



# Blue Book<sup>®</sup>

guide to preserving



# getting started

When we speak of pickles, many of us think only of cucumber pickles. But in canning terms, pickling includes any fruit, meat or vegetable prepared by a pickling process. Pickled foods are either fermented in brine (salt) or packed in vinegar to aid preservation. Heat processing is also required to destroy microorganisms that can cause spoilage and inactivate enzymes that may affect flavor, color and texture.

Processing procedures for fermented cucumbers and fresh pack dills are slightly different than the usual boiling-water method. Bring the water to a rolling boil before lowering jars into canner. Start to count the processing time as soon as the filled jars are lowered into the boiling water. Process for the length of time specified by the tested recipe you are following. This method helps to reduce the cooked flavor and a loss of crispness. All other pickles are processed in a boiling-water canner with the processing time beginning when the water comes to a rolling boil.

The boiling-water processing times given for pickled foods in this section are for processing at or below altitudes of 1,000 feet above sea level. For higher altitude areas, adjustments in processing time must be made, refer to Altitude Chart (see page 5).

Pickled foods are generally grouped into five categories:

## Brined Pickle

Brined or fermented pickles are made using vegetables, usually cucumbers, that are submerged in a salt water solution to ferment or cure for up to 6 weeks. Lactic acid produced during fermentation helps preserve brined pickles. Dill, garlic and other herbs and spices are often added to the pickling brine for flavoring.

## Fresh Pack Pickle

Fresh pack pickles are sometimes brined in a salt water solution for several hours or overnight. After the salt water solution is drained, the cucumbers or vegetables are covered with a boiling hot pickling liquid made of vinegar, spices and herbs.

## Relish

Relish is prepared using chopped fruits and/or vegetables cooked in a spicy vinegar solution. Sometimes sugar is added if a sweet relish is desired. Often hot peppers or other spices are added to flavor relish.

## Fruit Pickle

Fruit pickles are usually prepared from whole fruits. The fruit is simmered in a spicy, sweet-sour syrup until it becomes tender or transparent.

## Chutney And Sauce

Both of these categories are a combination of vegetables and/or fruits, spices and vinegar cooked for long periods to develop flavor and texture. Chutneys are highly spiced and have a sweet-sour blending of flavors. Sauces range from mild to hot.

## Ingredients And Preparation

Pickling requires quality ingredients, accurate measurements, daily maintenance and temperature control to achieve satisfactory results. The ingredients and procedures may be right; but, if the correct proportions of sugar, salt, vinegar and spices are not maintained, the quality and safety can be affected.

## Fruits And Vegetables

Ideally, fruits and vegetables should be harvested no more than 24 hours before pickling. If preparation is delayed, the produce should be refrigerated until ready for use. Cucumbers, especially, deteriorate rapidly at room temperature.

Select tender vegetables and firm fruit. Unlike other areas of canning, some pickling recipes may specifically call for slightly under-ripe fruits and vegetables for pickling, such as pears, peaches and green tomatoes. Produce should be of the ideal size for the recipe being prepared; and, each fruit or vegetable should be of uniform size.

When making cucumber pickles, use only a pickling-variety cucumber. Other varieties of cucumbers may be good choices for relishes or chutneys, but they often do not make good pickles. Do not use waxed cucumbers since the brine cannot penetrate the wax coating.

## Salt

Salt acts as a preservative and adds flavor and crispness to pickles. Use a pure granulated salt for brined and fresh pack pickles. Pure granulated salt like Ball Salt for Pickling and Preserving does not contain iodine or non-caking additives that may cause pickles to darken or brine to become cloudy.

## Vinegar

Vinegar gives pickles a tart taste and acts as a preservative. All recipes in this book are developed to be prepared using a high-grade cider or white distilled vinegar of 5 percent (50 grain) acidity. Vinegar of unknown acidity must not be used since its preservative ability is unknown. Cider vinegar imparts a mellow acid flavor while white vinegar gives a sharp pungent acidic taste to pickled foods. Since cider vinegar may discolor produce, use white vinegar when color retention is important. Vinegar must not be diluted unless specified in the recipe. Never decrease the amount of vinegar as the preservative balance will be compromised.

## Sugar

Use granulated cane or beet sugar unless the recipe calls for another sweetener. Brown sugar, honey and maple syrup are sometimes called for in a recipe. Sugar substitutes are not recommended unless the manufacturer's specific instructions for pickling are followed.

## Spices, Herbs and Crisping Agents

Fresh spices and herbs add immeasurably to the unique flavor of pickles. Each recipe will specify the type of spice or herb to use. Seasoning can be added directly to pickling mixtures; but often, spices and herbs are tied in a spice bag or cheesecloth and held in the solution to impart their flavor, similar to a tea bag. Ball Pickle Crisp is an easy way to add extra crunch to fresh pack pickles and pickled vegetables. Simply measure the granules into each jar following the label instructions. There is no pre-soaking required.

## Water

Soft water must be used for making brine. The minerals in hard water will have a negative effect on the quality of pickles. If soft tap water is not available, water can be softened by boiling for 15 minutes and then letting it stand for 24 hours. A scum will likely appear on the top of the water. Remove the scum and ladle water from the container being careful not to disturb any sediment that settled to the bottom. Distilled water can also be used.

Adjust two-piece caps. Process 15 minutes in a boiling-water canner.

**Recipe Variation:** To make Kosher-Style Pickles, pack cucumbers into hot jars, adding 1 bay leaf, 1 clove garlic, 1 piece hot red pepper and ½ teaspoon mustard seed to each jar. Ladle hot liquid over cucumbers. Process as recommended.

You may use desalted, brined cucumbers in this recipe by making a few recipe changes. Reduce salt to ¼ cup. Allow desalted cucumbers to stand in pickling brine for 3 weeks. Drain the brine, heat to boiling and pour over cucumbers once a week during each week of stand time.

**Note:** When cutting or seeding hot peppers, wear rubber gloves to prevent hands from being burned.

## Cucumber Chips

*Yield: about 3 pints*

- |                                                         |                                  |
|---------------------------------------------------------|----------------------------------|
| 6 pounds 4- to 5-inch cucumbers, cut into ¼-inch slices | 2 cups granulated sugar          |
| ½ cup Ball Salt                                         | 2 sticks cinnamon                |
| 1 tablespoon turmeric                                   | 1 ¼- x 1-inch piece fresh ginger |
| 1 quart plus 3 cups vinegar, divided                    | 1 tablespoon mustard seed        |
| 1 quart plus 1 cup water, divided                       | 1 teaspoon whole cloves          |
|                                                         | 2 cups brown sugar               |

Put cucumber slices in a large bowl; sprinkle salt over cucumber slices; mix thoroughly. Let stand 3 hours. Drain; rinse and drain thoroughly. Combine turmeric, 3 cups vinegar and 1 quart water in a saucepot; bring to a boil; pour over cucumbers. Let stand until cold; drain. Taste cucumbers; if too salty, rinse thoroughly; drain. Combine granulated sugar, 1 quart vinegar and 1 cup water in a large saucepot. Tie spices in a spice bag; add to pickling liquid. Simmer 15 minutes; pour pickling liquid over cucumbers. Let stand 12 to 24 hours in a cool place. Remove spice bag and pickles; discard spice bag. Combine pickling liquid and brown sugar in a large saucepot; bring to a boil. Pack cucumber slices into hot jars, leaving ½-inch headspace. Ladle hot liquid over cucumbers, leaving ½-inch headspace. Remove air bubbles. Adjust two-piece caps. Process 10 minutes in a boiling-water canner.

## Cucumber Chunks

*Yield: about 8 pints*

- |                                                         |                                         |
|---------------------------------------------------------|-----------------------------------------|
| 5 pounds 3- to 4-inch cucumbers, cut into 1-inch slices | 2 quarts plus 1 cup vinegar, divided    |
| 1½ cups Ball Salt                                       | 4 to 5 cups sugar, divided              |
| 4 quarts plus 3 cups water, divided                     | 2 tablespoons Ball Mixed Pickling Spice |

Put cucumber slices in a clean pickling container. Dissolve salt in 4 quarts water. Pour over cucumber slices. Weight cucumbers under brine. Cover container and let stand 36 hours in a cool place. Drain; rinse and drain thoroughly. Discard brine. Pour 1 quart vinegar over cucumbers; add water to cover. Simmer 10 minutes. Drain, discarding liquid. Combine 2 cups sugar, 5 cups vinegar and 3 cups water in a large saucepot. Tie spice in a spice bag; add to vinegar mixture. Simmer 10 minutes. Pour pickling liquid over cucumbers; cover and let stand 24 hours. Drain, reserving pickling liquid; add remaining 2 to 3 cups sugar to pickling liquid according to taste; bring to a boil; pour over cucumbers. Cover; let stand 24 hours. Remove spice bag and pickles; discard spice bag. Bring pickling liquid to a boil. Pack pickles into hot jars, leaving ½-inch headspace. Ladle hot

liquid over pickles, leaving ½-inch headspace. Remove air bubbles. Adjust two-piece caps. Process 15 minutes in a boiling-water canner.

## Cucumber Rings

*Yield: about 6 pints*

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| 3 pounds brined cucumbers, desalted | 3 sticks cinnamon                |
| 2 cups water                        | 1½ teaspoons whole cloves        |
| 2 cups vinegar, divided             | 1 ¼- x 1-inch piece fresh ginger |
| 2 cups sugar                        | 1 lemon, sliced thin             |

Cut cucumbers into ¼-inch slices. Mix water and 1 cup vinegar. Pour over cucumbers and let stand 2 hours. Add remaining vinegar; let stand 2 hours. Drain, reserving pickling liquid. Combine pickling liquid and sugar in a large saucepot. Tie spices in a spice bag. Add spice bag, lemon and cucumbers to pickling liquid. Cook until cucumbers are transparent. Place in a shallow container; let stand overnight to plump slices. Remove and discard spice bag and lemon slices. Drain, reserving pickling liquid. Strain liquid. Bring liquid to a boil in a large saucepot. Pack cucumbers into hot jars, leaving ½-inch headspace. Ladle hot liquid over cucumbers, leaving ½-inch headspace. Remove air bubbles. Adjust two-piece caps. Process 15 minutes in a boiling-water canner.

**Note:** Brined cucumbers can also be cut into spears or chunks. The yield may vary depending on how the cucumbers are cut.

## Cucumber Sandwich Pickles

*Yield: about 3 pints*

- |                                                         |                         |
|---------------------------------------------------------|-------------------------|
| 2 pounds 3- to 4-inch cucumbers, cut into ¼-inch slices | 1 cup brown sugar       |
| ½ cup Ball Salt                                         | 1 cup granulated sugar  |
| 3 quarts water, divided                                 | ½ teaspoon celery seed  |
| 5 cups vinegar, divided                                 | ½ teaspoon mustard seed |
|                                                         | ½ teaspoon turmeric     |

Put cucumber slices in a clean pickling container. Combine salt and 2 quarts water; pour over cucumbers; let stand 2 to 3 hours. Drain; rinse and drain thoroughly. Discard liquid. Combine 3 cups vinegar and 3 cups water; bring to a boil in a large saucepot. Add cucumbers, simmer about 8 minutes. (Cucumbers should not become soft.) Drain well, discarding liquid. Combine 2 cups vinegar and 1 cup water with remaining ingredients in a large saucepot; simmer 10 minutes. Add drained cucumbers. Bring to a boil. Pack hot pickles and liquid into hot jars, leaving ½-inch headspace. Remove air bubbles. Adjust two-piece caps. Process 10 minutes in a boiling-water canner.

## Sauerkraut

*Yield: about 12 pints or 6 quarts*

- |                   |                 |
|-------------------|-----------------|
| 20 pounds cabbage | ¾ cup Ball Salt |
|-------------------|-----------------|

**To Ferment:** Remove outer leaves and any undesirable portions from firm, mature heads of cabbage; wash and drain. Cut into halves or quarters; remove core. Use a food processor or sharp knife to cut cabbage into thin shreds about ¼-inch thick. Combine 3 tablespoons salt and 5 pounds shredded cabbage in a large bowl; mixing thoroughly. Let salted cabbage stand for several minutes to wilt slightly; this allows packing without excessive breaking or bruising of the shreds. Pack salted cabbage firmly and evenly into a large, clean pickling container. Use a wooden spoon, tamper or hands to press down firmly until the juice comes to the surface. Repeat shredding, salting and packing of cabbage until the



## Equipment And Utensils

Very little specialized equipment is needed for pickling. Utensils made of zinc, iron, brass, copper, galvanized metal or enamelware with cracks or chips in the enamel should not be used. The metal in these utensils may react with acids or salts and cause undesirable color and taste changes in pickles, making pickles unfit to eat.

For the fresh pack method, which uses vinegar as the pickling ingredient, almost any large container in good condition is suitable. This includes unchipped enamelware, stainless steel, glassware or food-grade plastic.

For fermenting and brining, a crock or stone jar, an unchipped enamel-lined pan, a large glass jar or bowl can be used for small quantities. An enamel, glass or paraffin-lined hardwood keg or barrel can be used for large recipes.

The container must be fitted with an undersized lid. This allows the lid to sit directly on the food and holds the food below the surface of the brine. A glass jar filled with water and closed with a two-piece cap makes a good weight to hold the lid in place and keep cucumbers submerged.

Another method for covering fermenting products consists of placing a food-grade plastic bag filled with a salt brine over the food. The brine for the food-grade bag should be made of 1½ tablespoons salt per 1 quart water. The brine-filled bag seals the surface from exposure to air, prevents the growth of film, yeast or molds and serves as a weight. For extra protection, the brine-filled bag can be placed inside another food-grade plastic bag. Adjust the amount of brine in the plastic bag to provide just enough pressure to keep the fermenting product under the brine.

## General Information

Selecting quality cucumbers, accurate measurements of ingredients, daily maintenance of the brine and proper fermentation temperature are all critical factors that must be executed correctly in order to have successful brining results. Carelessness in performing any of these functions increases the possibility of unfit pickles and spoilage.

Select only quality cucumbers that have just reached their peak of flavor and ripeness. Discard cucumbers that are diseased, shriveled, misshapen or float when washed. Fruits and vegetables must be washed thoroughly in cold water. Wash whole before peeling. Use a brush, and scrub under running water or through several rinses. Clinging soil may contain bacteria that are hard to destroy. Remove ¼-inch from blossom end of cucumbers. It may be the source of enzymes which could soften the cucumbers during fermentation. Stem end does not have to be removed.

Cucumbers take up to 6 weeks to ferment. During fermentation cucumbers must be weighted under the brine at all times. Place the pickling container in a location that will maintain a consistent temperature between 70° and 75°F. As the cucumbers ferment, a scum may form on the top of the brine. Check the pickling container daily. Carefully remove all scum that has accumulated. If left unattended, the scum can reduce the acidity of the brine and cause spoilage. Prior to using brined cucumbers in a pickle recipe, the cucumbers must be desalted.

### Brining Cucumbers

1. Weigh cucumbers; keep a record of starting weight. Wash cucumbers and remove ¼-inch from blossom end. Put cucumbers in a clean pickling container. Make a 10 percent brine by dissolving 1 cup canning salt in 2 quarts water. Pour brine over cucumbers and weight cucumbers under brine.

2. On the second day add 1 cup canning salt for each 5 pounds of cucumbers. This will maintain the 10 percent brine required for fermentation. Add canning salt by placing it on a plate or cloth positioned on top of the cucumbers for even distribution of the salt. Do not pour canning salt directly on the cucumbers.
3. At the end of the first week, add ¼ cup canning salt for each 5 pounds of cucumbers. Repeat adding ¼ cup canning salt for each 5 pounds of cucumbers for the next 4 to 5 weeks.
4. Fermentation resulting in bubble formation or scum should continue for about 4 weeks. Remove scum daily. To determine when fermentation is complete, test for bubbles by tapping container on the side with your hand. Any bubbles rising to the surface indicates the cucumbers are still fermenting. As a second test, cut a cucumber in half to evaluate the coloring. An even consistent color throughout indicates fermentation is complete. If rings or white spots are noticeable, the cucumbers require additional time to ferment.

### Desalting Cucumbers

1. Remove cucumbers from brine solution. Measure volume of cucumbers. Submerge cucumbers in hot (180°F) water, using at least 3 times as much water as cucumbers. Let stand about 4 hours, stirring occasionally. Lift cucumbers out of water. Discard water and rinse container. Repeat 2 times.
2. Lift cucumbers from final soak. Prick cucumbers in several places. Pricking will help prevent shriveling when cucumbers are pickled.
3. Put cucumbers in a solution of 1 part water to 3 parts vinegar and let stand for 12 hours. Taste cucumbers to determine if sufficient salt has been removed; if not, let stand 12 hours longer. When desalting is complete, cucumbers are ready to be used in a pickling recipe.

**Note:** As an alternative method of desalting, brined cucumbers can be soaked in cold water. Use 3 or 4 times as much water as cucumbers. Change the water every 8 hours, stirring cucumbers occasionally. The salt should be removed within a 24-hour period.

## brined pickled vegetables

### Brined Dill Pickles

Yield: about 6 quarts

10 pounds 4- to 6-inch cucumbers	1½ cups Ball Salt
¾ cup Ball Mixed Pickling Spice, divided	2 cups vinegar
2 to 3 bunches fresh or dried dill, divided	2 gallons water
	6 cloves garlic (optional)

Wash and drain cucumbers. Place half the mixed pickling spice and one layer of dill in a clean pickling container. Add cucumbers to within 4 inches of top. Combine salt, vinegar and water; ladle over cucumbers. Place a layer of dill and remaining pickling spice over the top. Add garlic, if desired. Weight cucumbers under brine.

Store container in a cool place. Let cucumbers ferment until well flavored with dill and clear throughout. Pickles should be ready to can in about 2 to 3 weeks.

Remove pickles from brine. Strain the brine; bring to a boil in a large saucepot. Pack pickles into hot jars, leaving ½-inch headspace. Ladle hot liquid over pickles, leaving ½-inch headspace. Remove air bubbles.