



About pickling

Pickling is a traditional way of preserving food. Many types of produce can be pickled besides cucumbers, including other vegetables and fruits, such as pears and peaches.

Pickles and relishes are acidic foods, so they are canned in a boiling water bath canner. Processing destroys the yeasts, molds, and bacteria that may cause the products to spoil, and it helps form a vacuum seal. Before beginning, see the handouts “Ready Set Go” and “FAQ Answers” for more canning information (found at www.extension.wvu.edu).

Choosing produce

Choose tender vegetables and firm fruit. Pears and peaches may be slightly under ripe for pickling. For best quality, pickle fruits and vegetables within 24 hours after being picked. Discard food that shows the slightest evidence of mold.

Pickling ingredients

For pickling, use white sugar unless the recipe calls for brown. Sugar substitutes are not recommended for pickling. Use cider or white vinegar of 5% acidity. There is no difference in preservation effect of the vinegars; however, white distilled vinegar gives a clear color while cider vinegar may darken white or light-colored fruits and vegetables. Use pure granulated salt, such as pickling or canning salt. Other salts contain anticaking materials that may make the brine cloudy.

Reduced-sodium salts, for example mixtures of sodium and potassium chloride, may be used in quick pickle recipes. The pickles may, however, have a slightly different taste than expected.

Caution: Use of reduced-sodium salt in fermented pickle recipes is not recommended. Flake salt varies in density and is not recommended for use. Do not alter salt or vinegar concentrations.

Canning equipment

Before you gather produce to be canned, make sure you have everything you will need and enough time to complete the process. You will need a boiling water bath canner and enough clean Mason jars and two-piece

Containers, covers, and weights for fermenting food

Special pickling instructions

Recipes

Quick Fresh-Pack Dill Pickles

Yield: 7 to 9 pints

lids to hold your canned food. Lid rings can be reused if they are not rusted, but the flat metal disks should be used only once.

Wash jars in soapy water, rinse them well, and keep them hot. You can also wash them in the dishwasher and keep them hot. Treat lids according to the manufacturer's instructions. Fill the water bath canner at least half full and turn on to simmer. Now you are ready to prepare your pickled products.

A 1-gallon container is needed for each 5 pounds of fresh vegetables. Therefore, a 5-gallon stone crock is the ideal size for fermenting about 25 pounds of fresh cabbage or cucumbers. Food-grade plastic and glass containers are excellent substitutes for stone crocks. Other 1- to 3-gallon non-food-grade plastic containers may be used if lined with a clean food-grade plastic bag.

Caution: Be certain that foods contact only food-grade plastics. Do not use garbage bags or trash liners. Fermenting sauerkraut in quart and half-gallon Mason jars is an acceptable practice but may result in more spoilage losses.

The fermentation container, plate, and jars must be washed in hot soapy water, and rinsed well with very hot water before use.

Cabbage and cucumbers must be kept 1 to 2 inches under brine while fermenting. After adding prepared vegetables and brine, insert a suitably sized 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 shredded cabbage or cucumbers. To keep the plate under the brine, weight it down with two to three sealed quart jars filled with water or a very large clean, plastic bag filled with 3 quarts of water containing 4½ Tablespoons of salt. Be sure to seal the plastic bag. Freezer bags sold for packaging turkeys are suitable for use with 5-gallon containers. Covering the container opening with a clean, heavy bath towel helps to prevent contamination from insects and molds while the vegetables are fermenting.

Ingredients:

8 lbs. of 3- to 5-inch pickling cucumbers	2 Tablespoons whole mixed pickling spice
2 gallons water	3 Tablespoons whole mustard seed (2 tsp. to 1 tsp. per pint jar)
¼ cups canning or pickling salt	14 heads of fresh dill (1½ heads per pint jar) <i>or</i>
1½ quarts (6 cups) vinegar (5%)	4½ Tablespoons dill seed (1½ tsp. per pint jar)
¼ cup sugar	
2 quarts (8 cups) water	

Procedure: Wash cucumbers. Cut 1/16-inch slice off blossom end and discard, but leave ¼ inch of stem attached. Dissolve ¾ cup salt in 2 gallons water. Pour over cucumbers and let stand 12 hours. Drain.



Combine vinegar, ½ cup salt, sugar, and 2 quarts water. Add mixed pickling spices tied in a clean white cloth. Heat to boiling. Fill jars with cucumbers. Add 1 tsp. mustard seed and 1½ heads fresh dill per pint. Cover with boiling pickling solution, leaving ½-inch headspace. Adjust lids and process as recommended in Table 1.

Table 1. Recommended process time for Quick Fresh-Pack Dill Pickles in a boiling water bath canner.

		Process Times at Various Altitudes		
Style of Pack	Jar Size	0-1,000 ft.	1,001-6,000 ft.	Above 6,000 ft.
Raw	Pints	10 minutes	15 minutes	20 minutes
	Quarts	15 minutes	20 minutes	25 minutes

Bread and Butter Pickles
Yield: About 8 pints

6 lbs. of 4- to 5-inch pickling cucumbers
8 cups thinly sliced onions (about 3 lbs.)
½ cup canning or pickling salt
4 cups vinegar (5%)
4½ cups sugar

2 Tablespoons mustard seed
1½ Tablespoons celery seed
1 Tablespoon ground turmeric
1 cup pickling lime (optional – for firmer pickles)
Crushed or cubed ice

Procedure: Wash cucumbers. Cut 1/16-inch slice off blossom end and discard. Cut into 3/16-inch slices. Combine cucumbers and onions in a large bowl. Add salt. Cover with 2 inches of crushed or cubed ice. Refrigerate 3 to 4 hours, adding more ice as needed.

For firmer pickles: Wash cucumbers. Cut 1/16-inch slice off blossom end and discard. Cut into 3/16-inch slices. Mix 1 cup pickling lime and ½ cup salt to 1 gallon water in a 2- to 3-gallon crock or enamelware container. Avoid inhaling lime dust while mixing the lime-water solution. Soak cucumber slices in lime water for 12 to 24 hours, stirring occasionally. Remove from lime solution, rinse, and soak again for 1 hour in fresh cold water. Repeat the rinsing and soaking steps two more times. Handle carefully, as slices will be brittle. Drain well.

To Make Pickles: Add sugar and remaining ingredients to vinegar in a large pot. Boil 10 minutes. Add well-drained cucumbers and onions. Slowly reheat to boiling. Fill pint or quart jars with slices, leaving ½-inch headspace. Fill to ½ inch from top with hot cooking liquid. Remove air bubbles. Wipe jar rims. Adjust lids and process in a boiling water bath according to the recommended time provided in Table 2.

After processing and cooling, jars should be stored 4 to 5 weeks to develop ideal flavor.



Variation: Squash bread-and-butter pickles. Substitute slender zucchini or yellow summer squash (1 to 1½ inches in diameter) for cucumbers. Use the same processing time as given below in Table 2.

Table 2. Recommended process time for Bread and Butter Pickles in a boiling water bath canner.

		Process Times at Various Altitudes		
Style of Pack	Jar Size	0-1,000 ft.	1,001-6,000 ft.	Above 6,000 ft.
Hot	Pints or Quarts	10 minutes	15 minutes	20 minutes

Pickled Green Beans
Yield: 4 pints

2 lbs. green beans
1 teaspoon cayenne pepper
4 heads dill or 4 teaspoons dill seed
4 cloves garlic
2½ cups water
2½ cups vinegar (5%)
¼ cup canning salt

Procedure: Sterilize canning jars. Wash, trim ends, and cut beans into 4-inch pieces. Pack beans, lengthwise, into hot pint jars leaving ½-inch headspace. To each pint, add ¼ teaspoon cayenne pepper, 1 clove garlic, and 1 dill head or 1 teaspoon dill seed. Combine remaining ingredients and bring to boil. Pour boiling hot liquid over beans, leaving ½-inch headspace. Remove air bubbles. Wipe jar rims. Adjust lids and process in a boiling water bath as shown below in Table 3.

Let beans stand for at least 2 weeks before tasting to allow the flavor to develop.

Table 3. Recommended process time for Pickled Green Beans in a boiling water bath canner.

		Process Times at Various Altitudes		
Style of Pack	Jar Size	0-1,000 ft.	1,001-6,000 ft.	Above 6,000 ft.
Raw	Pints	5 minutes	10 minutes	15 minutes

Pickled Beets
Yield: 8 pints

7 lbs. of beets (2- to 2½-inch diameter)
4 cups vinegar (5%)
1½ teaspoons salt
2 cups sugar
2 cups water
2 cinnamon sticks
12 whole cloves
4 to 6 onions (2- to 2½-inch diameter) (optional)

Procedure: Trim off beet tops, leaving 1 inch of stem and roots to prevent bleeding of color. Wash thoroughly. Sort according to size. Cover similar sizes with boiling water and cook until tender (about 25 to 30 minutes). Drain and discard liquid. Cool beets. Trim off roots and stem; slip off skins. Slice into ¼-inch slices. Peel and thinly slice onions.



Combine vinegar, salt, sugar, and fresh water. Put spices in cheesecloth bag and add to vinegar mixture. Bring to a boil. Add beets and onions. Simmer 5 minutes. Remove spice bag. Fill jars with beets and onions, leaving ½-inch headspace. Add hot vinegar solution, allowing ½-inch headspace. Remove air bubbles. Wipe jar rims. Adjust lids and process using the time shown in Table 4 in a boiling water bath.

Variation: For pickled whole baby beets, follow above directions but use beets that are 1 to 1½ inches in diameter. Pack whole; do not slice. Onions may be omitted.

Table 4. Recommended process time for Pickled Beets in a boiling water bath canner.

		Process Times at Various Altitudes			
Style of Pack	Jar Size	0-1,000 ft.	1,001-3,000 ft.	3,001-6,000 ft.	Above 6,000 ft.
Hot	Pints or Quarts	30 minutes	35 minutes	40 minutes	45 minutes

Sauerkraut
Yield: 9 quarts

For the best sauerkraut, use a firm head of fresh cabbage.

25 lbs. cabbage

¾ cup canning salt

Procedure: Shred cabbage and start kraut between 24 and 48 hours after harvest. Work with about 5 pounds of cabbage at a time. Discard outer leaves. Rinse cabbage heads under cold running water and drain

Cut heads in quarters and remove cores. Shred or slice to the thickness of a 25-cent coin. Put cabbage in a suitable fermentation container (see “Special Pickling Instructions” given in the beginning). Add 3 Tablespoons of salt. Mix thoroughly, using clean hands. Pack firmly until the salt draws juices from cabbage.

Repeat shredding, salting, and packing until all cabbage is in the container. Be sure the container is deep enough that its rim is at least 4 or 5 inches above the cabbage. If juice does not cover cabbage, add boiled and cooled brine (1½ Tablespoons of salt per quart of water).

Fermentation: Weight down the cabbage (see “Special Pickling Instructions” given in the beginning). Cover container with a clean bath towel. Store at 70 to 75 degrees F while fermenting. At temperatures between 70 and 75 degrees F, kraut will be fully fermented in about 3 to 4 weeks; at 60 to 65 degrees F, fermentation may take 5 to 6 weeks. At temperatures lower than 60 degrees F, kraut may not ferment. Above 75 degrees F, kraut may become soft.

If you weight the cabbage down with a brine-filled bag, do not disturb the crock until normal fermentation is complete (when bubbling ceases).



If you use jars as weight, you will have to check the kraut two to three times each week to remove scum if it forms.

Fully fermented kraut may be kept tightly covered in the refrigerator for several months or it may be canned as follows:

Hot pack – Bring kraut and liquid slowly to a boil in a large kettle, stirring frequently. Remove from heat and fill hot jars rather firmly with kraut and juices, leaving ½-inch headspace.

Raw pack – Fill hot jars firmly with kraut and cover with juices, leaving ½-inch headspace.

Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process according to the recommendations in Table 5.

Table 5. Recommended process time for Sauerkraut in a boiling water bath canner.

		Process Times at Various Altitudes			
Style of Pack	Jar Size	0-1,000 ft.	1,001-3,000 ft.	3,001-6,000 ft.	Above 6,000 ft.
Hot	Pints	10 minutes	15 minutes	15 minutes	20 minutes
	Quarts	15 minutes	20 minutes	20 minutes	25 minutes
Raw	Pints	20 minutes	25 minutes	30 minutes	35 minutes
	Quarts	25 minutes	30 minutes	35 minutes	40 minutes

Horseradish Relish

Yield: About 2 half-pints

2 cups (¾ lb.) freshly grated horseradish
 1 cup white vinegar (5%)
 ½ teaspoon canning salt
 ¼ teaspoon powdered ascorbic acid

Procedure: Sterilize canning jars. Wash horseradish roots thoroughly and peel off brown outer skin. The peeled roots may be grated in a food processor or cut into small cubes and put through a food grinder. Combine ingredients and fill into hot jars, leaving ¼-inch headspace. Seal jars tightly and store in a refrigerator.

Note: The pungency of fresh horseradish fades within 1 to 2 months even when refrigerated; therefore, make only small quantities at a time.

Sweet Pepper Relish

Yield: About 6 pints

5 cups ground green bell peppers (about 7 to 8 peppers, or 3 to 4 pounds before grinding)
 5 cups ground red bell peppers (about 7 to 8 peppers, or 3 to 4 pounds before grinding)
 1½ cups ground onion (3 medium yellow onions, 2½- to 3-inch diameter, before grinding)
 2½ cups cider or white distilled vinegar (5%)
 2 cups sugar
 4 teaspoons pickling salt
 4 teaspoons mustard seed



Procedure: Wash peppers well; trim to remove stems and seeds. Peel, core, and wash onions. Cut peppers and onions into large pieces. Coarsely grind peppers and onions, saving the juice. Combine all ingredients into a large stockpot. Boil 30 minutes, stirring often to prevent scorching. Pack into hot jars, ½ inch from top. Remove air bubbles. Wipe jar rims. Adjust lids and process in a boiling water bath as recommended in Table 6.

Table 6. Recommended process time for Sweet Pepper Relish in a boiling water bath canner.

		Process Times at Various Altitudes		
<i>Style of Pack</i>	<i>Jar Size</i>	<i>0-1,000 ft.</i>	<i>1,001-6,000 ft.</i>	<i>Above 6,000 ft.</i>
Hot	Pints or Half-pints	10 minutes	15 minutes	20 minutes



Sources

This publication is adapted from the sources cited below:

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For more information

Litha Sivanandan, *WVU Extension Specialist – Food Safety and Preservation*, WVU Extension Service, at Litha.Sivanandan@mail.wvu.edu or 304-293-7684 or contact your county WVU Extension Service or see WVU Extension canning information at <https://extension.wvu.edu>.

Reviewed

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Hannah Fincham, *WVU Extension Agent – Families and Health*, Barbour and Randolph Counties; Cindy Fitch, Ph.D., R.D., *WVU Extension Service Director – Families and Health Programs*; Elizabeth Metheny, *WVU Extension Agent – Families and Health*, Hardy County; Litha Sivanandan, *WVU Extension Specialist – Food Safety Preservation*

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