



Pickled Products

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Tasty pickled products can add spice to meals and snacks. Pickling is a process of preserving food, usually fruits or vegetables, with salt, vinegar or both. To make safe and high quality pickled products at home, use only top quality ingredients, use proper proportions of ingredients as specified in instructions and process properly in a boiling water canner.

There are four general types of pickled products.

1. Brined or fermented pickles go through a curing process in a brine solution (salt and water) for up to 3 weeks or longer. Cucumbers and cabbage are the vegetables commonly brined. Curing changes the color of cucumbers from bright green to an olive or yellow green. The interior of the cucumber becomes translucent. The texture and flavor of these pickles are more difficult to control than the fresh packed ones.
2. Fresh pack or quick process pickles are made by combining recipe ingredients (with or without heating) and processing right away. Sometimes the produce may be brined for several hours before combining with the pickling liquid and processing. These have the best flavor if allowed to stand for several weeks after processing.
3. Fruit pickles are made of whole fruits simmered in a spicy sweet-sour syrup that includes vinegar or lemon.
4. Relishes are made from chopped fruits and vegetables cooked in a spicy vinegar solution.

To ensure safety, use scientifically tested recipes for pickled products and process products correctly. The amount of acidity in pickles is as important to their safety as it is to taste and texture. For this reason, use only tested recipes and do not alter the amounts of

vinegar (of the correct acidity), produce or water in the recipe. By doing so, you can prevent the growth of *Clostridium botulinum* bacteria that cause a type of food poisoning that can be fatal.

Ingredients

To ensure safety and success, it is essential to use the correct proportions of ingredients. Weigh or measure all ingredients carefully.

Produce. Select tender vegetables and firm fruits with no sign of decay. For cucumber pickles, always use a pickling variety. The best size of cucumbers for most pickling is about 4 to 6 inches, but a 1 1/2-inch cucumber is best for gherkins. Select cucumbers that are uniform in size so the flavor will develop evenly. Odd-shaped or more mature cucumbers can be used for relishes and bread-and-butter style pickles. Do not use waxed cucumbers because the brine or pickling solutions can't penetrate the wax. Burpless cucumbers may be used, however, they do not remain crisp and a soft product might result. They are best used in relishes or sauces.

For best results, use cucumbers within 24 hours of picking. If that is not possible, refrigerate them or spread them where they will be well ventilated and cool. Wash all produce thoroughly in cold water, especially around the stems of cucumbers. Any soil on the produce can be a source of undesirable bacteria. Remove a 1/16-inch slice from the blossom end of cucumbers because it contains enzymes that can cause softening of pickles.

Salt. For the best product, use pure granulated salts, often called canning or pickling salt on the label, and often found in the canning section of stores. Table salts have anticaking ingredients in them that can make the brine cloudy, but their use will not make the pickles unsafe. Iodized salt may turn the pickles dark. Salt substitutes, such as potassium chloride, cannot be used successfully to make pickled products that have the characteristic salty pickled taste. Potas-

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sium has a bitter taste and the pickles will have off-flavor and taste bitter. Do not reduce the amount of salt specified when making sauerkraut or fermented pickles because the salt content inhibits growth of bacteria that can make the food unsafe or undesirable.

Vinegar. Use white or cider vinegar of 5 percent acidity (50 grain). For lighter colored pickles, white vinegar is preferred. Never use homemade vinegars because the acidity is unknown.

Sugar. Use white sugar unless the recipe calls for brown. White gives a lighter color, but brown sugar may be preferred for flavor. If you want to use a sugar substitute, use only recipes developed for these products.

Water. Soft water is best for brining pickles. Hard water may cause cloudiness and off-colors. If only hard water is available, use distilled water or boil the water for 15 minutes. Remove from heat and let stand for 24 hours. Skim off any scum that forms. Use water from the top of the container; be careful not to disturb sediment on the bottom.

Spices. Use fresh, whole spices for the best flavor. Powdered spices can cause darkening or cloudiness in pickles. Spices deteriorate quickly and lose pungency, especially when stored in heat and humidity. Store spices in a cool place and in airtight containers. Also note that chemical reactions with the acid can cause immature or old garlic to turn pink or purple.

Firming agents. These are not necessary if produce is of high quality and proper procedures are used. Some recipes give alternate instructions for using pickling lime. Be sure the pickling lime is food grade. The calcium in lime is the substance that may aid in firming pickles. To ensure safety, follow instructions explicitly.

Equipment

Use stainless steel, aluminum or glass cookware or utensils to heat pickling liquid. Do not use zinc, copper, brass, galvanized metal or iron cookware or utensils because they might react with acids in the food to create undesirable colors or compounds.

For brining or fermenting, use a stone crock, large glass jar or food-grade plastic container. Hold vegetables under the surface of the brine with a weight made of a large, sealed food grade plastic bag containing 4 1/2 tablespoons of salt and 3 quarts of water, or use a sealed jar of water. Place the selected weight on a plate sized to just fit inside the container, then cover with a heavy clean bath towel to reduce mold growth on the brine surface.

Use clean standard canning jars. Jars must be free of cracks and chips to assure a good seal. Use metal bands or rings in good condition, not rusty or bent. Commercial metal canning lids with sealing compound are used only once. Prepare lids according to manufacturer's instructions.

Packing the Jars and Processing

If processing times are less than 10 minutes, jars should be sterilized before filling. To sterilize, boil jars for 10 minutes. At altitudes of 1,000 feet or more, boil an additional minute for each 1,000 feet of additional altitude.

Pack food into clean, hot jars, leaving 1/2 inch of space at the top. Add hot liquid to cover the food. Release air bubbles by inserting a flat plastic spatula between the food and jar. Slowly turn the jar and move the spatula up and down to allow the air bubbles to escape. Adjust liquid level to leave 1/2 inch of space at the top. Wipe jar rims with a clean, damp cloth to remove any food particles that may prevent a seal. Place treated lids on the filled jars. Hold each lid in place with fingers and screw the band down fingertip-tight. Tightening the lids too much will prevent air from escaping as necessary during processing.

Follow recommended methods for processing in a boiling water canner for the time specified in the recipe. The heat treatment destroys organisms that cause spoilage and enzymes that affect flavor, color and texture.

To process, carefully place the filled jars in a rack in a canner containing hot water. Add more hot water to cover the jars by at least 1 inch. Cover the canner and bring the water to a boil. Processing time begins as soon as the water comes to a boil. Process for the length of time specified in the recipe. If no time is given, process for at least 10 minutes. Adjust processing times as needed for higher altitudes.

Storage

Store pickles in a cool, dark, dry place for best quality. Stored properly, pickles should maintain high quality for about 1 year. Examine all canned products before eating and do not taste any products that show signs of spoilage.

Fermented Dill Pickles

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 dill
- 2 cloves garlic, optional
- 2 dried red peppers, optional
- 2 teaspoons whole mixed pickling spices, optional
- 1/2 cup salt
- 1/4 cup vinegar (5 %)
- 8 cups water

Wash cucumbers. Cut 1/16-inch slice off blossom end and discard. Leave 1/4 inch of stem attached. Place half of dill on bottom of a clean, suitable container. Add cucumbers, remaining dill and at least one of the optional spices. Dissolve salt in vinegar and water. Pour over cucumbers. Add suitable weight. (See Equipment section.)

Store at a temperature between 70 and 75 degrees F for 3 to 4 weeks while fermenting. Temperatures of 55 to 65 degrees F are acceptable, but the fermentation will take 5 to 6 weeks. Avoid temperatures above 80 degrees F, because pickles will become soft.

Fermenting pickles cure slowly. Check the container several times a week and promptly remove surface scum or mold. *Caution: If the pickles become soft, slimy or develop a disagreeable odor, discard them.*

Fully fermented pickles can be stored in the original container for 4 to 6 months, provided they are refrigerated and surface scum and molds are removed regularly. Canning fully fermented pickles is a better way to store them. Do not can pickles, however, before they have completed fermentation and have an acidic taste.

Canning fermented dill pickles. Pour the brine into a pan. Heat slowly to a boil and simmer 5 minutes. Filter brine through paper coffee filters to reduce cloudiness, if desired. Fill hot jars with pickles, leaving a 1/2-inch headspace. Fill jars to 1/2 inch from the top with hot brine. Release air bubbles.

Wipe jar rims and adjust lids. Process in boiling water canner:

Pints	Quarts	Altitude
10 minutes	15 minutes	0 to 1,000 feet
15 minutes	20 minutes	1,001 to 6,000 feet
20 minutes	25 minutes	above 6,000 feet

Sauerkraut

(about 9 quarts)

- 25 pounds cabbage
- 3/4 cup canning or pickling salt

For the best sauerkraut, use firm heads of fresh cabbage. Shred cabbage and start kraut within 1 to 2 days after harvest to ensure produce quality. Work with about 5 pounds of cabbage at a time. Discard outer leaves. Rinse heads under cold running water and drain. Cut heads in quarters and remove cores. Shred or slice as thin as a quarter. Put cabbage in a suitable fermentation container and add 3 tablespoons of salt. Mix thoroughly, using clean hands. Pack firmly until salt draws juices from cabbage. Repeat shredding, salting and packing until all cabbage is in the container. Be sure the container is deep enough and its rim is at least 4 to 5 inches above the cabbage. If juice does not cover the cabbage, add boiled and cooled brine (1 1/2 tablespoons of salt per quart of water). Add plate and weights; 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 can take 5 to 6 weeks. At temperatures below 60 degrees F, kraut may not ferment. Above 75 degrees F, kraut can become soft.

If you weigh the cabbage down with a brine-filled bag, do not disturb the crock until normal fermentation is completed (when bubbling ceases). If you use jars as weight, you will have to check the kraut two to three times each week and remove scum if it forms. Fully fermented kraut can be kept covered in the refrigerator for several months or it can be canned as hot or raw pack.

Hot pack. Bring kraut and liquid slowly to a boil in a large kettle, stirring frequently. Remove from heat and fill jars rather firmly with kraut and juices, leaving 1/2 inch of space at the top. Process in a boiling water canner:

Hot pack	0 to 1,000 ft.	1,001 to 3,000 ft.	3,001 to 6,000 ft.	Above 6,000 ft.
Pints	10 min.	15 min.	15 min.	20 min.
Quarts	15 min.	20 min.	20 min.	25 min.

Raw pack. Fill jars firmly with kraut and cover with juices, leaving 1/2 inch of space at the top. Adjust lids and process:

Raw pack	0 to 1,000 ft.	1,001 to 3,000 ft.	3,001 to 6,000 ft.	Above 6,000 ft.
Pints	20 min.	25 min.	30 min.	35 min.
Quarts	25 min.	30 min.	35 min.	40 min.

Quick Fresh Pack Dill Pickles

(about 7 to 9 pints)

8 pounds of 3- to 5-inch pickling cucumbers
1 1/4 cups canning salt (divided)
2 gallons water
1 1/2 quarts vinegar (5 %)
1/4 cup sugar
2 quarts water
2 tablespoons whole mixed pickling spice
about 3 tablespoons whole mustard seed
about 14 heads of fresh dill or 5 tablespoons dill seed

Wash cucumbers. Cut a 1/16-inch slice off blossom end and discard. Leave a 1/4 inch of stem attached. Dissolve 3/4 cup salt in 2 gallons water. Pour over cucumbers and let stand at room temperature for 12 hours. Drain. Make the pickling solution by combining vinegar, 1/2 cup salt, sugar and 2 quarts water. Add mixed pickling spices tied in a clean white cloth. Heat to boiling. Fill jars with pickles. Add 1 teaspoon mustard seed and 1 1/2 heads fresh dill (or 1 1/2 teaspoons dill seed) per pint jar. Cover with boiling pickling solution, leaving 1/2 inch of space at the top. Release air bubbles. Wipe jar rims and adjust lids. Process in a boiling water canner:

Pints	Quarts	Altitude
10 minutes	15 minutes	0 to 1,000 feet
15 minutes	20 minutes	1,001 to 6,000 feet
20 minutes	25 minutes	above 6,000 feet

Quick Sweet Pickles

(about 7 to 9 pints - can as either strips or slices)

8 pounds of 3- to 4-inch pickling cucumbers
crushed ice
1/3 cup canning or pickling salt
4 1/2 cups sugar
3 1/2 cups vinegar (5 %)
2 teaspoons celery seed
1 tablespoons whole allspice
2 tablespoons mustard seed
1 cup pickling lime (optional— for use in the following variation to make firmer pickles)

Without lime. Wash cucumbers. Cut 1/16-inch slice off blossom end and discard, but leave 1/4-inch stem attached. Slice or cut in strips, as desired. Place in a bowl and sprinkle with 1/3 cup salt. Cover with 2 inches of crushed or cubed ice. Refrigerate 3 to 4 hours. Add more ice as needed. Drain well.

With lime. Wash cucumbers. Cut 1/16-inch slice off blossom end and discard, but leave 1/4-inch stem attached. Slice or strip cucumbers. Mix 1 cup pickling lime and 1/2 cup of salt to 1 gallon of water in a

2- to 3-gallon crock or enamelware container. *Caution: Avoid inhaling lime dust while mixing the lime-water solution.* Soak cucumber slices or strips in lime water solution for 12 to 24 hours, stirring occasionally. Remove from lime solution, rinse and soak for 1 hour in fresh cold water. Repeat rinsing and soaking two more times. This soaking and rinsing process is important because excess lime absorbed by the cucumbers must be removed to make pickles safe. Handle carefully because slices or strips will be brittle. Drain well.

Pickling syrup. Combine sugar, vinegar, celery seed, allspice and mustard seed in a 6-quart kettle. Heat to boiling.

Hot pack. Add cucumbers and heat slowly until pickling syrup returns to boil. Stir occasionally to make sure mixture heats evenly. Fill hot, sterilized jars, leaving 1/2 inch of space at the top. Release air bubbles. Adjust lids.

Process pints or quarts in a boiling water canner:

5 minutes for altitudes of 0 to 1,000 feet

10 minutes for altitudes of 1,001 to 6,000 feet

15 minutes for altitudes above 6,000 feet.

Raw pack. Fill jars with cucumbers and add hot pickling syrup, leaving 1/2 inch of space at the top. Release air bubbles. Adjust lids and process in a boiling water canner:

Pints	Quarts	Altitude
10 minutes	15 minutes	0 to 1,000 feet
15 minutes	20 minutes	1,001 to 6,000 feet
20 minutes	25 minutes	above 6,000 feet

Storage. After processing and cooling, store pickles 4 to 5 weeks to develop ideal flavor.

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
crushed ice
4 cups vinegar (5 %)
4 1/2 cups sugar
2 tablespoons mustard seed
1 1/2 tablespoons celery seed
1 tablespoon ground turmeric
*1 cup pickling lime (optional— for making firmer pickles)

Wash cucumbers. Cut a 1/16-inch slice off the blossom end and discard. Cut into 3/16-inch slices. Com-

bine 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.

To make pickles, combine remaining ingredients in a large pot. Add drained cucumbers and onions and slowly heat to boiling. Fill jars with slices and cooked syrup, leaving 1/2 inch of space at the top. Release air bubbles. Adjust lids and process pints or quarts in a boiling water canner:

- 10 minutes for altitudes of 0 to 1,000 feet
- 15 minutes for altitudes of 1,001 to 6,000 feet
- 20 minutes for altitudes above 6,000 feet.

Note: After processing and cooling, store pickles 4 to 5 weeks to develop ideal flavor. For squash bread-and-butter pickles, substitute slender (1 to 1-1/2 inches in diameter) zucchini or yellow summer squash for cucumbers.

* If lime is used, see instructions for use in Quick Sweet Pickles recipe.

Okra Dill Pickles (about 8 or 9 pints)

- 7 pounds small okra pods
- 8 or 9 garlic cloves
- 2/3 cup canning salt
- 4 teaspoons dill seed
- 6 small hot peppers
- 6 cups water
- 6 cups vinegar (5 %)

Wash and trim okra. Fill hot pint jars firmly with whole okra, leaving 1/2 inch of space at the top. Place 1 garlic clove in each jar. Combine salt, dill seed, hot peppers, water and vinegar in large saucepan and bring to a boil. Pour hot pickling solution over okra, leaving 1/2 inch of space at the top. Release air bubbles. Wipe jar rims and adjust lids. Process pints in a boiling water canner:

- 10 minutes for altitudes of 0 to 1,000 feet
- 15 minutes at altitudes of 1,001 to 6,000 feet
- 20 minutes at altitudes above 6,000 feet.

Pickled Mixed Vegetables (about 10 pints)

- 4 pounds of 4- to 5-inch pickling cucumbers, washed, and cut into 1-inch slices (cut 1/16 inch off blossom end and discard)
- 2 pounds peeled and quartered small onions
- 4 cups cut celery (1-inch pieces)
- 2 cups peeled and cut carrots (1/2-inch pieces)
- 2 cups sweet red peppers (1/2-inch pieces)
- 2 cups cauliflower flowerets
- 5 cups white vinegar (5 %)

- 1/4 cup prepared mustard
- 1/2 cup canning or pickling salt
- 3 1/2 cups sugar
- 3 tablespoons celery seed
- 2 tablespoons mustard seed
- 1/2 teaspoon whole cloves
- 1/2 teaspoon ground turmeric

Combine vegetables. Cover with 2 inches of cubed or crushed ice, and refrigerate 3 to 4 hours. In an 8-quart kettle, combine vinegar and mustard and mix well. Add salt, sugar, celery seed, mustard seed, cloves and turmeric. Bring to a boil. Drain vegetables and add to hot pickling solution. Cover and slowly bring to boil. Drain vegetables but save pickling solution. Put vegetables in sterile pint jars, or clean quarts, leaving 1/2 inch of space at the top. Adjust lids and process in a boiling water canner:

Pints	Quarts	Altitude
5 minutes	10 minutes	0 to 1,000 feet
10 minutes	15 minutes	1,001 to 6,000 feet
15 minutes	20 minutes	above 6,000 feet

Pear Pickles (about 7 or 8 pints)

- 2 quarts (8 cups) sugar
- 1 quart (4 cups) white vinegar (5 %)
- 1 pint (2 cups) water
- 8 cinnamon sticks, 2-inch pieces
- 2 tablespoons cloves, whole
- 2 tablespoons allspice, whole
- 8 pounds (4 to 5 quarts) Seckel pears or other pickling pear

Combine sugar, vinegar, water and cinnamon. Add cloves and allspice that are tied in a clean, thin white cloth. Bring to a boil and simmer, covered, about 30 minutes. Wash pears, remove skins, and all of blossom end. The stems may be left on if desired. If pears are large, halve or quarter. To prevent peeled pears from darkening during preparation, immediately put them into cold water containing 1/2 teaspoon ascorbic acid per 2 quarts water. Drain just before using. Add pears to the boiling syrup and continue simmering for 20 to 25 minutes. Pack hot pears into hot pint jars; add one 2-inch piece of cinnamon per jar. Cover with boiling syrup to within 1/2 inch from the top of jar. Release air bubbles. Wipe jar rims and adjust lids. Process in a boiling water bath:

- 20 minutes for altitudes of 0 to 1,000 feet
- 25 minutes for altitudes of 1,001 to 3,000 feet
- 30 minutes for altitudes of 3,001 to 6,000 feet
- 35 minutes for altitudes above 6,000 feet.

Piccalilli

(about 9 half-pints)

- 6 cups chopped green tomatoes
- 1 1/2 cups chopped sweet red peppers
- 1 1/2 cups chopped green peppers
- 2 1/4 cups chopped onions
- 7 1/2 cups chopped cabbage
- 1/2 cup canning or pickling salt
- 3 tablespoons whole mixed pickling spice
- 4 1/2 cups vinegar (5 %)
- 3 cups brown sugar

Wash, chop, and combine vegetables with 1/2 cup salt. Cover with hot water and let stand 12 hours. Drain and press in a clean white cloth to remove all possible liquid. Tie spices loosely in a spice bag and add to combined vinegar and brown sugar and heat to a boil in a saucepan. Add vegetables and boil gently 30 minutes or until the volume of the mixture is reduced by one half. Remove spice bag. Fill hot, sterilized jars with hot mixture, leaving 1/2 inch of space at the top. Adjust lids and process in boiling water canner:

- 5 minutes for altitudes of 0 to 1,000 feet
- 10 minutes for altitudes of 1,001 to 6,000 feet
- 15 minutes for altitudes above 6,000 feet.

Dixie Relish

(about 5 pints)

- 1/4 cup salt
- 2 quarts cold water
- 1 quart chopped cabbage (about 1 head)
- 2 cups chopped onions
- 2 cups chopped sweet red peppers (about 4 medium)
- 2 cups chopped sweet green peppers (about 4 medium)
- 3/4 cup sugar
- 2 tablespoons mustard seed
- 2 tablespoons celery seed
- 1 quart vinegar (5 %)

Dissolve salt in water. Pour over chopped vegetables and let stand 1 hour. Drain. Combine sugar, vinegar and spices; add vegetables and simmer 20 minutes. Bring to boiling. Pack boiling hot relish into hot pint jars, leaving 1/2 inch of space at the top. Remove air bubbles. Wipe jar rims and close lids. Process in a boiling water canner:

- 15 minutes for altitudes of 0 to 1,000 feet
- 20 minutes for altitudes of 1,001 to 6,000 feet
- 25 minutes for altitudes above 6,000 feet.

Reduced Salt Recipes

Brined or fermented pickles or sauerkraut cannot be made safely with reduced salt or with salt substitutes. The salt is necessary to control fermentation for safety of the product. Fresh pack or quick process pickles can be made without salt. However, the quality of salt-free pickles is poor. It is best to use a recipe specifically formulated for reduced salt or sodium.

Reduced-Sodium Sliced Dill Pickles

(about 8 pints)

- 4 pounds 3- to 5-inch pickling cucumbers
- 6 cups vinegar (5 %)
- 6 cups sugar
- 2 tablespoons canning or pickling salt
- 1 1/2 teaspoons celery seed
- 1 1/2 teaspoons mustard seed
- 2 large onions, thinly sliced
- 8 heads fresh dill

Wash cucumbers. Cut a 1/16-inch slice off blossom end and discard. Cut cucumbers in 1/4-inch slices. Combine vinegar, sugar, salt, celery and mustard seeds in large saucepan. Bring mixture to boiling. Place two slices of onion and half a dill head on bottom of each pint jar. Fill jars with cucumber slices, leaving 1/2 inch of space at the top. Add one slice of onion and half a dill head on top. Pour hot pickling solution over cucumbers, leaving 1/2 inch of space at the top. Adjust lids and process in a boiling water canner:

- 15 minutes for altitudes of 0 to 1,000 feet
- 20 minutes for altitudes of 1,001 to 6,000 feet
- 25 minutes for altitudes above 6,000 feet.

Reduced-Sodium Sliced Sweet Pickles

(about 4 to 5 pints)

- 4 pounds, 3- to 4-inch pickling cucumbers
- Brining solution:
 - 1 quart distilled white vinegar (5 %)
 - 1 tablespoon canning or pickling salt
 - 1 tablespoon mustard seed
 - 1/2 cup sugar

Canning syrup:

1 2/3 cups distilled white vinegar (5 %)

3 cups sugar

1 tablespoon whole allspice

2 1/4 teaspoons celery seed

Wash cucumbers. Cut a 1/16-inch slice off blossom end and discard. Cut cucumbers into 1/4-inch slices.

Combine all ingredients for canning syrup in a saucepan and bring to boiling. Keep syrup hot until used. In a large kettle, mix the ingredients for the brining solution. Add the cut cucumbers, cover and simmer until the cucumbers change color from bright to dull green (about 5 to 7 minutes). Drain the

cucumber slices. Fill pint jars and cover with hot canning syrup leaving 1/2 inch of space at the top. Release air bubbles. Adjust lids and process in a boiling water canner:

10 minutes for altitudes of 0 to 1,000 feet

15 minutes for altitudes of 1,001 to 6,000 feet

20 minutes for altitudes above 6,000 feet.

Some information and recipes come from the USDA Complete Guide to Home Canning, and the "So Easy to Preserve" materials from Cooperative Extension Service, The University of Georgia.

Home Canning Guide is available on the Web at
www.foodsafety.org/canhome.htm.

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