

## **MSU Extension Publication Archive**

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Cucumber Pickles – Food Preservation Series  
Michigan State University Extension Service  
Sandra L. Andrews, Food Science and Human Nutrition  
Reprinted April 1994  
4 pages

The PDF file was provided courtesy of the Michigan State University Library

**Scroll down to view the publication.**



# CUCUMBER PICKLES

## AVAILABILITY

July to August

## TRIM LOSS

2 to 4 percent from blossom ends of cucumbers

## YIELD

1- 11/6 pounds fresh	1 pint canned sweet gherkins (1 1/2 inches or less)
1 1/2- 2 pounds fresh	1 quart canned dills; (4-inch average)
1 bushel (48 pounds)	16-24 quarts (average 2 pounds per quart)
14 pounds fresh	canner load of 7 quarts
9 pounds fresh	canner load of 9 pints

## QUALITY

Always use a pickling variety of cucumber to make pickles. Check your local nursery for varieties available in your area. Select fresh, firm, unwaxed cucumbers. Waxed cucumbers do not allow penetration of brine and may not cure properly. For best results, pickle cucumbers and vegetables within 24 hours after harvesting.

## PREPARATION

Thoroughly wash cucumbers, especially around the stem, where soil can be trapped. Bacteria trapped in soil are often a cause of softening of pickles. Remove and discard a 1/16 inch slice from the blossom end of fresh cucumbers-blossoms contain an enzyme that causes excessive softening of pickles. Sort cucumbers by size-use those 1 1/2 inches or less for gherkins and those 4 inches for dills. Use odd-shaped and more mature cucumbers for relishes and bread-and-butter style pickles. Thoroughly wash all containers and utensils in hot, sudsy water and rinse with very hot water before using.

## INGREDIENTS

### Water

Avoid using very hard water-minerals such as iron and copper can discolor and soften pickles. If using very hard water, boil water for 5 minutes, allow the minerals to settle and remove the top scum. Then, pour off the water to use. Strain heavy sedimentation through several layers of cloth. Or, dilute hard water with soft water. To dilute, mix one part hard water with two parts soft water. Water softened by a commercial water softener may be too soft and mushy pickles may result.

### Salt (sodium chloride)

Use canning or pickling salt. Iodized or noniodized salt can safely be used to make fermented or fresh packed pickles, though non-caking materials added to table salt may make the brine cloudy, and iodized salt may darken pickles. Flake salt varies in density and is not recommended. Reduced-sodium salt is not recommended in fermented pickle recipes.

### Vinegar

Use vinegar with 5 percent acidity (50 grain). Correct acidity is important. Do not decrease, omit or dilute vinegar unless indicated. Do not use homemade vinegar or vinegar of unknown acidity. Purchase fresh vinegar to make pickles. Use either commercial white or cider vinegar. White vinegar is tart-use when a light color is important. Cider vinegar has a more mellow flavor, and can cause darkening of the product.

### Sugar

Use either white or brown sugar. When measuring, pack brown sugar. As with cider vinegar, dark brown sugar can cause darkening of the product. Use white sugar when a light color is important.

### Spices

Use fresh or dried spices. Buy spices in small quantities and store them in a cool, dry place. Spices tend to lose their pungency over long periods, especially in warm and humid weather. Ground spices darken pickles to a greater extent than whole spices. To minimize darkening, tie spices in a bag



made from several layers of clean cheesecloth, then add the bag to brine during cooking and fermenting. Remove the bag before canning.

### **Firming Agents**

Alum or lime may be safely used to firm fermented cucumbers. However, these are unnecessary and are not included in the recipes in this publication. To produce crisp pickles, always use fresh, high quality ingredients and follow pickling directions carefully.

### **EQUIPMENT**

For heating pickling liquids, use unchipped enamelware, stainless steel, aluminum or glass kettles. Do not use iron, copper or galvanized kettles and utensils, which can cause undesirable colors, flavors and can react with ingredients to form potentially toxic compounds.

### **TYPES OF PICKLES**

#### **Fermented Pickles**

Fermented or brined pickles are cured for several days to a few weeks, during which time bacteria produce the characteristic lactic acid flavor. After fermenting, process pickles in a boiling water canner. When making fermented pickles, you'll need a 1-gallon container for each 5 pounds of fresh cucumbers. An unchipped 5-gallon stone crock is an ideal size for fermenting about 25 pounds of cucumbers. Food-grade plastic and glass containers are excellent substitutes for stone crocks. Other 1- to 3-gallon nonfood-grade plastic containers may be used if they're lined inside with a clean, food-grade plastic bag. Freezer bags sold for packaging turkeys are suitable for use with 5-gallon containers. Caution: Be certain foods come in contact only with food-grade plastics. Do not use garbage bags, trash can liners or galvanized or plastic garbage cans. Cucumbers must be kept 1 to 2 inches below the brine surface while fermenting. After adding cucumbers and brine, insert a suitably sized

### **PROCESSING PICKLES**

#### **Low Temperature Pasteurization**

Use low temperature pasteurization processing only when recipe indicates. Low temperature pasteurization is an alternative to boiling water canner processing. It produces a better product texture than that achieved by boiling water processing. Pasteurization must be carefully managed, however, to prevent spoilage. Caution: Use low temperature pasteurization processing only when recipe indicates. To process pickles using this method, place filled jars in a canner half-filled with very warm (120 to 140°F) water. Add hot water to a level 1 inch above jars. Heat water enough to maintain 180 to 185°F for 30 minutes. Accurate temperature is crucial so use a thermometer to maintain a consistent water temperature above 180°F for the entire 30 minutes. Carefully place the thermometer so it doesn't touch the bottom or sides of the kettle or the canning jars to ensure accurate temperature measurement. Process all pickle products for 30 minutes.

dinner plate or glass pie plate inside the fermentation container. The plate must be slightly smaller than the container opening, yet large enough to cover most of the cucumbers. To keep the plate under the brine, place two to three clean, quart jars with lids filled with water on the plate. Or, weight down the plate with a very large, clean, food-grade plastic bag filled with 3 quarts of water containing 4 1/2 tablespoons of salt. Make sure the plastic bag is sealed. In the event the bag leaks or breaks, the salt prevents dilution of the brine. Cover the container opening with a clean, heavy bath towel to prevent contamination from insects and molds while cucumbers are fermenting.

#### **Fresh Packed Pickles**

Fresh packed or quick process pickles are soaked in a salt solution for several hours or overnight, drained and combined with a boiling solution of vinegar and spices, then processed in a boiling water canner. The acetic acid of the vinegar produces the tart flavor.

## Fermented Dill Pickles (about 2 quarts or 4 pounds of cucumbers)

Use the following quantities for each gallon capacity of your container. 4 pounds Of 4-inch pickling cucumbers 2 tablespoons dill seed or 4 to 5 heads fresh or dry dill weed 1/2 cup canning or pickling salt 1/4 cup vinegar (5% acidity or 50 grain) 8 cups water and one or more of the following: 2 cloves garlic 2 dried red peppers 2 teaspoons whole mixed pickling spices

Wash cucumbers. Cut a 1/16 inch slice off blossom ends and discard. Leave 1/4 inch of stem attached, if desired. Place half of dill and spices on the bottom of a clean, suitable container. Add cucumbers, remaining dill and spices. Dissolve salt in vinegar, add water and pour over cucumbers. Add suitable cover and weight (see directions above). Store at temperatures between 70° and 75° F for about 3 to 4 weeks while fermenting. Temperatures of 55° to 65° F are acceptable, but the fermentation will take 5 to 6 weeks. Avoid temperatures above 80° F or pickles will become too soft during fermentation. Check the container several times a week and promptly remove any surface scum or mold. If pickles become soft or slimy or develop a disagreeable odor, discard them. Store fully fermented pickles in the original container in the refrigerator for 4 to 6 months. Remove surface scum and molds regularly. For better storage, can fully fermented pickles. To can, pour the brine into a pan, heat slowly to a boil, and simmer 5 minutes. If desired, filter the brine through coffee filters to reduce cloudiness. Fill clean jars with pickles and hot brine, leaving 1/2 inch headspace. Avoid packing pickles too tightly-pickling liquids must be able to circulate around cucumbers. Pickles may spoil if they are wedged in jars so tightly that pickling liquid cannot get between them. Remove air bubbles and wipe rims before adjusting lids. Adjust lids and process in a boiling water canner.

jar size	Processing time (in minutes) at altitude of		
	0.1,000 ft	1,001.6,000 ft	6,001.8,000 ft
Pints	10	15	20
Quarts	15	20	25

Or, process dill pickles by the low temperature pasteurization method (see directions above).

## Fresh Pack Sweet Gherkin Pickles (about 6 to 7 pints)

7 pounds cucumbers (1 1/2 inches or less)  
1/2 cup canning or pickling salt  
8 cups sugar  
6 cups vinegar (5% acidity or 50 grain)  
3/4 teaspoon turmeric  
2 teaspoons celery seeds  
2 teaspoons whole mixed pickling spice  
2 cinnamon sticks  
1/2 teaspoon fennel (optional)  
2 teaspoons vanilla (optional)

Wash cucumbers. Cut 1/16 inch slice off blossom ends and discard. If desired, leave 1/4 inch of stem attached. Place cucumbers in a large container and cover with boiling water. Six to 8 hours later, drain and cover with fresh boiling water. On the second day, drain and cover with fresh boiling water. On the third day, drain and prick cucumbers with a fork. Combine and bring to a boil 3 cups vinegar, 3 cups sugar, turmeric and spices. Pour over cucumbers. Six to 8 hours later, drain, saving the pickling syrup. To the syrup add another 2 cups each of sugar and vinegar and reheat to boiling. Pour over pickles. On the fourth day, drain and save syrup again. Add another 2 cups sugar and 1 cup vinegar to syrup. Heat to boiling and pour over pickles. Six to 8 hours later, drain and save pickling syrup again. Add 1 cup sugar and 2 teaspoons vanilla to pickling syrup, heat to boiling. Fill sterile pint jars with pickles and cover with hot syrup, leaving 1/2 inch headspace. Avoid packing pickles too tightly-pickling liquids must be able to circulate around cucumbers. Pickles may spoil if they are wedged in jars so tightly that pickling liquid cannot get between them. Remove air bubbles and wipe rims before adjusting lids. Adjust lids and process in a boiling water canner.

Jar size	Processing time (in minutes) at altitude of		
	0-1,000 ft	1,001-6,000 ft	6,001-8,000 ft
Pints	5	10	15

Or, process gherkins by the low temperature pasteurization method (see directions above).

## Fresh Pack Bread-and-Butter Pickles (about 8 pints)

6 pounds Of 4- to 5-inch pickling cucumbers 8 cups thinly sliced onions (about 3 pounds) 1/2 cup canning or pickling salt 4 Cups vinegar (5% acidity Or 50 grain) 4 1/2 Cups sugar 2 tablespoons mustard seed 1 1/2 teaspoons celery seed 1 1/2 teaspoons ground turmeric Crushed ice or ice cubes

Wash cucumbers. Cut 1/16 inch off blossom ends and discard. Cut into 3/16 inch slices. Combine cucumbers and onions in a large bowl. Add salt. Cover with 2 inches crushed or cubed ice. Refrigerate 3 to 4 hours, adding more ice as needed. Drain ice and water from cucumber and onion mixture. Add sugar and remaining ingredients to vinegar in a large kettle. Boil for 10 minutes. Add drained cucumber and onion mixture to the kettle and slowly reheat to boiling. Fill clean jars with slices and cooking syrup, leaving 1/2 inch headspace. Avoid packing pickles too tightly-pickling liquids must be able to circulate around cucumbers. Pickles may spoil if they are wedged in jars so tightly that pickling liquid cannot get between them. Remove air bubbles and wipe rims before adjusting lids. Adjust lids and process in a boiling water canner.

Processing time (in minutes) at altitude of jar size	at altitude of		
	0,1,000 ft	1,001.6,000 ft	6,001.8,000 ft
Pints or quarts	10	15	20

Or, process bread-and-butter pickles by the low temperature pasteurization method (see directions above). After processing and cooling, store jars 4 to 5 weeks to allow flavor to fully develop.

## Fresh Pack Pickle Relish (about 9 pints)

3 quarts chopped cucumbers  
3 cups each of chopped sweet green and red peppers  
1 cup chopped onions  
3/4 cup canning or pickling salt  
4 cups ice  
8 cups water  
2cups sugar  
4 teaspoons each of mustard seed, turmeric, whole allspice and whole cloves  
6 cups white vinegar (5% acidity or 50 grain)

Add cucumbers, peppers, onions, salt and ice to water and let stand 4 hours. Drain and re-cover vegetables with fresh ice water for another hour. Drain again. Combine spices in a spice or cheesecloth bag. Add spice bag to sugar and vinegar. Heat to boiling and pour mixture over vegetables. Cover and refrigerate 24 hours. Heat mixture to boiling and fill clean jars, leaving 1/2 inch headspace. Remove air bubbles and wipe rims before adjusting lids. Adjust lids and process in a boiling water canner.

Processing time (in minutes) at altitude of jar size	at altitude of		
	0-1,000 ft	1,001.6,000 ft	6,001-8,000 ft
Half-pints or pints	10	15	20

For more information on pickling procedures contact the home economist at your county Cooperative Extension Service office.

Prepared by Sandra L. Andrews, Ph.D., R.D., Extension Specialist, Department of Food Science and Human Nutrition, Michigan State University.

MSU is an Affirmative-Action/Equal-Opportunity Institution. Extension programs and materials are available to all without regard to race, color, national origin, sex, disability, age or religion. Issued in furtherance of Extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gail L. Imig, extension director, Michigan State University, E. Lansing, MI 48824. This information is for educational purposes only. References to commercial products or trade names does not imply endorsement by the MSU Extension or bias against those not mentioned. This bulletin becomes public property upon publication and may be printed verbatim with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company. Produced by Outreach Communications and printed on recycled paper using vegetable-based inks.  
Reprinted 4:94-5M-TCM-SP-Price 25 cents.