Making Pickles and Relishes at Home 1978

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Reviewed by Milton P. Baldauf, Food Scientist, Extension Service, Washington, D.C.

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Revised July 1978

# MAKING PICKLES AND RELISHES AT HOME

Pickle products truly add spice to meals and snacks. The skillful blending of spices, sugar, and vinegar with fruits and vegetables gives crisp, firm texture and pungent, sweet-sour flavor.

Pickles and relishes have some nutritive value, contain little or no fat, and, except for the sweet type, are low in calories.

Although food markets today offer a wide variety of pickles and relishes, many homemakers like to make their own pickle products when garden vegetables and fresh fruits are in abundant supply.

This bulletin gives specific directions for selecting and preparing pickling ingredients and for processing pickles and relishes. Included are basic recipes for the old-time favorites, such as pickled pears, piccalilli, and sauerkraut; and for the newer fresh-pack or quick-process dills, sweet gherkins, crosscut pickle slices, and dilled green beans. Spices in these basic recipes can be increased or decreased to please family tastes.

Common causes of poor-quality pickles and spoilage in sauerkraut are pointed out.

## CLASSES AND CHARACTERISTICS

Pickle products are classified on the basis of ingredients used and the method of preparation. There are four general classes.

## **Brined Pickle Products**

Brined or fermented pickle products are cured for about 3 weeks. Dilled cucumbers and sauerkraut belong in this group.

Curing changes cucumber color

from bright green to olive or yellow green. The white interior of the fresh cucumber becomes uniformly translucent. Cucumber dills may be flavored with garlic, if desired. Good pickles are tender and firm.

Good sauerkraut (brined cabbage) has a pleasant tart and tangy flavor and is free from any offflavors or off-odors. It is crisp and firm and has a bright creamy-white color. The shreds should be uniformly cut (about the thinness of a dime) and free from large, coarse pieces of leaves or core.

#### Fresh-Pack Pickles

Fresh-pack or quick-process pick-les, such as crosscut cucumber slices and whole cucumber dills, sweet gherkins, and cauliflower, are brined for several hours or overnight, then drained and combined with boiling-hot vinegar, spices, and other seasonings. These are quick and easy to prepare. They have a tart, pungent flavor. Seasonings can be selected to suit family preferences. Fresh-pack whole cucumbers are olive green, crisp, tender, and firm.

Other vegetables, such as beets, green beans, and okra, are placed in hot jars and covered with boiling-hot vinegar, spices, and other seasonings.

## Fruit Pickles

Fruit pickles are usually prepared from whole fruits and simmered in a spicy, sweet-sour sirup. They should be bright in color, of uniform size, and tender and firm without being watery. Pears and watermelon rind are prepared this way.

#### Relishes

Relishes are prepared from fruits and vegetables which are chopped, seasoned, and then cooked to desired consistency. Clear, bright color and uniformity in size of pieces make an attractive product. Relishes accent the flavor of other foods. They may be quite hot and spicy. Relishes include piccalilli, pepper-onion, tomato-apple chutney, tomato-pear chutney, horseradish, corn relish, and chili sauce.



BN-20906

A choice of pickles and relishes.

## INGREDIENTS FOR SUCCESSFUL PICKLING

Satisfactory pickle products can be obtained only when good-quality ingredients are used and proper procedures are followed. Correct proportions of fruit or vegetable, sugar, salt, and vinegar are essential. Spices are also necessary, but the amounts may be adjusted according to taste. Alum and lime are not needed to make pickles crisp and firm if good-quality ingredients and up-to-date procedures are used.

Use tested recipes. Read the complete recipe before starting preparation. Make sure necessary ingredients are on hand. Measure or weigh all ingredients carefully.

## Fruits and Vegetables

Selection.—Select tender vegetables and firm fruit. Pears may be slightly underripe for pickling. Use unwaxed cucumbers for pickling whole. The brine cannot penetrate waxed cucumbers. Sort for uniform size and select the size best suited for the recipe being followed.

Use fruits and vegetables as soon as possible after gathering from the orchard or garden, or after purchasing from the market. If the fruits and vegetables cannot be used immediately, refrigerate them or spread them where they will be well ventilated and cool. This is particularly important for cucumbers because they deteriorate rapidly, especially at room temperatures.

Do not use fruits or vegetables that show even slight evidence of mold. Proper processing kills potential spoilage organisms but does not destroy the off-flavor that may be produced by mold growth in the tissue.

Preparation.—Wash fruits and vegetables thoroughly in cold water, whether they are to be pared or left unpared. Use a brush and wash only a few at a time. Wash under running water or through several changes of water. Clinging soil may contain bacteria that are hard to destroy. Lift the fruits or vegetables out of the water each time so soil that has been washed off will not be drained back over them. Rinse pan thoroughly between washings. Handle gently to avoid bruising.

Be sure to remove all blossoms from cucumbers. They may be a source of the enzymes responsible for softening of the cucumbers during fermentation.

#### Salt

Use pure granulated salt if available. Un-iodized table salt can be used, but the materials added to the salt to prevent caking may make the brine cloudy. Do not use iodized table salt; it may darken pickles.

#### Water

Use soft water if possible. Iron in hard water will cause pickles to darken. If hard water must be used, contact your County Cooperative Extension Service for information on how to treat hard water.

## Vinegar

Use a high-grade cider or white distilled vinegar of 4- to 6-percent acidity (40 to 60 grain). Vinegars of unknown acidity should not be used. Cider vinegar, with its mellow acid taste, gives a nice blending of flavors but may darken white or light-colored fruits and vegetables. White distilled vinegar has a sharp, pungent, acetic-acid taste and is desirable when light color is important, as with pickled pears, onions, and cauliflower.

Do not dilute the vinegar unless the recipe so specifies. If a less sour product is preferred, add sugar rather than decrease vinegar.

## Sugar

Either white granulated sugar or brown sugar may be used. White sugar gives a product with a lighter color.

## Spices

The general term "spices" includes the sweet herbs and the pungent spices. Herbs are the leaves of aromatic plants grown in the Temperate Zone, and spices are the stems, leaves, roots, seeds, flowers, buds, and bark of aromatic plants grown in the Tropics.

Use fresh, whole spices for the best flavor in pickles. Powdered spices may cause the product to darken or become cloudy. It is best to tie whole spices loosely in a cheesecloth bag, then remove the bag before canning. If desired, add individual spices from the bag, such as a cinnamon stick, to each jar.

Spices deteriorate and quickly lose their pungency in heat and humidity. If they cannot be used immediately, they should be stored in an airtight container in a cool place.

## EQUIPMENT FOR SUCCESSFUL PICKLING

Equipment of the right kind and size saves time and energy. Read the complete recipe before you start preparation and make sure you have ready for use all the utensils and tools you need.

#### Utensils

For heating pickling liquids, use utensils of unchipped enamelware, stainless steel, aluminum, or glass. Do not use copper, brass, galvanized, or iron utensils; these metals may react with acids or salts and cause undesirable color changes in the pickles or form undesirable compounds.

For fermenting or brining, use a lead-free crock or stone jar, unchipped enamel-lined pan, or large glass jar, bowl, or casserole. Use a heavy plate or large glass lid that fits inside the container to cover vegetables in the brine. Use a weight to hold the cover down and keep vegetables below the surface of the brine. A glass jar filled with water makes a good weight.

A water-filled plastic bag is an

effective cover for sealing the surface and keeping out air, thus preventing the growth of yeast or mold. The bag should be of heavyweight, watertight plastic and intended for use with food. Fill the bag with enough water to form a tight-fitting cover over the cabbage or cucumbers. Tie it tightly so the water will not leak out. For added protection, place the water-filled bag inside another heavyweight, watertight plastic bag intended for food use. Check the bags daily for leaks. If a small amount of water leaks out, it will not hurt the product but the bag should be replaced.

Small utensils that add ease and convenience to home pickling include: Measuring spoons, large wood or stainless-steel spoons for stirring, measuring cups, sharp knives, large trays, tongs, vegetable peelers, a ladle with a lip for pouring, a slotted spoon, a footed colander or wire basket, a largemouthed funnel, a food chopper or grinder, and a wooden cutting board.

## Water-Bath Canner

Inexpensive water-bath canners may be purchased at most hardware and variety stores. However, any large metal container may be used for a water-bath canner if it—

 Is deep enough to allow for 1 or 2 inches of water above the tops of the jars, plus a little extra space for boiling.

• Has a close-fitting cover.

 Is equipped with a wire or wood rack with partitions to keep jars from touching each other and falling against the sides of the canner.

A steam-pressure canner can serve as a water bath. To use it for this purpose, set the cover in place without fastening it. Be sure the petcock is wide open so that steam escapes and pressure is not built up.

## Glass Jars and Lids

Use jars specifically designed for home canning. Other jars may break more easily or not seal properly.

Select jars and lids that are free of cracks, chips, rust, dents, or any defect that may prevent airtight seals and cause needless spoilage. Select the size of lid—wide mouth or regular—that fits your jars.

Wash glass jars in hot, soapy water. Rinse thoroughly with hot water.

If two-piece lids are used, wash and rinse flat metal lids and metal screw bands. Always use new flat metal lids. These may have to be boiled or held in boiling water for a few minutes before they are used. Follow the manufacturer's directions.



BN-20543

A selection of jars and lids suitable for pickles and relishes is shown here. Jar types, from left to right, are: Wide-mouth pint, regular pint, regular quart, 1½ pint with flared sides, wide-mouth quart, pint with flared sides, and ½ pint with flared sides. The closures, from left to right, are: Flat metal lid with sealing compound and metal screw band to fit regular jar; flat metal lid with sealing compound, and metal screw band to fit wide-mouth jar; and porcelain-lined zinc cap with shoulder rubber ring to fit regular jar.

#### Scales

For porcelain-lined zinc caps, use clean, new rubber rings of the right size for the jars. Do not test by stretching. Dip rubber rings in boiling water before putting them on the jars.

Household scales will be needed for recipes that specify ingredients by weight. They are necessary in making sauerkraut to insure correct proportions of salt and shredded cabbage.

## PROCEDURES FOR SUCCESSFUL PICKLING

To insure acceptable quality and bacteriological safety of the finished pickle product, you must follow recommended procedures. Ingredients, time, and money may be wasted if you use outdated or careless canning procedures.

## Filling Jars

Fill the jars firmly and uniformly with the pickle product. Do not pack them so tightly that there is no room for the brine or sirup around and over the pickle product. Be sure to leave headspace at the top of the jar as recommended in recipe.

Wipe the rim and threads of the jar with a clean, hot cloth to remove any particles of food, seeds, or spices. Even a small particle may prevent an airtight seal.

## Closing Jars

The two-piece metal cap (flat metal lid and metal screw band) is the most commonly used closure. To use this type of closure, place the lid on the jar with the sealing compound next to the glass. Screw the metal band down tight by hand to hold the sealing compound

against the glass. When the band is screwed tight, this lid has enough "give" to let air escape during processing. Do not tighten the screw band further after processing.

When using a porcelain-lined zinc cap with shoulder rubber ring, put the wet rubber ring on the jar shoulder before filling the jar. Do not stretch the rubber ring more than necessary. Screw the cap down firmly against the wet rubber ring, then turn it back one-fourth inch. Immediately after processing and removal of the jar from the canner, screw the cap down tight to complete the seal.

If liquid has boiled out of a jar during processing, do not open it to add more liquid, because spoilage organisms may enter. Loss of liquid does not cause food to spoil if the lid has sealed properly.

## Heat Treatment

Pickle products require heat treatment to destroy organisms that cause spoilage and to inactivate enzymes that may affect flavor, color, and texture. Adequate heating is best achieved by processing the filled jars in a boiling-water bath.

Heat processing is recommended

for all pickle products. There is always danger of spoilage organisms entering the food when it is transferred from kettle to jar. This is true even when the utmost caution is observed and is the reason open-kettle canning is not recommended.

Pack pickle products into glass jars according to directions given in the recipe. Adjust lids. Immerse the jars in actively boiling water in canner or deep kettle. Be sure the water comes an inch or two above the jar tops; add boiling water if necessary, but do not pour it directly on the jars. Cover the container with a close-fitting lid and bring the water back to boiling as quickly as possible. Start to count processing time when the water returns to boiling, and continue to boil gently and steadily for the time recommended for the food being canned. Remove jars immediately and complete the seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

Processing procedures for fermented cucumbers and fresh-pack dills are slightly different from the usual water-bath procedures. For these products, start to count the processing time as soon as the filled jars are placed in the actively boiling water. This prevents development of a cooked flavor and loss of crispness.

Processing times as given in the recipes are for altitudes less than 1,000 feet above sea level. At altitudes of 1,000 feet or above, you need to increase recommended processing times as follows:

$Altitude \ (Feet)$	Increase in process time (minutes)	sing
1,000		1
2,000	******	2
3,000		3
4,000		4
5,000		5
6,000		6
7,000		7
8,000		8
9,000	************	9
10,000		10

## Cooling the Canned Pickles

To cool the jars, place them upright on a wire rack or folded towel, leaving several inches between jars to allow free circulation of air. Keep the jars out of drafts. Do not cover them.

Cool for 12 to 24 hours; remove metal screw bands carefully; then check jars for an airtight seal. If the center of the lid of the two-piece metal cap has a slight dip or stays down when pressed, the jar is sealed. Another test is to tap the center of the lid with a spoon. A clear, ringing sound means a good seal. Another way to check for airtight seal is to turn the jar partly over. If there is no leakage, the jar may be stored.

If a porcelain-lined zinc cap with rubber ring has been used, check for airtight seal by turning the jar partly over. If there is no leakage, the seal is tight.

If a jar shows signs of leakage or a poor seal, use the product right away or recan it. To recan, empty the jar, repack in another clean jar, and reprocess the product as before.

The metal screw bands from the two-piece metal caps may be used again. Remove them from the jars as soon as jars are cool. Sticking



BN-20539

Heat-processed, brined dill pickles, ready for serving. Processing the pickles in a boiling-water bath destroys yeasts and molds in the jar and helps to preserve good texture and flavor in the pickles for several months.

bands may be loosened by covering with a hot, damp cloth for a short time.

The metal lids from the two-piece metal caps may be used only one time.

## Storing the Canned Pickles

Wipe the jars with a clean, damp cloth, and label with name of product and date.

Store the canned pickles in a dark, dry, cool place where there is no danger of freezing. Freezing may crack the jars or break the seals, permitting spoilage-causing bacteria to enter. Protect from light to prevent bleaching and possible deterioration of flavor.

Always be on the alert for signs of spoilage. Before opening a jar, examine it closely. A bulging lid or leakage may mean that the contents are spoiled.

When a jar is opened, look for other signs of spoilage, such as spurting liquid, mold, disagreeable odor, change in color, or an unusual softness, mushiness, or slipperiness of the pickle product. If there is even the slightest indication of spoilage, do not eat or even taste the contents. Dispose of the contents so that they cannot be eaten by humans or animals.

After emptying the jar of spoiled food, wash the jar in hot, soapy water and rinse. Boil in clean water for 15 minutes.

## RECIPES

#### **VOLUME EQUIVALENTS**

1 bushel=4 pecks 1 peck=8 quarts 1 gallon=4 quarts 1 quart=4 cups 1 pint=2 cups 1 cup=16 tablespoons 1 tablespoon=3 teaspoons

## Brined dill pickles

Yield: 9 to 10 quarts

Cucumbers, 3 to 6 inches long	1/2 bushel)
Whole mixed pickling spice	3/4 cup
Dill plant, fresh or dried	
Vinegar	21/2 cups
Salt, pure granulated	13/4 cups
Water	21/2 gallons

Cover cucumbers with cold water. Wash thoroughly, using a vegetable brush; handle gently to avoid bruising. Take care to remove any blossoms. Drain on rack or wipe dry.

Place half the pickle spices and a layer of dill in a 5-gallon crock or jar. Fill the crock with cucumbers to within 3 or 4 inches from the top. Place a layer of dill and remaining spices over the top of cucumbers. Thoroughly mix the vinegar, salt, and water and pour over the cucumbers.

Cover with a heavy china or glass plate or lid that fits inside the crock.

Use a weight to hold the plate down and keep the cucumbers under the brine. A glass jar or plastic bag filled with water (see p. 6) makes a good weight. The bag should be of heavyweight, watertight plastic and intended for use with food. Cover crock loosely with a clean cloth. Keep pickles at room temperature and remove scum daily when formed. Scum may start forming in 3 to 5 days. Do not stir pickles, but be sure they are completely covered with brine. If necessary, make additional brine, using original proportions specified in recipe.

In about 3 weeks the cucumbers will have become an olive-green color and should have a desirable flavor. Any white spots inside the fermented cucumbers will disappear in processing.

The original brine is usually cloudy as a result of yeast development during the fermentation pe-(Continued on p. 14.)

# How to make Brined Dill Pickles



DN-2049

Wash cucumbers thoroughly with a brush. Use several changes of cold water. Take care to remove all blossoms. Drain on rack.



DN-2048

Place half of the spices and a layer of dill on the bottom of a 5-gallon jar or crock. Fill with cucumbers to 3 or 4 inches from top. Cover with remaining dill and add rest of spices. Mix salt, vinegar, and water and pour over cucumbers.



DN-2047

Use a heavy plate or glass lid which fits inside the container to cover cucumbers. Use a weight to hold the cover down and keep the cucumbers under the brine. A glass jar or plastic bag filled with water makes a good weight.

DN-2044

Bubbles and the formation of scum indicate active fermentation. Scum should be removed daily.



DN-2046

After 3 weeks of fermentation the dills are ready for processing. Cloudiness of the brine results from yeast development during fermentation. Strain the brine before using.



#### DN-2045

Pack pickles firmly into clean, hot quart jars. Do not wedge tightly. Add several pieces of the dill to each jar. Cover with boiling brine to ½ inch from top of jar; adjust lids. Place jars in boiling water and process for 15 minutes. Start to count processing time as soon as the hot jars are placed in the actively boiling water.



#### DN-2043

Remove jars from the canner and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart. Cloudiness of brine is typical when the original fermentation brine is used as the covering liquid.



riod. If this cloudiness is objectionable, fresh brine may be used to cover the pickles when packing them into jars; in making fresh brine use ½ cup salt and 4 cups vinegar to 1 gallon of water. The fermentation brine is generally preferred for its added flavor. It should be strained before it is heated to boiling.

Pack the pickles, along with some of the dill, into clean, hot quart jars; add one or two garlic cloves per jar, if desired. Avoid too tight a pack. Cover with boiling brine to ½ inch from the top of the jar. Adjust jar lids.

Process in boiling water for 15 minutes <sup>1</sup> (start to count the processing time as soon as the hot jars are placed in the actively boiling water).

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Fresh-pack dill pickles

Yield: 7 quarts

Cucumbers, 3 to 5 inches long, packed 7 to 10	
per quart jar	17 to 18 pounds
5-percent brine (3/4 cup pure granulated salt	
per gallon of water)	About 2 gallons
Vinegar	1½ quarts
Salt, pure granulated	3/4 cup
Sugar	1/4 cup
Water	21/4 quarts
Whole mixed pickling spice	2 tablespoons
Whole mustard seed	2 teaspoons per quart jar
Garlic, if desired	1 or 2 cloves per quart jar
Dill plant, fresh or dried	3 heads per quart jar
Or	
Dill seed	1 tablespoon per quart jar

Wash cucumbers thoroughly; scrub with vegetable brush; drain. Cover with the 5-percent brine. Let set overnight; drain.

Combine vinegar, salt, sugar, water, and mixed pickling spices that are tied in a clean, thin, white cloth;

heat to boiling. Pack cucumbers into clean, hot quart jars. Add mustard seed, dill plant or seed,

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

and garlic to each jar; cover with boiling liquid to within ½ inch from top of jar. Adjust jar lids.

Process in boiling water for 20 minutes <sup>1</sup> (start to count the processing time as soon as the hot jars

are placed in the actively boiling water).

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Crosscut pickle slices

#### Yield: 7 pints

Cucumbers, medium size, sliced	4 quarts (about 6 pounds)
Onions, small white, sliced	1½ cups (about 1 pound)
Garlic cloves	2 large
Salt	1/3 cup
Ice, crushed or cubes	2 quarts (2 trays)
Sugar	41/2 cups
Turmeric	1½ teaspoons
Celery seed	1½ teaspoons
Mustard seed	2 tablespoons
Vinegar, white	3 cups

Wash cucumbers thoroughly, using a vegetable brush; drain on rack. Slice unpeeled cucumbers into %-inch to %-inch slices; discard ends. Add onions and garlic.

Add salt and mix thoroughly; cover with crushed ice or ice cubes; let stand 3 hours. Drain thoroughly; remove garlic cloves.

Combine sugar, spices, and vinegar; heat just to boiling. Add drained cucumber and onion slices and heat 5 minutes.

Pack hot pickles loosely into clean, hot pint jars and cover with hot liquid to ½ inch from top. Adjust jar lids.

Process in boiling water for 5 minutes 1 (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

Note: Sugar may be reduced to 4 cups if a less sweet pickle is desired.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

# How to make Crosscut Pickle Slices



#### DN-2054

Wash cucumbers thoroughly. Slice unpeeled cucumbers into 1/2- to 1/4-inch crosswise slices. Wash and remove skins from onions; slice into 1/2-inch slices.



#### DN-2053

Combine cucumber and onion slices with peeled garlic cloves. Add salt and mix thoroughly. Cover with crushed ice or ice cubes. Allow to stand 3 hours. Drain thoroughly; remove garlic cloves.



#### DN-2052

Combine sugar, spices, and vinegar; heat to boiling. Add drained cucumber and onion slices and heat 5 minutes.



DN-2050

Pack loosely into clean, hot pint jars to ½ inch from top of jar; adjust lids. Process in boiling water for 5 minutes. Start to count processing time as soon as water in canner returns to boiling.



DN-2051

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Sweet gherkins

#### Yield: 6 to 7 pints

Cucumbers, 11/2 to 3 inches long	5 quarts (about 7 pounds)
Salt, pure granulated	1/2 cup
Sugar	8 cups
Vinegar	1½ quarts
Turmeric	3/4 teaspoon
Celery seed	2 teaspoons
Whole mixed pickling spice	2 teaspoons
Cinnamon sticks, 1-inch pieces.	8
Fennel (if desired)	1/2 teaspoon
Vanilla (if desired)	2 teaspoons

#### First day

Morning.—Wash cucumbers thoroughly; scrub with vegetable brush. Stem ends may be left on if desired. Drain cucumbers; place in large container and cover with boiling water.

Afternoon (6 to 8 hours later).— Drain; cover with fresh, boiling water.

## Second day

Morning.—Drain; cover with fresh, boiling water.

Afternoon.—Drain; add salt; cover with fresh, boiling water.

## Third day

Morning.—Drain; prick cucumbers in several places with table fork. Make sirup of 3 cups of the sugar and 3 cups of the vinegar; add turmeric and spices. Heat to boiling and pour over cucumbers. (Cucumbers will be partially covered at this point.)

Afternoon. - Drain sirup into pan;

add 2 cups of the sugar and 2 cups of the vinegar to sirup. Heat to boiling and pour over pickles.

## Fourth day

Morning.—Drain sirup into pan; add 2 cups of the sugar and 1 cup of the vinegar to sirup. Heat to boiling and pour over pickles.

Afternoon.—Drain sirup into pan; add remaining 1 cup sugar and the vanilla to sirup; heat to boiling. Pack pickles into clean, hot pint jars and cover with boiling sirup to ½ inch from top of jar. Adjust jar lids.

Process for 5 minutes <sup>1</sup> in boiling water (start to count processing time as soon as water returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

#### Chili sauce

#### Yield: 4 to 5 pints

Onions	5 medium
Green peppers	3 medium
Tomatoes	About 6 pounds
Vinegar	3 cups
Brown sugar, packed	21/4 cups
Salt	11/2 tablespoons
Mustard, dry	1 tablespoon

Grind onion and green pepper together through coarse blade of food grinder or blender.

Remove skins from tomatoes. Cut tomatoes into eighths to make 3 quarts.

Combine all ingredients. Bring to a boil and boil gently, stirring frequently, for 3 hours or until mixture is reduced one-half in volume. Pack hot chili sauce into clean, hot pint jars. Fill jars to ½ inch from top. Adjust jar lids. Process in boiling water for 15 minutes 1 (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Tomato-pear chutney

Yield: 4 jars (1/2 pint each)

Tomatoes, quartered, fresh or canned	21/2 cups
Pears, diced, fresh or canned	21/2 cups
Raisins, seedless, white	1/2 cup
Green pepper, chopped	1/2 cup
Onion, chopped	1/2 cup
Sugar	1 cup
Vinegar, white	1/2 cup
Salt	1 teaspoon
Ground ginger	1/2 teaspoon
Mustard, dry	1/2 teaspoon
Cayenne pepper	1/8 teaspoon
Pimiento, canned, chopped	1/4 cup

When fresh tomatoes and pears are used, remove skins; include sirup when using canned pears.

Combine all ingredients except

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

pimiento. Bring to a boil; boil gently, stirring frequently, until mixture is thickened and reduced about one-half in volume (about 45 minutes), stirring occasionally. Add pimiento and boil another 3 minutes.

Pack the boiling-hot chutney into clean, hot jars, filling to the top. Seal tightly. Store in refrigerator.

If extended storage without refrigeration is desired, this product should be processed in boiling water. Pack the boiling-hot chutney into clean, hot half-pint jars to ½ inch from top of jar. Adjust jar lids. Process in boiling water for 5 minutes 1 (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

NOTE: If a less spicy chutney is preferred, the amount of cayenne pepper may be reduced or omitted.

## Tomato-apple chutney

Yield: 7 to 8 pints

Tomatoes	About 6 pounds
Apples, pared, chopped	3 quarts (about 5 pounds)
Raisins, seedless, white	2 cups
Onion, chopped	2 cups
Green pepper, chopped	1 cup
Brown sugar	2 pounds
Vinegar, white	1 quart
Salt	4 teaspoons
Ground ginger	1 teaspoon
Whole mixed pickling spice	1/4 cup

Remove skins from tomatoes. Chop tomatoes to make 3 quarts.

Combine all ingredients except the whole spices. Place spices loosely in a clean, white cloth; tie with a string, and add to tomatoapple mixture. Bring to a boil; boil gently, stirring frequently, until mixture is thickened and reduced about one-half in volume (about 1 hour). Remove spice bag.

Pack the boiling-hot chutney into clean, hot pint jars to ½ inch from the top of the jar. Adjust jar lids.

Process in boiling water for 5 minutes <sup>1</sup> (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

## Cauliflower pickles

#### Yield: 5 pints

Cauliflower florets	3 quarts (about 3 medium heads)
Onion, sliced	2 cups
Red pepper, cut in strips	1 cup
Salt	1/4 cup
Ice cubes	2 quarts (2 trays)
Vinegar, white	1 quart
Sugar	2 cups
Mustard seed	1 tablespoon
Celery seed	1 tablespoon
Turmeric	1 teaspoon
Hot red pepper	1

Wash cauliflower; divide into florets. Combine cauliflower, sliced onion, red pepper strips, and salt. Cover with ice and let stand 3 to 4 hours. Drain well.

Combine remaining ingredients. Bring to a boil. Add vegetables; boil 10 minutes or until vegetables are tender-crisp.

Remove hot red pepper from vegetable mixture. Pack hot vegetables into hot pint jars. Cover with boiling liquid to ½ inch from top of jar. Cut hot red pepper into five pieces and add one piece to each jar. Adjust jar lids.

Process in boiling water for 5 minutes 1 (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

#### Pickled beets

## Yield: 6 pints

Beets, sliced	3 quarts (about 7 pounds without tops)
Allspice, whole	
Cinnamon sticks	2
Sugar	2 cups
Salt	1½ teaspoons
Vinegar	3½ cups
Water	1½ cups

Wash beets. Leave 2-inch stems and taproots. Cover with boiling water and cook whole until tender.

Drain; peel and slice.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

Loosely tie allspice and cinnamon sticks in a clean, thin, white cloth. Combine sugar, salt, vinegar, and water; add spice bag. Bring to a boil; cook slowly 15 minutes.

Remove spice bag. Pack beets into hot pint jars. Cover with hot liquid, filling to ½ inch from top. Adjust jar lids.

Process in boiling water for 30 minutes 1 (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

#### Pickled okra

#### Yield: 6 pints

Okra, whole	3 pounds
Hot red or green peppers	6
Garlic cloves	
Vinegar	1 quart
Water	11/3 cups
Salt.	1/2 cup
Mustard seed	1 tablespoon

Wash okra. Trim stems; do not cut into pods. Pack okra into clean, hot pint jars; add hot pepper and garlic clove to each jar.

Bring remaining ingredients to a boil. Cover okra with hot liquid, filling to ½ inch from top. Adjust jar lids. Process in boiling water for 10 minutes <sup>1</sup> (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Dilled green beans

## Yield: 7 to 8 pints

Green beans, whole	
Hot red pepper, crushed	1/4 teaspoon per pint jar
Mustard seed	1/2 teaspoon per pint jar
Dill seed	1/2 teaspoon per pint jar
Garlic	1 clove per pint jar
Vinegar	5 cups (1½ quarts)
Water	5 cups (11/4 quarts)
Salt	1/2 cup

Wash beans thoroughly; drain and cut into lengths to fill pint jars. Pack beans into clean, hot jars;

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

add pepper, mustard seed, dill seed, and garlic.

Combine vinegar, water, and salt; heat to boiling. Pour boiling liquid over beans, filling to ½ inch from top of jar. Adjust jar lids.

Process in boiling water for 5

minutes <sup>1</sup> (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## Pickled pears

#### Yield: 7 to 8 pints

######################################	
Sugar	2 quarts
Vinegar, white	
Water	
Cinnamon sticks, 2-inch pieces	8
Cloves, whole	2 tablespoons
Allspice, whole	2 tablespoons
Seckel pears	8 pounds (4 or 5 quarts)

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. To prevent peeled pears from darkening during preparation, immediately put them into cold water containing 2 tablespoons each of salt and vinegar per gallon. Drain just before using.

Add pears to the boiling sirup and continue simmering for 20 to 25 minutes. Pack hot pears into clean, hot pint jars; add one 2-inch piece cinnamon per jar and cover with boiling sirup to ½ inch from top of jar. Adjust jar lids.

Process in boiling water for 20 minutes <sup>1</sup> (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

## Watermelon pickles

#### Yield: 4 to 5 pints

Watermelon rind, unpared	3 quarts (about 6 pounds)
Salt	3/4 cup
Water	3 quarts
Ice cubes	2 quarts (2 trays)
Sugar	9 cups
Vinegar, white	3 cups
Water	3 cups
Whole cloves	1 tablespoon (about 48)
Cinnamon sticks, 1-inch pieces	6
Lemon, thinly sliced, with seeds removed	1

Pare rind and all pink edges from the watermelon. Cut into 1-inch squares or fancy shapes as desired. Cover with brine made by mixing the salt with 3 quarts cold water. Add ice cubes. Let stand 3 to 4 hours.

Drain; rinse in cold water. Cover with cold water and cook until fork tender, about 10 minutes (do not overcook). Drain.

Combine sugar, vinegar, water, and spices (tied in a clean, thin, white cloth). Boil 5 minutes and pour over the watermelon; add lemon slices. Let stand overnight.

Heat watermelon in sirup to boiling and cook slowly 1 hour. Pack hot pickles loosely into clean, hot pint jars. To each jar add 1 piece of stick cinnamon from spice bag; cover with boiling sirup to ½ inch from top of jar. Adjust jar lids.

Process in boiling water for 5 minutes 1 (start to count processing time when water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

Note: Red or green food coloring may be added to the sirup, if desired. Keep watermelon rind in plastic bags intended for food use in refrigerator until enough rinds for one recipe are collected.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

#### Sauerkraut

#### Yield: 14 to 15 quarts

Cabbage	 About 50 pounds
Salt, pure granulated	 1 pound (11/2 cups)

Remove the outer leaves and any undesirable portions from firm, mature heads of cabbage; discard. Wash and drain remaining cabbage. Cut into halves or quarters; remove the core. Use a shredder or sharp knife to cut the cabbage into thin shreds about the thickness of a dime.

In a large container, thoroughly mix 3 tablespoons salt with 5 pounds shredded cabbage. Let the salted cabbage stand for several minutes to wilt slightly; this allows packing without excessive breaking or bruising of the shreds.

Pack the salted cabbage firmly and evenly into a clean, 5-gallon crock or jar. Using a wooden spoon or tamper or your hands, press down firmly until the juice comes to the surface. Repeat the shredding, salting, and packing of cabbage until the crock is filled to within 3 or 4 inches from the top.

A 5-gallon crock will hold about 35 pounds of prepared, salted cabbage.

## Relishes

Relishes for which ingredients are available throughout the year can be made in small quantities for use within 3 or 4 weeks. For such products, the boiling-water-bath process may be omitted, but they must be

Cover cabbage with a heavy-weight, water-filled plastic bag (see p. 6) that fits snugly against the cabbage and against the sides of the container to prevent exposure to air. See illustration on page 27. The bag should be of heavyweight, watertight plastic and intended for use with food. Store at room temperature (68° to 72° F) for 3 weeks while cabbage is fermenting.

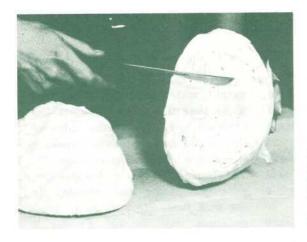
To process: Heat sauerkraut to simmering (185° to 210° F). Do not boil. Pack hot sauerkraut into clean, hot jars and cover with hot juice to ½ inch from top of jar. Adjust jar lids. Process in boilingwater bath: 15 minutes for pints, 20 minutes for quarts¹ (start to count processing time as soon as the hot jars are placed in the actively boiling water.)

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

stored in the refrigerator. Two relishes that may be made in this way are horseradish relish and pepper-onion relish.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

# How to make Sauerkraut



DN-2042

Remove the outer leaves from firm, mature heads of cabbage; discard. Wash and drain remaining cabbage. Remove core.



#### DN-2041

Shred cabbage and weigh 5 pounds. Accuracy in weighing is important to insure correct proportion of cabbage to salt.



#### DN-2040

Measure 3 tablespoons pure granulated salt and sprinkle over 5 pounds shredded cabbage.

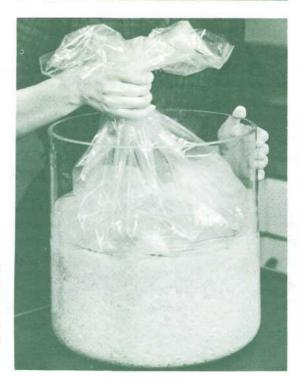
DN-2061

Allow the salted cabbage to stand a few minutes to wilt slightly. Mix well, with clean hands or a spoon, to distribute salt uniformly.



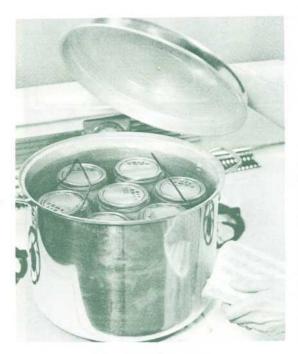
DN-2039

Pack the salted cabbage into container. Press firmly with wooden spoon, tamper, or with hands until the juices drawn out just cover the shredded cabbage.



DN-2060

Place a water-filled plastic bag on top of the cabbage. A water-filled plastic bag fits snugly against the cabbage and against the sides of the container and prevents exposure to air.



#### DN-2062

After 3 weeks, remove from container and heat in kettle to simmering temperature. Pack hot sauerkraut into clean, hot jars; cover with hot juice, filling to ½ inch from top of jar. Adjust lids. Place jars in boiling-water bath and process 15 minutes for pints and 20 minutes for quarts. Start to count the processing time as soon as hot jars are placed in the actively boiling water.

DN-2063 Remove jars from the canner and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.



#### Horseradish relish

Yield: 2 jars (1/2 pint each)

Grated horseradish	2 cups (about 3/4 pound)
Vinegar, white	1 cup
Salt	1/2 teaspoon

Wash horseradish roots thoroughly and remove the brown outer skin. (A vegetable peeler is useful in removal of outer skin.) The roots may be grated or cut into small cubes

and put through a food chopper or a blender.

Combine ingredients. Pack into clean jars. Seal tightly. Store in refrigerator.

## Pepper-onion relish

Yield: 6 jars (1/2 pint each)

Onion, finely chopped	1 quart
Sweet red pepper, finely chopped	1 pint
Green pepper, finely chopped	
Sugar	
Vinegar	1 quart
Salt	4 teaspoons

Combine all ingredients and bring to a boil. Boil gently until mixture is thickened and reduced about one-half in volume (about 45 minutes), stirring occasionally. Pack the boiling-hot relish into clean, hot jars; fill to top of jar. Seal tightly. Store in refrigerator.

If extended storage without refrigeration is desired, this product should be processed in a boiling-water bath. Pack the boiling-hot relish into clean, hot half-pint jars to ½ inch from top of jar. Adjust jar lids.

Process in boiling water for 5 minutes 1 (start to count processing time when water in canner returns to boiling).

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

#### Corn relish

#### Yield: 7 pints

Corn, whole kernel	2 quarts
kernel, six 10-ounce packages)	
Sweet red pepper, diced	1 pint
Green pepper, diced	1 pint
Celery, chopped	1 quart
Onions, small, chopped or sliced	1 cup
Sugar	11/2 cups
Vinegar	1 quart
Salt	2 tablespoons
Celery seed	2 teaspoons
Mustard, dry	2 tablespoons
Turmeric	1 teaspoon

Fresh corn.—Remove husks and silks. Cook ears of corn in boiling water for 5 minutes; remove and plunge into cold water. Drain; cut corn from cob. Do not scrape cob.

Frozen corn.—Defrost overnight in refrigerator or for 2 to 3 hours at room temperature. Place containers in front of a fan to hasten defrosting.

Combine peppers, celery, onions, sugar, vinegar, salt, and celery seed. Cover pan until mixture starts to boil, then boil uncovered for 5 minutes, stirring occasionally. Mix dry mustard and turmeric and blend with a small amount of liquid from boiling mixture; add, with corn, to boiling mixture. Return to boiling and cook for 5 minutes, stirring occasionally.

This relish may be thickened by adding ¼ cup flour blended with ½ cup water at the time the corn

is added for cooking. Frequent stirring will be necessary to prevent sticking and scorching.

Pack loosely while boiling hot into clean, hot pint jars, filling to ½ inch from top. Adjust jar lids.

Process in boiling water for 15 minutes <sup>1</sup> (start to count processing time as soon as water in canner returns to boiling). Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool, Place them several inches apart.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

#### Piccalilli

#### Yield: 3 pints

Green tomatoes, chopped	1 quart
Sweet red pepper, chopped	
Green pepper, chopped	1 cup
Onion, chopped	1½ cups
Cabbage, chopped	5 cups (about 2 pounds)
Salt	1/3 cup
Vinegar	3 cups
Brown sugar, packed	2 cups
Whole mixed pickling spice	

Combine vegetables, mix with salt, let stand overnight. Drain and press in a clean, thin, white cloth to remove all liquid possible.

Combine vinegar and sugar. Place spices loosely in a clean cloth; tie with a string. Add to vinegar mixture. Bring to a boil.

Add vegetables, bring to a boil, and boil gently about 30 minutes, or until mixture is reduced one-half in volume. Remove spice bag. Pack hot relish into clean, hot pint jars. Fill jars to ½ inch from top. Adjust lids.

Process in boiling water for 5 minutes <sup>1</sup> (start to count processing time as soon as water in canner returns to boiling).

Remove jars and complete seals if necessary. Set jars upright on a wire rack or folded towel to cool. Place them several inches apart.

## COMMON CAUSES OF POOR-QUALITY PICKLES

#### **Shriveled Pickles**

Shriveling may result from using too strong a vinegar, sugar, or salt solution at the start of the pickling process. In making the very sweet or very sour pickles, it is best to start with a dilute solution and increase gradually to the desired strength.

Overcooking or overprocessing may also cause shriveling.

## Hollow Pickles

Hollowness in pickles usually results from—

- Poorly developed cucumbers.
- Keeping cucumbers too long before pickling.

<sup>&</sup>lt;sup>1</sup> Processing time is given for altitudes less than 1,000 feet above sea level. For altitudes of 1,000 feet or above, see table on p. 9.

- Too rapid fermentation.
- Too strong or too weak a brine during fermentation.

## Soft or Slippery Pickles

These generally result from microbial action which causes spoilage. Once a pickle becomes soft it cannot be made firm. Microbial activity may be caused by—

- Too little salt or acid.
- Cucumbers not covered with brine during fermentation.
- Scum scattered throughout the brine during fermentation period.
  - Insufficient heat treatment.
  - A seal that is not airtight.
  - Moldy garlic or spices.

Blossoms, if not entirely removed from the cucumbers before fermentation, may contain fungi or yeasts responsible for enzymatic softening of pickles.

## Dark Pickles

Darkness in pickles may be caused by—

- · Use of ground spices.
- Too much spice.
- Overcooking.
- Minerals in water, especially iron.
  - Use of iron utensils.

## COMMON CAUSES OF SPOILAGE IN SAUERKRAUT

Off-flavors and off-odors develop when there is spoilage in sauerkraut. Spoilage in sauerkraut is indicated by undesirable color, offodors, and soft texture.

## Soft Kraut

Softness in sauerkraut may result from—

- Insufficient salt.
- Too high temperatures during fermentation.
  - Uneven distribution of salt.
- Air pockets caused by improper packing.

## Pink Kraut

Pink color in kraut is caused by growth of certain types of yeast on the surface of the kraut. These may grow if there is too much salt, an uneven distribution of salt, or if the kraut is improperly covered or weighted during fermentation.

## Rotted Kraut

This condition in kraut is usually found at the surface where the cabbage has not been covered sufficiently to exclude air during fermentation.

## Dark Kraut

Darkness in kraut may be caused by—

- Unwashed and improperly trimmed cabbage.
- Insufficient juice to cover fermenting cabbage.
  - Uneven distribution of salt.
  - Exposure to air.
- High temperatures during fermentation, processing, and storage.
  - Long storage period.

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