, 1 cup fresh dill (or 1/3 cup dried), 6 medium cucumbers

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The Pickling Cucumber Fact and Activity Sheet was developed by California Foundation for Agriculture in the Classroom in conjunction with California educators and meets the required education standards of the California Department of Education.

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