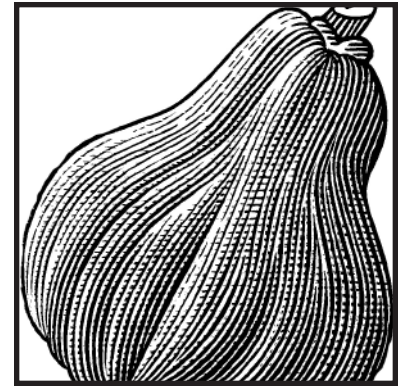
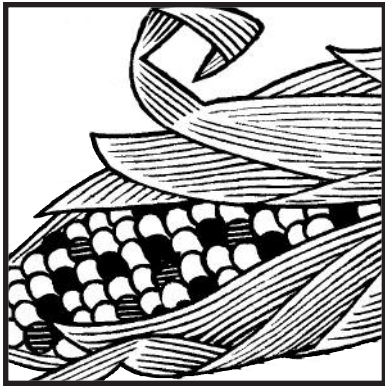




The Complete Guide to Home Canning



MISSISSIPPI STATE
UNIVERSITY
EXTENSION SERVICE

At least 30 million Americans rush out each summer to beat inflation with a *garden hoe* and a *jar lid*.

Many of these gardeners have produced some prize-winning blisters and backaches. They have reached a low level of despair with jelly that didn't gel, pickles that didn't pickle, and preserves that didn't preserve. Other gardeners, though, have found they had a hidden talent for a "green thumb." They have showered friends and loved ones with fresh-from-the-garden produce and take-home presents. They have packed their pantries with home-preserved fruits and vegetables.

Home canning gives a great feeling of pride and accomplishment. It brings family members together in creative activity. It provides security in having food within an arm's reach. It offers a supply of food prepared according to family preferences and special dietary needs.

For these reasons and others, the United States Department of Agriculture and the Mississippi State University Extension Service have provided consumers with instructions and tips for best preserving the garden's bounty. In this publication you will find the latest information on home canning techniques for fruits, vegetables, jelly, jam, preserves, pickles, and relishes.

EQUIPMENT

Spoilage and botulism are always threats to home canning. To produce home canned foods that are safe to eat, always use the right equipment. When you desire to can fruits and vegetables, heat them at a temperature high enough and long enough to destroy spoilage organisms and stop enzyme action. Do this process-

ing either in a boiling waterbath canner or a steam pressure canner. The type of canner you use depends on the kind of food you're canning. For fruits, tomatoes, and pickled vegetables, use a boiling water bath canner. These foods contain enough acid to be processed safely in boiling water.

Thermometer

A canning thermometer is an essential piece of equipment. This will help you monitor the temperatures needed in home canning. A thermometer that has clear markings and will clip to the side is a good investment.

Important Temperatures to Know

Boiling (Roll/Hard Boiling)	212 °F/100 °C
Slow Boil	205 °F/96 °C
Simmer	185 °F to 200 °F/85 °C to 93.5 °C
Poach	160 °F to 180 °F/71 °C to 82 °C
Hot Water	130 °F to 135 °F/54.5 °C to 57 °C
Warm Water	115 °F to 120 °F/46 °C to 49 °C
Tepid Water	85 °F to 105 °F/25.5 °C to 40.5 °C

Steam Pressure Canners

For common vegetables (except tomatoes), use a steam pressure canner. Processing these low-acid foods safely in a reasonable length of time takes a temperature higher than a boiling water bath.

Before you use a steam pressure canner, be sure to check all parts for safe operation during canning. Before and during the canning season, clean the "petcock" (small valve used to lower pressure) and safety-valve openings by drawing a string or narrow strip of cloth through them. Also have the pressure gauge checked for accuracy to be sure your processing temperature is high enough to keep the food from spoiling. (If you don't know how to check your pressure gauge, ask your county Extension office.) If you have a weighted gauge on your pressure canner, clean it thoroughly. Check dial gauges for accuracy before use

each year and replace if they read high by more than one pound at 5, 10, or 15 pounds of pressure. Low readings cause over-processing and may indicate the gauge is inaccurate.

Make sure your canner is clean. Wash it if you have not used it for some time, but don't put the cover in water. Wipe the lid with a clean, damp cloth and dry it well.

Water Bath Canners

Water bath canners for canning fruits and other high-acid content foods are available to buy. However, you can use any big, metal container as long as it is deep enough for the water to be from 2 inches to 4 inches over the tops of jars and still boil freely. The canner must have a tight-fitting cover and a wire or wooden rack. If the rack has dividers, the jars will not touch each other or fall against the sides of the canner during processing.

Be sure all glass canning jars and closures are in perfect condition. Discard those with cracks, chips, dents, or rust; such defects prevent airtight seals. When you're buying lids, be sure to buy the ones that fit your jars – wide-mouth or regular. Wash the glass jars, lids, and bands in hot, soapy water and rinse well. Newly purchased metal lids with sealing compound on them may need boiling or dipping in boiling water for a few minutes.

GENERAL INSTRUCTIONS

The golden rule of home canning is:

"The quality of the foods preserved will be only as good as the quality of the foods when they were fresh."

You should use only fresh, firm fruits and young, tender vegetables for preserving. Can them as soon as

possible after harvest to retain their freshness. If you must hold them, keep them in a cool, airy place. If you buy fruits and vegetables to can, try to get them from a nearby garden or orchard.

Sort all fruits and vegetables for size and ripeness so they will cook evenly. Wash produce thoroughly, even if it is to be peeled. Dirt contains some of the hardest bacteria to kill. Wash small lots at a time under running water. Lift the food out of the water each time so dirt that has been washed off won't get back on the food. Rinse the pan thoroughly between washings. Don't let fruits or vegetables soak; they may lose their flavor and food value. Handle them gently to avoid bruising.

Raw Pack. For raw-pack canning, pack cold raw fruits or vegetables tightly into the container and cover them with boiling water, hot syrup, or juice. Tight packing is necessary because the foods shrink during processing. A few foods, like corn, lima beans, and peas, should be packed loosely because they expand.

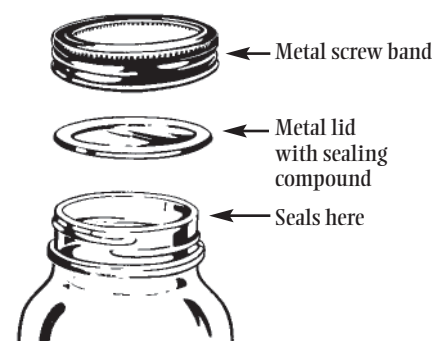
Hot Pack. Pack hot food fairly loosely. It should be at or near boiling temperature when you pack it. To use any hot pack method, preheat the food in syrup, water, extracted juice, or steam before packing. Preheat tomatoes without added liquid and pack in the juice that cooks out. After packing, cover other foods with one of the liquids mentioned. The "cooking liquid" is recommended for packing most vegetables because it may contain minerals and vitamins dissolved out of the food. Boiling water is recommended when the cooking liquid is dark, gritty, strong-flavored, or not enough.

There should be enough syrup, water, or juice to fill in around the solid food in the container and to cover it. Food at the top of the container tends to darken if not covered with liquid. It takes from $\frac{1}{2}$ to $1\frac{1}{2}$ cups of liquid for a glass quart jar.

With only a few exceptions, leave some space between the packed food and the closure. The amount of space to allow at the top of the jar varies with the food being preserved.

The common self-sealing lid consists of a flat metal lid held in place by a metal screw band during processing. Gaskets in unused lids work well for at least 5 years from date of manufacture. If unused lids are older than 5 years, they may not seal. Wipe the jar rim clean after the food is packed. Put on the lid with the sealing compound next to the glass.

Screw the metal band down



tightly by hand. When the band is tight, the lid has enough "give" to let air escape during processing. Do not tighten it again when you take the jar from the canner.

You may reuse screw bands that are in good condition, but metal lids with sealing compound are for one-time use. Remove bands as soon as the jars are cool.

Water Bath. To process fruits, tomatoes, and pickled vegetables in a boiling water bath, put the filled glass jars into the canner containing hot or boiling water. For raw pack in glass jars, have the water in the canner hot but not boiling. For hot pack, have the water boiling.

Add boiling water if needed to bring the water an inch or two over the tops of the jars. Don't pour boiling water directly on glass jars. Put the cover on the canner.

When the water in the canner comes to a rolling boil, start to count processing time. Boil gently and steadily for time recommended for the food you are canning. Add boiling water during processing if needed to keep the jars covered. Remove jars from the canner immediately when the processing time is up.

Pressure Canner. For processing vegetables in a steam pressure canner, follow the manufacturer's directions for the canner you are using. However, there are some general rules for using any steam-pressure canner:

- Put from 2 inches to 3 inches of boiling water in the bottom of the canner, depending on the size and shape of canner.
- Set filled glass jars in a rack in the canner so that steam can flow around each one. If you stack two layers of jars, stagger the second layer and use a rack between the layers.
- Fasten the canner cover securely so that no steam can escape except through the vent (petcock or weighted gauge opening).
- Watch until steam pours steadily through the vent. Let it escape for 10 minutes or more to drive all air from the canner. Then close the petcock or put on the weighted gauge.
- Let the pressure rise to 10 pounds (240 °F). The moment this pressure is reached, start counting processing time. Keep pressure constant by regulating heat under the canner. Do not lower the pressure by opening the petcock. Keep drafts from blowing on the canner.
- When processing time is up, remove the canner from the heat immediately.
- Let the canner stand until the pressure is zero. Never try to rush the cooling by pouring cold water over the canner.

- When pressure registers zero, wait a minute or two, then slowly open the petcock or take off the weighted gauge.
- Unfasten the cover and tilt the far side up so steam escapes away from you.
- Take jars from the canner.

As you take jars from the canner, do not tighten the metal screw band on jars with a flat metal lid and screw band after these jars are processed. If liquid boiled out during processing, do not open the jar to add more.

Cool jars top side up without touching each other. Set the hot jars on a rack or on a folded cloth, never on a cold surface. Keep hot jars away from drafts, but don't slow cooling by covering them.

The day after canning is the time to check the seals of your jars and prepare them for storage. This is your only chance to salvage any food that failed to seal. Once it is stored, a bad seal means you must destroy the food. There are two ways to test a jar that has a flat, metal lid. Press the center of the lid. If it is down and will not move, the jar is sealed. Second, tap the center of the lid with a spoon. A clear, ringing sound means a good seal, although a dull note does not always mean a poor seal.

If a jar fails to seal, remove the lid and check the jar-sealing surface for tiny nicks. If necessary, change the jar, add a new, properly prepared lid, and reprocess within 24 hours using the same processing time. You can adjust headspace in unsealed jars to 1 ½ inches and freeze them instead of reprocessing. Foods in single unsealed jars can be stored in the refrigerator and consumed within several days.

When the jars are thoroughly cool, take off the screw bands carefully. If a band sticks, cover it for a moment with a hot, damp cloth to help loosen it.

Before storing canned food, wipe the jars clean. Label them with the contents, date, and lot number – if you canned more than one batch in a day. Wash the bands and store them in a dry place.

Properly canned food stored in a cool, dry place will retain quality for at least a year. Canned food stored in a warm place near hot pipes, a range, a furnace, or in direct sunlight may lose some eating quality in a few weeks or months, depending on the temperature. Dampness may corrode cans or metal lids and cause leakage. Freezing does not cause food spoilage unless it damages the seal or breaks the jar. However, canned food that has been frozen may not be as tasty. In an unheated storage place, protect canned food by wrapping the jars in paper or covering them with a blanket.

Always be alert for any signs of spoilage. Never use any food that is questionable. Look closely at each container before using it. Bulging lids or rings or a leak may mean the seal has broken and the food has spoiled. When you open a container, look for other signs – spurting liquid, off-odor, or mold.

It's possible for canned vegetables to contain botulism – a serious food poisoning – without showing signs of spoilage. To avoid any risk of botulism, it is essential that the pressure canner be in perfect order and that you follow every canning recommendation exactly.

Boil home-canned vegetables before tasting. Bring vegetables to a rolling boil, then cover and boil for at least 10 minutes. Boil spinach and corn for 20 minutes. If food looks spoiled, foams, or has an off-color or odor during heating, destroy it. Burn spoiled vegetables or dispose of the food so that it will not be eaten by humans or animals.

Sterilization of Empty Jars

Jars that are to be processed longer than 10 minutes, either in a boiling water bath or a pressure canner, do not need to be sterilized. However, all jars that are to be processed 10 minutes or less should be sterilized. To sterilize empty jars, put them right side up on the rack in a boiling water canner. Fill the canner and jars with hot (not boiling) water to 1 inch above the tops of the jars. Boil 10 minutes. Remove and drain hot, sterilized jars one at a time. Save the hot water for processing filled jars. Fill jars with food, add lids, and tighten screw bands.

Equipment and Methods NOT Recommended

Open-kettle canning and canning in conventional ovens, microwave ovens, and dishwashers are not recommended. Steam canners are not recommended because processing times for use with current models have not been adequately researched. Steam canners may not heat foods in the same manner as boiling water canners, so their use with boiling water process times may result in spoilage. It is not recommended that pressure processes in excess of 15 pounds be applied when using new pressure canning equipment. So-called canning powders are useless as preservatives and do not replace the need for proper heat processing. Jars with wire bails and glass caps make attractive antiques or storage containers for dry food ingredients but are not recommended for use in canning. One-piece, zinc, porcelain-lined caps are also not recommended. Both glass and zinc caps use flat, rubber rings for sealing jars but too often fail to seal properly.

SWEETENED OR UNSWEETENED?

Canning your fruit sweetened or unsweetened depends on your preference. Generally you get a higher

quality product when you use sugar or sugar syrup. Sugar helps canned fruit hold its shape, color, and flavor. Directions for canning most fruits call for sweetening to be added in the form of sugar syrup. For very juicy

fruit packed hot, use sugar without added liquid. The chart will help you determine which type of sweetener, if any, you want to add to your canned fruit.

<i>Type of Pack</i>	<i>Directions</i>
With Sugar Syrup	To make sugar syrup, mix the sugar with water or with juice extracted from some of the fruit. Use thin, medium, or heavy syrup to suit the sweetness of the fruit and your taste. To make the syrup, combine 4 cups of water or juice with: 2 cups sugar for 5 cups thin syrup 3 cups sugar for 5 ½ cups medium syrup 4 ¾ cups sugar for 6 ½ cups heavy syrup Heat the sugar and liquid together until the sugar is dissolved. Skim the syrup if necessary. <i>To extract juice:</i> Crush thoroughly ripe, sound, juicy fruit. Heat fruit to simmering (185 °F to 210 °F) over low heat. Strain the mixture through a jelly bag or other cloth.
Without Added Liquid	To add dry sugar directly to juicy fruit to be packed hot: Add about ½ cup of sugar to each quart of raw prepared fruit. Heat the mixture to simmering (185 °F to 210 °F) over low heat. Pack the fruit in the juice that cooks out.
With Sweeteners Other Than Sugar	You can use light corn syrup or mild-flavored honey to replace as much as half the sugar called for in canning fruit. Do not use brown sugar, sorghum, or other strong-flavored syrups; their flavor overpowers the fruit flavor, and they may darken the fruit.
With No Sweetening Agents Added	You may choose to can fruit without sweetening – in its own juice, in extracted juice, or in water. Sugar is not needed to prevent spoilage. If you choose not to use any sweeteners, the processing time for unsweetened fruit is the same as for sweetened fruit.

TO FIGURE YIELD OF CANNED FRUITS AND VEGETABLES

The amount of canned food you can get from a given quantity of produce depends on the quality, maturity, variety, and size of the fruit or vegetable, whether it is whole, in halves, or in slices, or whether it is packed raw or hot. The following chart shows you the approximate yield of canned foods from the given quantities of fruits and vegetables.

Fruits

Food	Fresh	Canned
Apples	1 bu. (48 lbs.) 2 ½ - 3 lbs.	16 - 20 qts. 1 qt.
Berries, except strawberries	24-qt. crate 1 ¼ - 3 lbs.	12 - 18 qts. 1 qt.
Peaches	1 bu. (48 lbs.) 2 - 3 lbs.	18 - 24 qts. 1 qt.
Pears	1 bu. (48 lbs.) 2 - 3 lbs.	18 - 24 qts. 1 qt.
Plums	1 bu. (56 lbs.) 1 ½ - 2 ½ lbs.	24 - 30 qts. 1 qt.
Tomatoes	1 bu. (53 lbs.) 1 ½ - 3 ½ lbs.	15 - 20 qts. 1 qt.

Vegetables

Food	Fresh	Canned
Asparagus	1 bu. (45 lbs.) 2 ½ - 4 ½ lbs.	11 qts. 1 qt.
Beans, lima in pods	1 bu. (30 lbs.) 3 - 5 lbs.	6 - 8 qts. 1 qt.
Beans, snap	1 bu. (30 lbs.) 1 ½ - 2 ½ lbs.	15 - 20 qts. 1 qt.
Beets, without tops	1 bu. (52 lbs.) 2 - 3 ½ lbs.	17 - 20 qts. 1 qt.
Carrots, without tops	1 bu. (50 lbs.) 2 - 3 lbs.	16 - 20 qts. 1 qt.
Corn, sweet, in husks	1 bu. (35 lbs.) 6 - 16 ears (3 - 6 lbs.)	8 - 9 qts. 1 qt.
Okra	1 bu. (26 lbs.) 1 - 1 ½ lbs.	16 qts. 1 qt.
Peas, green, in pods	1 bu. (30 lbs.) 3 - 6 lbs.	6 - 7 qts. 1 qt.
Spinach	1 bu. (18 lbs.) 2 - 6 lbs.	6 - 9 qts. 1 qt.
Squash, summer	1 bu. (40 lbs.) 2 - 4 lbs.	16 - 20 qts. 1 qt.
Sweetpotatoes	1 bu. (55 lbs.) 2 - 3 lbs.	18 - 22 qts. 1 qt.

MAKING PICKLES & RELISHES

Pickle Products Have Four Classes

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

Brined pickles, also called fermented pickles, go through a curing process of about 3 weeks. Dilled cucumbers and sauerkraut belong in this group. Other vegetables, such as green tomatoes, may also be cured in the same way as cucumbers.

Curing changes cucumber color from a bright green to an olive or yellow-green. The white interior of the fresh cucumber becomes uniformly translucent. A desirable flavor is developed during curing without being excessively sour, salty, or spicy. Cucumber dills may be flavored with garlic, if desired.

The skin of the pickle is tender and firm but not hard, rubbery, or shriveled. The inside is tender and firm, not soft or mushy.

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

Fresh-pack or quick-process pickles, such as crosscut cucumber slices and whole cucumber dills, sweet gherkins, and dilled green beans, 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 your preference. Fresh-pack whole cucumbers are olive green, crisp, tender, and firm.

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

Relishes are prepared from fruits and vegetables that are chopped, seasoned, and then cooked to desired consistency. Clear, bright color and uniformity in size of pieces make an attractive product. Relishes include piccalilli, pepper-onion, tomato-apple chutney, tomato-pear chutney, horseradish, and corn relish.

Quality Ingredients Make Good Pickles

You will get satisfactory pickle products only when you use good-quality ingredients and follow proper procedures. Correct proportions of fruit or vegetable, sugar, salt, vinegar, and spices are essential. Alum and lime are not needed to make pickles crisp and firm if you use good-quality ingredients and up-to-date procedures.

Use tested recipes. Read the complete recipe before starting preparation. Make sure you have the necessary ingredients. Measure or weigh all ingredients carefully and accurately.

Fruits and vegetables should be selected carefully. Select tender vegetables and firm fruit. Pears and peaches 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 you are using.

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 venti-

lated 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.

Wash fruits and vegetables thoroughly in cold water, whether they are to be pared or left unpeeled. 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 because they may be a source of the enzymes responsible for softening of the cucumbers during fermentation.

Salt is an important ingredient in making pickles. Use pure, granulated salt if available. Non-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.

Vinegar should be a high-grade cider or white distilled type of 4-percent to 6-percent acidity (from 40-grain to 60-grain). Do not use vinegars of unknown acidity. 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. To get a less-

sour product, add sugar rather than decrease vinegar.

Fresh spices are essential for best flavor in pickles. Spices deteriorate and quickly lose their pungency in heat and humidity. If you cannot use them immediately, store in an airtight container in a cool place.

Sugar may be either white granulated or brown sugar. White sugar gives a product with a lighter color, but you may prefer brown sugar for color.

Proper Equipment Saves Time, Energy

Equipment of the right kind, size, and amount saves time and energy. Read the complete recipe before you start preparation and make sure you have utensils and tools ready when you need them.

Use utensils of non-chipped enamelware, stainless steel, aluminum, or glass for heating pickling liquids. 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.

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

Small utensils that add ease and convenience to home pickling include measuring spoons, large wood or stainless-steel spoons, measuring cups, sharp knives, large trays, tongs, vegetable peelers, ladle with lip for pouring, slotted spoon, footed colander or wire basket, large-mouthed funnel, food chopper or grinder, and wooden cutting board. You will need household scales if the

recipes specify ingredients by weight. Scales are necessary in making sauerkraut to insure correct proportions of salt and shredded cabbage.

For information on glass jars, lids, and the water bath canner, see **Equipment** section in this publication.

Fill Jars Firmly; Leave Head Space

Fill jars firmly and uniformly with the pickle product. Avoid packing so tightly that the brine or syrup is prevented from filling around and over the product. Be sure to leave head space at the top of the jar, as recommended in the 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.

To use the two-piece metal lids, place the lid on the jar with the sealing compound next to the glass. When band is screwed tight, the lid has enough “give” to let air escape during processing. Do not tighten the screw band further after processing.

If liquid has boiled out of a jar during processing, do not open it to add more liquid because spoilage organisms may enter.

Pickles Need Heat To Prevent Spoiling

Pickle products require heat treatment to destroy organisms that cause spoilage and to kill 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 the kettle to jar. This is true even when you are careful and is the reason open-kettle canning is not recommended.

Pack pickle products into glass jars according to recipe directions. Adjust lids. Immerse the jars into actively boiling water in canner. Be sure the water reaches from 1 inch to 2 inches 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 water returns to boiling, and continue to boil gently and steadily for the time recommended for the food being canned. Remove jars immediately. Set jars upright, several inches apart, on a wire rack to cool.

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 you put the filled jars in the actively boiling water. Taking this step prevents development of a cooked flavor and a loss of crispness.

Cool Jars, Check, Seal, and Store

Cool the jars top side up on a wire rack, several inches apart to allow for free circulation of air. Keep the jars out of a draft. Do not cover. Cool for 12 to 24 hours; remove metal screw bands carefully and 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. A dull note, however, does not always mean a poor seal. Check for airtight seal by turning jar partly over. If there is no leakage, the jar may be stored.

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

You can use metal screw bands from the two-piece metal caps again. Remove them from the jars as soon as jars are cool. You can loosen sticking bands 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.

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 that allow in bacteria to cause spoilage. 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 you open a jar, 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 taste the contents. Dispose of the contents so humans or animals cannot eat them.

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

Remember: To insure acceptable quality and bacteriological safety of the finished product, you must follow recommended procedures. You may waste ingredients, time, and money if you use outdated or careless canning procedures.

HOW TO MAKE BRINED DILL PICKLES



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

Place half of the spices and a layer of dill on the bottom of a 5-gallon jar or crock. Fill the container with the cucumbers from 3 inches to 4 inches from the top.



2 Cover with remaining dill and add the rest of the spices. Mix salt, vinegar, and water, and pour over cucumbers.

Use a heavy plate or glass lid that 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 filled with water makes a good weight.



3 Bubbles and the formation of scum indicate active fermentation. Remove scum daily.

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.

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 $\frac{1}{2}$ inch from the top of the jar; adjust lids. Place jars in boiling water and process for 15 minutes. Start to count processing time as soon as the jars are placed into the still-boiling water.



4 Remove jars from the canner and complete seals if necessary. Set jars upright, several inches apart, on a wire rack to cool. Cloudiness of brine is typical when the original fermentation brine is used for the covering liquid.

RECIPES

Brined Dill Pickles

- Yield: 9 to 10 quarts
- Cucumbers, 3 to 6 inches in length 20 pounds (about 1/2 bushel)
 - Whole mixed pickling spice 3/4 cup
 - Dill plant, fresh or dried 2 to 3 bunches
 - Vinegar 2 1/2 cups
 - Salt, pure granulated 1 3/4 cups
 - Water 2 1/2 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 within 3 inches to 4 inches of the top. Place a layer of dill and remaining spices over the top of cucumbers. (Garlic may be added, if desired.) 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 filled with water makes a good weight. Cover loosely with 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 be 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 period. If this cloudiness is objectionable, fresh brine may be used to cover the pickles when packing them into jars. For fresh brine, use 1/2 cup salt and 4 cups vinegar to 1 gallon of water. The fermentation brine is generally preferred for its added flavor and should be strained before heating to boiling.

Pack the pickles, along with some of the dill, into clean, hot quart jars; add garlic, if desired. Avoid too tight a pack. Cover with boiling brine to 1/2 inch of the top of the jar. Adjust jar lids.

Process in boiling water for 15 minutes. Start to count the processing time as soon as hot jars are placed into the actively boiling water.

Remove jars. Set jars upright, several inches apart, on a wire rack to cool.

Crosscut Pickle Slices

- Yield: 7 pints
- Cucumbers, medium sized (about 6 lbs.), sliced 4 quarts
 - Onions (12 to 15 small white, about 1 lb.), sliced 1 1/2 cups
 - Garlic cloves 2 large
 - Salt 1/3 cup
 - Ice, crushed or cubes 2 quarts (2 trays)

- Sugar 4 1/2 cups
- Turmeric 1 1/2 teaspoons
- Celery seed 1 1/2 teaspoons
- Mustard seed 2 tablespoons
- Vinegar, white 3 cups

Wash cucumbers thoroughly, using a vegetable brush; drain on rack. Slice unpeeled cucumbers into either 1/8-inch or 1/4-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; heat 5 minutes.

Pack hot pickles loosely into clean, hot pint jars to 1/2 inch of the top. Adjust jar lids.

Process in boiling water for 10 minutes (start to count processing time as soon as water in canner returns to boiling). Remove jars. Set jars upright to cool.

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

Fresh-Packed Dill Pickles

- Yield: 7 quarts
- Cucumbers, 3 to 5 inches in length, 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 6 cups (1 1/2 quarts)
 - Salt, pure granulated 3/4 cup
 - Sugar 1/4 cup
 - Water 9 cups (2 1/4 quarts)
 - Whole mixed pickling spice 2 tablespoons
 - Whole mustard seed 2 teaspoons per quart jar
 - Garlic, if desired 1-2 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 (3/4 cup salt per gallon of water). Let sit 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, and garlic to each jar; cover with boiling liquid to within 1/2 inch of the top of the jar. Adjust jar lids.

Process pints in boiling water 10 minutes. Process quarts for 20 minutes (start to count processing time as soon as the water in the canner returns to boiling).

Remove jars. Set jars upright, several inches apart, on a wire rack to cool.

Piccalilli

- Yield: 4 pints
- Green tomatoes (about 16 medium), chopped 1 quart
 - Sweet red peppers (2 to 3 medium), chopped 1 cup

Green peppers (2 to 3 medium), chopped 1 cup
 Onions (2 to 3 large), chopped 1 ½ cups
 Cabbage (about 2 pounds), chopped 5 cups (1 ¼ quarts)
 Salt ½ cup
 Vinegar 3 cups
 Brown sugar 2 cups, firmly packed
 Whole mixed pickling spice 2 tablespoons

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 simmer about 30 minutes, or until there is just enough liquid to moisten vegetables. Remove spice bag. Pack hot relish into clean, hot pint jars. Fill jars to ½ inch of the top. Adjust lids.

Process in boiling water for 5 minutes. Start to count processing time as soon as water in canner returns to boiling.

Remove jars. Set jars upright on a wire rack to cool.

Pickled Pears

Yield: 7 to 8 pints

Sugar 2 quarts
 Vinegar, white 1 quart
 Water 1 pint
 Stick cinnamon Eight 2-inch pieces
 Cloves, whole 2 tablespoons
 Allspice, whole 2 tablespoons
 Seckel pears 8 pounds (4 or 5 quarts)

Combine sugar, vinegar, water, and stick 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 syrup 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 syrup to ½ inch of the top of the jar. Adjust jar lids.

Process in boiling water for 20 minutes. Start to count processing time as soon as water in canner returns to boiling. Remove jars. Set jars upright, several inches apart, on a wire rack to cool.

Kieffer pears are also frequently used for making fruit pickles.

To pickle Kieffer pears: Use 12 pounds Kieffer pears and reduce vinegar to 3 cups in recipe above. Wash the pears, peel, cut in halves or quarter, remove hard centers and cores. Boil pears for 10 minutes in water to cover. Use 1 pint of this liquid in place of the pint of water in recipe above. Finish in the same way as the recipe for Seckel pears. Makes about 8 pints.

Watermelon Pickles

Yield: 4 to 5 pints

Watermelon rind (about 6 pounds,
 unpared, or ½ large melon) 3 quarts
 Salt ¾ cup
 Water 3 quarts
 Ice cubes 2 quarts (2 trays)
 Sugar 9 cups (2 ¼ quarts)
 Vinegar, white 3 cups
 Water 3 cups
 Whole cloves 1 tablespoon (about 48)
 Stick cinnamon Six 1-inch pieces
 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 5 or 6 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 with spices; add lemon slices. Let stand overnight.

Heat watermelon in syrup to boiling and cook until watermelon is translucent (about 10 minutes). Pack hot pickles loosely into clean, hot pint jars. To each jar add 1 piece of stick cinnamon from spice bag; cover with boiling syrup to ½ inch of the top of the jar. Adjust jar lids.

Process in boiling water for 10 minutes. Start to count processing time when water in canner returns to boiling. Remove jars. Set jars upright, several inches apart, on a wire rack to cool. The sugar may be reduced to 8 cups, if a less-sweet pickle is desired.

NOTE: Keep watermelon rind in plastic bags in refrigerator until you have enough rinds for one recipe.

Dilled Green Beans

Yield: 7 pints

Green beans, whole 4 pounds (about 4 quarts)
 Hot red pepper, crushed ¼ teaspoon per pint jar
 Whole mustard seed ½ teaspoon per pint jar
 Dill seed ½ teaspoon per pint jar
 Garlic 1 clove per pint jar
 Vinegar 5 cups (1 ¼ quarts)
 Water 5 cups (1 ¼ quarts)
 Salt ½ cup

Wash beans thoroughly; drain and cut into lengths to fill pint jars. Pack beans into clean, hot jars; 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 of the top of the jar. Adjust jar lids.

Process in boiling water for 5 minutes. Start to count processing time as soon as water in canner returns to boiling. Remove jars. Set jars upright, several inches apart, on a wire rack to cool.

Corn Relish

Yield: 7 pints

Corn, whole kernel.....	2 quarts
Use fresh (16 to 20 medium-sized ears) or frozen (whole kernel, six 10-ounce packages)	
Sweet red peppers (4 to 5 medium), diced	1 pint
Green peppers (4 to 5 medium), diced	1 pint
Celery (1 large bunch), chopped	1 quart
Onions (8 to 10 small, $\frac{3}{4}$ pound) chopped or sliced.....	1 cup
Sugar	1 $\frac{1}{2}$ cups
Vinegar	1 quart
Salt	2 tablespoons
Celery seed	2 teaspoons
Mustard, powdered dry	2 tablespoons
Tumeric	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 or 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 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 $\frac{1}{4}$ cup flour blended with $\frac{1}{4}$ 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 $\frac{1}{2}$ inch of the jar top. Adjust jar lids.

Process in boiling water for 15 minutes. Start to count processing time as soon as water in canner returns to boiling. Remove jars. Set jars upright, several inches apart, on a wire rack to cool.

Soft or slippery pickles generally result from microbial action that 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, and scum scattered throughout the brine during fermentation. Other causes are insufficient heat treatment, a seal that is not airtight, and 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. It is not recommended that most canned foods be kept more than a year or two because of possible deterioration of texture, flavor, and nutritive value.

Do not eat any home canned food that has mold on it. Discard the food and do not taste it.

Sauerkraut

Yield: 16 to 18 quarts

Cabbage	About 50 pounds
Salt, pure granulated	1 pound (1 $\frac{1}{2}$ cups)

Remove the outer leaves and any undesirable portions from firm, mature heads of cabbage; wash and drain. 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 technique allows packing without excessive breaking or bruising of the shreds.

Pack the salted cabbage firmly and evenly into a large clean crock or jar. Using a wooden spoon or a hand tamper (compaction tool), 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 inches to 4 inches of the top.

Cover cabbage with a clean, thin, white cloth (for example, muslin) and tuck the edges down against the inside of the container. Cover with a plate or round paraffin-coated board that just fits inside the container so that the cabbage is not exposed to the air. Put a weight on top of the cover so the brine comes to the cover but not over it. A glass jar filled with water makes a good weight.

A newer method of covering cabbage during fermentation consists of placing a plastic bag filled with water on top of the fermenting cabbage. The water-filled bag seals the surface from exposure to air and prevents the growth of film yeast or mold. It also serves as a weight. For extra protection the bag with the water in it can be placed inside another plastic bag.

Any bag used should be of heavyweight, watertight plastic and intended for use with foods.

The amount of water in the plastic bag can be adjusted to give just enough pressure to keep the fermenting cabbage covered with brine.

Formation of gas bubbles indicates fermentation is taking place. A room temperature of 68 °F to 72 °F is best for fermenting cabbage. Fermentation is usually completed in 5 to 6 weeks.

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

Hot pack. Bring kraut and liquid slowly to a boil in a large kettle, stirring frequently. Remove from heat and fill jars rather firmly with kraut and juices, leaving $\frac{1}{2}$ -inch headspace.

Raw pack. Fill jars firmly with kraut, and cover with juices, leaving $\frac{1}{2}$ -inch headspace. Adjust jar lids and process.

Hot pack:	Pint jars	10 minutes
	Quart jars	15 minutes

Raw pack:	Pint jars	20 minutes
	Quart jars	25 minutes

Keeping canned foods in a cool, dry place and limiting the time they are in storage are essential factors in conserving the nutrients in canned food. In general, the longer the storage period and the higher the storage temperature, the greater the loss of nutrients.

MAKING JELLIES, JAMS, PRESERVES, CONSERVES, & MARMALADES

Jelly, jam, preserves, marmalade, and preserves add zest to meals. They also provide a good way to use fruit not at its best for canning or freezing – the largest or smallest fruits and berries and those that are irregularly shaped.

Basically these products are much alike. All of them are fruit-preserved by using sugar, and usually all are jellied to some extent. Their individual characteristics depend on the kind of fruit you use and the way you prepare it, the proportions of different ingredients in the mixture, and the method of cooking.

Jelly is made from fruit juice. The product is clear and firm enough to hold its shape when turned out of the container. Jam, which is made from crushed or ground fruit, tends to hold its shape but generally is less firm than jelly. Conserves are jams made from a mixture of fruits, including citrus fruit. Raisins and nuts are often added. Marmalade is a tender jelly with small pieces of fruit distributed evenly throughout. It commonly contains citrus fruit. Preserves are whole fruits or large pieces of fruit in thick syrup, often slightly jellied.

Not all fruits have the properties needed for making satisfactory jellied products, but with the commercial pectins now on the market, you need not depend on the jelling quality of the fruit for successful results.

Four Ingredients for Jellied Fruits

Proper amounts of fruit, pectin, acid, and sugar are needed to make a jellied fruit product.

Fruit

Fruit gives each product its characteristic flavor and furnishes at least part of the pectin and acid required for successful gels.

Flavorful varieties of fruits are best for jellied products because the large proportion of sugar necessary for proper consistency and “keeping” quality dilutes the fruit flavor.

Pectin

Some types of fruit have enough natural pectin to make high-quality products. Others require added pectin, particularly when you use them in jellies, which should be firm enough to hold their shape. All fruits have more pectin when they are underripe.

Commercial fruit pectins, which are made from apples or citrus fruits, are on the market in two forms – liquid and powdered. Either form is satisfactory when you use them in a recipe developed especially for that form.

You can use these pectins with any fruit. Many homemakers prefer the added-pectin method for making jellied fruit products because fully ripe fruit can be used. Additionally, cooking time is shorter and standardized so that there is no question when the product is done, and the yield from a given amount of fruit is greater.

Store fruit pectins in a cool, dry place so they will keep their gel strength. Do not keep them from one year to the next.

Acid

Acid is needed for flavor and for gel formation. The acid content varies in different fruits and is higher in underripe fruits.

With fruits that are low in acid, lemon juice or citric acid is commonly added in making jellied products. Also, commercial fruit pectins contain some acid.

In the recipes in this publication, lemon juice is included to supply ad-

ditional acid when necessary. If you wish, you can substitute 1/8 teaspoon of crystalline citric acid for each tablespoon of lemon juice.

Sugar

Sugar helps in gel formation, serves as a preserving agent, and contributes to the flavor of the jellied product. It also has a firming effect on fruit, a property that is useful in making preserves.

Proper Equipment for Best Jellies

A large kettle is essential. To bring mixture to a full boil without boiling over, use an appropriate-sized kettle with a broad, flat bottom. A jelly bag or a fruit press may be used for extracting fruit juice for jellies. The bag may be made of several thicknesses of closely woven cheesecloth, firm unbleached muslin, or Canton flannel with napped side in. Use a jelly bag or cheesecloth to strain pressed juice. A special stand or colander will hold the jelly bag. A jelly, candy, or deep-fat thermometer is an aid in making fruit products without added pectin. Other kitchen equipment that may be useful includes a quart measurer, measuring cup and spoons, paring and utility knives, food chopper, masher, reamer, grater, bowls, wire basket, colander, long-handled spoon, ladle, clock with second hand, and household scale.

Containers

For jams, jellies, preserves, conserves, and marmalades, use canning jars with lids that can be tightly sealed and processed. Paraffin is not recommended for these products.

Get jars ready before you start to make the jelly. Wash containers in warm, soapy water and rinse with hot water. Sterilize jelly containers in boiling water for 15 minutes. Keep all containers hot – either in a slow oven or in hot water – until they are used. This will prevent con-

tainers from breaking when filled with hot jelly or jam.

Wash and rinse all lids and bands. Metal lids with sealing compound may need boiling or holding in boiling water for a few minutes – follow the manufacturer's directions. Use new lids; bands and jars may be reused.

Preventing Spoilage

Even though sugar helps preserve jellies and jams, mold can grow on the surface of these products. Research now indicates that the mold usually scraped off the surface of jellies may not be as harmless as it seems. Mycotoxins have been found in some jars of jelly having surface mold growth. Mycotoxins are known to cause cancer in animals; their effects on humans are still being researched.

Because of possible mold contamination, paraffin or wax seals are no longer recommended for any sweet spread, including jellies. To prevent growth of mold and loss of good flavor or color, fill products hot in sterile half-pint jars, leaving ¼-inch headspace. Seal with self-sealing lids, and process 5 minutes in a boiling water canner. If unsterile jars are used, the jars should be processed 10 minutes. Use of sterile jars is preferred, especially when fruits are low in pectin because the added 5-minute process may result in weak gels. To sterilize empty jars, see the section on **Sterilization of Empty Jars** under **General Instructions** in this publication.

Adjust Recipes for Best Jellies

To have jellied fruit products at their best, make up only the quantity that you will use within a few months because they will lose flavor in storage.

If you use fruit with average jellying properties, the jellied products you make according to directions in

this section should be medium firm for their type. However, because various lots of fruit differ in composition, it is not possible to develop formulas that will always give exactly the same results.

If the first batch from a particular lot of fruit is too soft or too firm, adjust the proportions of fruit or the cooking time for the next batch.

In products made with added pectin:

- For a softer product, use ¼ to ½ cup more fruit or juice.
- For a firmer product, use ¼ to ½ cup less fruit or juice.

In products made without added pectin:

- For a softer product, shorten the cooking time.
- For a firmer product, lengthen the cooking time.

Any fresh fruit may be canned or frozen as fruit or juice and used in jellied products later. Both fruit and juice should be canned or frozen unsweetened. If it is sweetened, note the amount of sugar and subtract it from the amount of sugar in the jelly or jam recipe. Fruit should be canned in its own juice or with only a small amount of water. If you plan to use canned or frozen fruit without added pectin, it is best to use part underripe fruit, especially for jelly.

Unsweetened and commercially canned or frozen fruit or juice can also be used in jellied products. Concentrated frozen juices make flavorful jellies. Commercially canned or frozen products are made from fully ripe fruit and require added pectin if used for jelly.

Dried fruit may be cooked in water until tender and used to make jams and conserves, with or without added pectin as required.

Fill and Seal Containers

Prepare canning jars and lids or jelly glasses as directed in the section on **Proper Equipment for Best Jellies**.

To seal with lids, use only standard home canning jars. For jars with two-piece lids, use new lids. Bands may be reused. Fill hot jars to ¼ inch of the top with hot jelly or fruit mixture. Wipe jar rim clean, place hot, metal lid on jar with sealing compound next to glass, and screw metal band down firmly. Process in a boiling water bath for 5 minutes. Start to count the processing time as soon as water canner returns to boiling. Remove jars. Stand jar upright to cool.

Work quickly when packing and sealing jars. To keep fruit from floating to the top, gently shake jars of jam occasionally as they cool.

Processing Jams, Conserves, Marmalades, and Preserves

Processing jams, conserves, marmalades, and preserves is recommended in Mississippi because of the warm, humid climate. You can buy inexpensive enamelware canners at most hardware or variety stores. However, you can use any large metal container if it:

- is deep enough to allow for 1 inch to 2 inches of water above the tops of the jars, plus a little extra space for boiling.
- has a close-fitting cover.
- has a wire or wood rack with partitions to keep jars from touching each other or the bottom or sides of the container.

Put filled home canning jars into the water bath. Add hot water if needed to bring water from 1 inch to 2 inches over tops of jars. Bring water to a rolling boil and boil gently for 5 minutes.

Remove jars from canner after processing. Cool away from drafts before storing.

Storing Jellied Fruit Products

Let products stand undisturbed overnight to avoid breaking gel. Label with name, date, and lot number if you make more than one lot a day. Store in a cool, dry place. The shorter the storage time, the better the eating quality of the product. Let products stand undisturbed overnight to avoid breaking the gel. Label with name, date, and lot number if you make more than one batch a day. Store in a cool, dry place. The shorter the storage time, the better the eating quality of the product. Uncooked jams may be held up to 3 weeks in a refrigerator. For longer storage they should be placed in a freezer.

Prepare Small Lots When Making Jellies

Jelly is clear and bright with the natural color and flavor of the fruit from which it is made. It is tender yet firm enough to hold its shape when cut.

When making jelly with or without added pectin, it is best to prepare small cooking lots, as indicated in the recipes in this publication. Increasing the quantities given is not recommended.

To Prepare Fruit

Approximate amounts of fruits needed to yield the amount of juice necessary are given in each recipe. However, the exact amount will vary with juiciness of the particular lot of fruit used.

Wash all fruits in cold, running water or wash them in several changes of cold water, lifting them out of the water each time. Do not let fruit stand in water.

Prepare fruit for juice extraction as directed in the recipe. The method differs with different kinds of fruit. You can crush juicy berries and press out the juice without heating. For firm fruits, heating is needed to help start the flow of juice. Usually, you will need to add some water when the fruit is heated.

To Extract Juice

Put the prepared fruit in a damp jelly bag, fruit press, or a double layer of damp cheesecloth to extract the juice. The clearest jelly comes from juice that has dripped through a jelly bag without pressing. But you can get a greater yield of juice by twisting the bag of fruit tightly and squeezing or pressing or by using a fruit press. Pressed juice should be restrained through a double thickness of damp cheesecloth or a damp jelly bag. Do not squeeze the cloth or bag.

To Make Jelly

Some of the recipes here have been developed with powdered pectin, others with liquid pectin. Because of differences between the two forms, each should be used only in recipes worked out for that form.

The order in which the ingredients are combined depends on the form of pectin. Powdered pectin is mixed with the unheated fruit juice. Liquid pectin is added to the boiling juice and sugar mixture.

Boiling time is the same with either form of pectin; a 1-minute boiling period is recommended.

Accurate timing is important. Time should not be counted until the mixture has reached a full rolling boil – one that cannot be stirred down.

For best flavor, use fully ripe fruit when making jelly with added pectin.

Jellies made without added pectin require less sugar per cup of fruit juice than do those with added pectin, and longer boiling is necessary to bring the mixture to the proper sugar concentration. As a result, the yield of jelly per cup of juice is less.

It is usually best to have part of the fruit underripe when no pectin is added because underripe fruit has higher pectin content. Using a proportion of one-fourth underripe to three-fourths fully ripe fruit is generally recommended to assure sufficient pectin for jelly.

To Test for Pectin in Fruit Juice

You can get a rough estimate of the amount of pectin in fruit juice by using denatured alcohol or a **Jelmeter**.

To make the alcohol test, add 1 tablespoon denatured alcohol. Stir slightly to mix. Juices rich in pectin will form a solid jelly-like mass. Juices low in pectin will form small particles of jelly-like material.

NOTE: Denatured alcohol is poisonous. Do not taste the tested juice. Wash all utensils used in this test thoroughly.

A **Jelmeter** is a graduated glass tube with an opening at each end. The rate of flow of fruit juice through this tube gives a rough estimate of the amount of pectin in the juice.

If a test indicates that the juice is low in pectin, use a recipe calling for the addition of powdered or liquid pectin.

To Test for Doneness

The biggest problem in making jelly without added pectin is determining when it is done. It is particularly important to remove the mixture from the heat before it is overcooked. Although an undercooked jelly can sometimes be recooked to make a satisfactory product, there is little that can be done to improve an overcooked mixture. Signs of overcooking are a change in color of mixture and a taste or odor of caramelized sugar.

Three methods that may be used for testing doneness of jelly made at home are described below. Of these, the temperature test generally is the most dependable and is recommended.

For the temperature test, use a jelly, candy, or deep-fat thermometer. Before cooking the jelly, take the temperature of boiling water with the thermometer. Cook the jelly mixture to a temperature 8 °F higher than the boiling point of water. At that point the concentration of sugar will be adequate for the mixture to form a satisfactory gel.

It is necessary to find out at what temperature water boils in your locality because the boiling point differs at different altitudes. Because the boiling point at a given altitude may change with different atmospheric conditions, the temperature of boiling water should be checked shortly before the jelly is to be made.

For an accurate thermometer reading, have the thermometer in a vertical position and read it at eye level. The bulb of the thermometer must be completely covered with the jelly mixture but must not touch the bottom of the kettle.

For the spoon or sheet test, dip a cool, metal spoon in the boiling jelly mixture. Then raise it at least a foot above the kettle, out of the steam, and turn the spoon so the syrup runs off the side. If the syrup forms two drops that flow together and fall off the spoon as one sheet, the jelly should be done. This test has been widely used; however, it is not entirely dependable.

The refrigerator test is made by pouring a small amount of boiling jelly on a cold plate and placing it in the freezing compartment of a refrigerator for a few minutes. If the mixture gels, it should be done. During this test, the jelly mixture should be removed from the heat.

Rich Flavor, Thick Consistency

Sometimes you can improve soft jellies by recooking according to the directions given. It is best to recook from 4 cups to 6 cups of jelly at one time.

To Remake with Powdered Pectin

Measure the jelly to be recooked. For each quart of jelly, measure ¼ cup sugar, ¼ cup water, and 4 teaspoons powdered pectin. Mix the pectin and water and bring to boiling, stirring

constantly to prevent scorching. Add the jelly and sugar. Stir thoroughly. Bring to a full rolling boil over high heat, stirring constantly. Boil mixture hard for ½ minute. Remove jelly from the heat, skim, pour into hot containers, seal, and process 5 minutes in a water bath canner.

To Remake with Liquid Pectin

Measure the jelly to be recooked. For each quart of jelly, measure ¾ cup sugar, 2 tablespoons lemon juice, and 2 tablespoons liquid pectin. Bring jelly to boiling over high heat. Quickly add the sugar, lemon juice, and pectin and bring to a full rolling boil. Stir constantly. Boil mixture hard for 1 minute. Remove jelly from the heat, skim, pour into hot containers, seal, and process 5 minutes in a water bath canner.

To Remake without Added Pectin

Heat the jelly to boiling and boil for a few minutes. Use one of the tests described in the section on **To Test for Doneness** to determine just how long to cook it. Remove jelly from the heat, skim, pour into hot containers, seal, and process 5 minutes in a water bath canner.

JAMS

Jam is smooth, thick, and has the natural color and flavor of the fruit from which it is made. It has a softer consistency than jelly.

Because it contains fruit pulp or pieces of fruit, jam tends to stick to the kettle during cooking and requires constant stirring to prevent scorching.

To help prevent fruit from floating in jam, remove cooked mixture from heat and stir gently at frequent intervals for 5 minutes.

With Added Pectin

For jams, as for jellies, the method of combining ingredients varies with form of pectin used. Powdered pectin is mixed with the unheated crushed fruit. Liquid pectin is added to the cooked fruit and sugar mixture immediately after it is removed from the heat.

Cooking time is the same for all the products – 1 minute at a full boil. The full boil stage is reached when bubbles form over the entire surface of the mixture.

With added pectin you can make jams without cooking from some fresh or frozen fruits.

Without Added Pectin

Jams made without added pectin require longer cooking than those with added pectin. The most reliable way to judge doneness is to use a thermometer. Before making the product, take the temperature of boiling water. Cook the mixture to a temperature 9 °F higher than the boiling point of water. It is important to stir the mixture thoroughly just before taking the temperature, to place the thermometer vertically at the center of the kettle, and to have the bulb covered with fruit mixture but not touching the bottom of the kettle. Read the thermometer at eye level.

If you have no thermometer, cook products made without added pectin until they have thickened somewhat. In judging thickness, allow for the additional thickening of the mixture as it cools. You may use the refrigerator test suggested for jelly in the section on **Test for Doneness**.

CONSERVES

Conserves are jam-like mixtures of two or more fruits plus nuts or raisins or both. They are rich in flavor and have a thick but not sticky or gummy consistency.

MARMALADES

Marmalade is a mixture of fruits, usually including citrus, suspended in a clean, translucent jelly. The fruit is cut in small pieces or slices.

PRESERVES

Preserves contain large or whole pieces of fruit saturated by clear syrup of medium to thick consistency. The tender fruit retains its original size, shape, flavor, and color.

Because these products contain fruit pulp or pieces of fruit, they tend to stick to the kettle during cooking and require constant stirring to prevent scorching.

With Added Pectin

When you use powdered pectin in making conserves and marmalades, combine powdered pectin with unheated, crushed fruit. Mix well. Bring to a full boil with bubbles over the entire surface. Add sugar and boil hard for 1 minute.

Without Added Pectin

Conserves, marmalades, and preserves made without added pectin require longer cooking than those with added pectin. The most reliable way to judge doneness is to use a thermometer. Before making the product, take the temperature of boiling water. Cook the mixture to a temperature 9 °F higher than the boiling point of water. It is important to stir the mixture thoroughly just before taking the temperature, to place the thermometer vertically at the center of the kettle, and to have the bulb covered with fruit mixture but not touching the bottom of the kettle. Read the thermometer at eye level.

If you have no thermometer, cook products made without pectin until they have thickened somewhat. In judging thickness, allow for additional thickening of the mixture as it cools. The refrigerator test suggested for jelly may be used as described in the section on **Test for Doneness**.



HOW TO MAKE JELLY WITH LIQUID PECTIN

Strawberry Jelly



1 Select fully ripe, sound strawberries. You need about 3 quart boxes for each batch of jelly. Sort the berries. Wash about 1 quart at a time by placing berries in a wire basket and moving the basket up and down several times in cold water. Drain the berries.



3 Bring the edges of the cloth together and twist tightly. Press or squeeze to extract the juice. Strain the juice again through two thicknesses of damp cheesecloth without squeezing.



5 Add one bottle of liquid pectin. Again, bring to a full, rolling boil and boil hard for 1 minute. Remove from heat and skim off foam quickly. If allowed to stand, the jelly may start to "set" in the kettle.



2 Remove caps and crush the berries. Place crushed berries, a small amount at a time, in a damp jelly bag or double thickness of cheesecloth held in a colander over a bowl.



4 Measure 4 cups of juice into a large kettle. Add 7 ½ cups of sugar to the juice; stir to dissolve the sugar. Place the kettle over high heat and, stirring constantly, bring the mixture quickly to a full, rolling boil that cannot be stirred down.



6 Pour jelly immediately into hot sterile jars to ¼ inch of the top. Cover with clean, hot metal lids, with sealing compound placed next to the jar. Screw metal band down tight. Process 5 minutes in a boiling water bath canner. Cool jars on a metal rack or folded cloth. Label and store in a cool, dry place.

HOW TO MAKE JELLY WITHOUT LIQUID PECTIN

Apple Jelly



1 Use firm, tart apples. It takes about 3 pounds for a batch of jelly; about one-fourth of them should be underripe. Sort and wash the apples. Remove stems. Remove blossom ends and cut apples into small pieces.

Do not pare or core. Put apples into a kettle. Add 1 cup water per pound of apples. Cover; bring to boil on high heat. Reduce heat and simmer until apples are tender, about 20 to 25 minutes, depending on the firmness or ripeness of the fruit.



3 Measure 4 cups of the apple juice into a large kettle. Add 3 cups of sugar and 2 tablespoons of lemon juice, if desired. Stir to dissolve the sugar. Place on high heat and boil rapidly to 8 °F above the boiling point of water, or until jelly mixture sheets from a spoon. Remove from heat. Skim off foam.



2 Put cooked apples into a jelly bag and allow to drip, or press to remove juice. Strain pressed juice through two thicknesses of damp cheesecloth without squeezing.



4 Pour jelly immediately into hot containers. Fill sterile canning jars to $\frac{1}{4}$ inch from the top; wipe rims of jars. Cover with clean, hot metal lid, with sealing compound next to glass. Screw metal band down tight. Process 5 minutes in a boiling water bath canner. Cool jars on a metal rack or folded cloth. Label and store in a cool, dry place.

HOW TO MAKE JAM WITH POWDERED PECTIN

Peach Jam



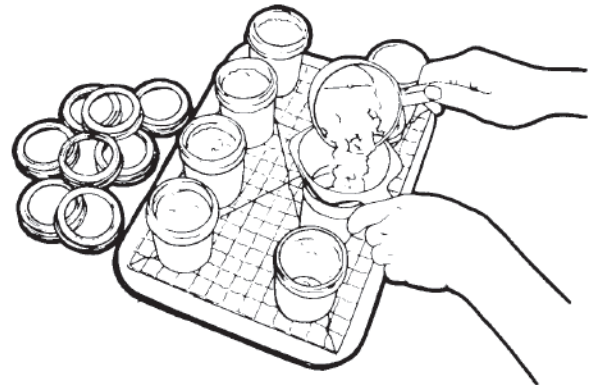
- 1** Sort and wash fully ripe peaches. Remove stems, skins, and pits.
Crush or chop the peaches. A stainless steel potato masher is useful for this purpose.



- 2** Measure 3 $\frac{3}{4}$ cups of crushed peaches into a large kettle.
Add one package of powdered pectin and $\frac{1}{4}$ cup of lemon juice. Stir well to dissolve the pectin. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.



- 3** Stir in 5 cups of sugar, continue stirring, and heat again to a full, bubbling boil. Boil hard for 1 minute, stirring constantly to prevent sticking. Remove jam from heat and skim and stir alternately for 5 minutes to help prevent fruit from floating.



- 4** Pour the jam into hot, sterile canning jars to $\frac{1}{4}$ inch from top. Place clean, hot metal lid on the jar, with sealing compound next to glass. Screw metal band down tight. Process 5 minutes in boiling water bath. Cool jars on a metal rack or folded cloth, then label and store in a cool, dry place.

JAM, JELLY, PRESERVES, CONSERVES, & MARMALADES: RECIPES

Apple Jelly without Added Pectin

4 cups apple juice (about 3 pounds apples and 3 cups water)
2 tablespoons strained lemon juice, if desired
3 cups sugar

To prepare juice. Use a proportion of one-fourth underripe apples to three-fourths fully ripe tart fruit. Sort, wash and remove stem and blossom ends; do not pare or core. Cut apples into small pieces. Add water, cover, and bring to boil on high heat. Reduce heat and simmer for 20 to 25 minutes or until apples are soft. Extract juice.

To make jelly. Measure apple juice into a kettle. Add lemon juice and sugar and stir well. Boil over high heat to 8 °F above the boiling point of water, or until jelly mixture falls in a sheet from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from top. Seal and process 5 minutes in a boiling water bath.

Makes 4 to 5 half-pint jars.

Apple Conserve with Powdered Pectin

4 ½ cups finely chopped red apples (about 3 pounds apples)
½ cup water
¼ cup lemon juice
½ cup raisins
1 package powdered pectin
5 ½ cups sugar
½ cup chopped nuts

To prepare fruit. Select tart apples. Sort and wash apples. Remove stem and blossom ends and core; do not pare. Chop apples fine.

To make conserve. Combine apples, water, lemon juice, and raisins in a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full, bubbling boil. Boil hard for 1 minute, stirring constantly. Add nuts.

Remove from heat. If desired, add from 3 drops to 4 drops of red food coloring. Skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal. Process 5 minutes in boiling water bath.

Makes 6 or 7 half-pint jars.



Apple Marmalade without Added Pectin

8 cups thinly sliced apples (about 3 pounds)
1 orange
1 ½ cups water
5 cups sugar
2 tablespoons lemon juice

To prepare fruit. Select tart apples. Wash, pare, quarter, and core the apples. Slice thin. Quarter the orange, remove any seeds, and slice very thin.

To make marmalade. Heat water and sugar until sugar is dissolved. Add the lemon juice and fruit. Boil rapidly, stirring constantly, to 9 °F above the boiling point of water, or until the mixture thickens. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ½ inch from the top. Seal. Process 5 minutes in boiling water bath. Makes 6 or 7 half-pint jars.

Blackberry Jelly without Added Pectin

8 cups blackberry juice (about 5 quart boxes and 1 ½ cups water)
6 cups sugar

To prepare juice. Select a proportion of one-fourth underripe berries to three-fourths ripe fruit. Sort and wash; remove any stems or caps. Crush berries, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 5 minutes. Extract juice.

To make jelly. Measure juice into a kettle. Add sugar and stir well. Boil over high heat to 8 °F above the boiling point of water or until jelly mixture falls in a sheet from a spoon. Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from top. Seal, and process 5 minutes in a boiling water bath.

Makes 7 or 8 half-pint jars.

Blackberry Jelly with Powdered Pectin

3 ½ cups blackberry juice (about 3 quart boxes berries)
1 package powdered pectin
4 ½ cups sugar

To prepare juice. Sort and wash fully ripe berries; remove any stems or caps. Crush berries and extract juice.

To make jelly. Measure juice into kettle. Add pectin and stir well. Place on high heat and stir constantly. Bring quickly to a full rolling boil that cannot be stirred down.

Add sugar, continue stirring, and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in a boiling water bath.

Makes 5 or 6 half-pint jars.



Blackberry Jelly with Liquid Pectin

4 cups blackberry juice (about 3 quart boxes berries)
7 ½ cups sugar
1 bottle liquid pectin

To prepare juice. Sort and wash fully ripe berries; remove any stems or caps. Crush berries and extract juice.

To make jelly. Measure juice into a kettle. Stir in sugar. Place on high heat and stir constantly. Bring quickly to a full rolling boil that cannot be stirred down.

Add pectin and heat again to a full, rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from top. Seal, and process 5 minutes in a boiling water bath.

Makes 8 or 9 half-pint jars.

Blackberry Jam with Liquid Pectin

Follow directions for strawberry jam with liquid pectin. Put very seedy blackberries through a sieve or food mill.

Blackberry Jam with Powdered Pectin

6 cups crushed blackberries (about 3 quart boxes berries)
1 package powdered pectin
8 ½ cups sugar

To prepare fruit. Sort and wash fully ripe berries; remove any stems or caps. Crush berries. If they are very seedy, put part or all of them through a sieve or food mill.

To make jam. Measure crushed berries into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in boiling water bath. Makes 11 or 12 half-pint jars.

Cherry Jelly with Powdered Pectin

3 ½ cups cherry juice (about 3 pounds or 2 quart boxes sour cherries and ½ cup water)
1 package powdered pectin
4 ½ cups sugar

To prepare juice. Select fully ripe cherries. Sort, wash, and remove stems; do not pit. Crush cherries, add water, cover, bring to boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice.

To make jelly. Measure juice into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add sugar, continue stirring, and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in a boiling water bath.

Makes about six 8-ounce jars.

Cherry Jam with Powdered Pectin

4 cups ground or finely chopped pitted cherries (about 3 pounds or 2 quart boxes sour cherries)
1 package powdered pectin
5 cups sugar

To prepare fruit. Sort and wash fully ripe cherries; remove stems and pits. Grind cherries or chop fine.

To make jam. Measure prepared cherries into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes 6 half-pint jars.



Cherry Jam with Liquid Pectin

4 ½ cups ground or finely chopped pitted cherries (about 3 pounds or 2 quart boxes sour cherries)
7 cups sugar
1 bottle liquid pectin

To prepare fruit. Sort and wash fully ripe cherries; remove stems and pits. Grind cherries or chop fine.

To make jam. Measure prepared cherries into a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat and stir in the pectin. Skim off foam quickly.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes about 8 half-pint jars.

Fig Jam with Liquid Pectin

4 cups crushed figs (about 3 pounds figs)

$\frac{1}{2}$ cup lemon juice

7 $\frac{1}{2}$ cups sugar

$\frac{1}{2}$ bottle liquid pectin

To prepare fruit. Sort and wash fully ripe figs; remove stem ends. Crush or grind fruit.

To make jam. Place crushed figs and lemon juice into a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat. Stir in pectin. Skim off foam quickly.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes about 9 half-pint jars.



Grape Jelly with Liquid Pectin

4 cups grape juice (about 3 $\frac{1}{2}$ pounds Concord grapes and $\frac{1}{2}$ cup water)

7 cups sugar

$\frac{1}{2}$ bottle liquid pectin

To prepare juice. Sort, wash, and remove stems from fully ripe grapes. Crush grapes, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 10 minutes.

Extract juice.

To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals.

To make jelly. Measure juice into a kettle. Stir in sugar. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add pectin and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes 8 or 9 half-pint jars.

Grape Jelly with Liquid Pectin

4 cups grape juice (about 3 $\frac{1}{2}$ pounds Concord grapes and $\frac{1}{2}$ cup water)

7 cups sugar

$\frac{1}{2}$ bottle liquid pectin

To prepare juice. Sort, wash, and remove stems from fully ripe grapes. Crush grapes, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 10 minutes.

Extract juice.

To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals.

To make jelly. Measure juice into a kettle. Stir in sugar.

Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down. Add pectin and heat again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly.

Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes 8 or 9 half-pint jars.



Grape Jelly with Powdered Pectin

5 cups grape juice (about 3 $\frac{1}{2}$ pounds Concord grapes and 1 cup water)

1 package powdered pectin

7 cups sugar

To prepare juice. Sort, wash, and remove stems from fully ripe grapes. Crush grapes, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice. To prevent formation of tartrate crystals in the jelly, let juice stand in a cool place overnight, then strain through two thicknesses of damp cheesecloth to remove crystals that have formed.

To make jelly. Measure juice into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full rolling boil that cannot be stirred down.

Add sugar, continue stirring, and bring again to a full rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes 8 or 9 half-pint jars.

Grape Jelly Made from Frozen Concentrated Juice

6 ½ cups sugar
2 ½ cups water
1 bottle liquid pectin
3 six-ounce (2 ¼ cups) frozen concentrated grape juice

Stir sugar into water. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down. Boil hard for 1 minute.

Remove from heat. Stir in pectin. Add thawed, concentrated grape juice and mix well. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes about 10 half-pint jars.

Grape Conserve without Added Pectin

4 ½ cups grapes with skins removed (about 4 pounds Concord grapes)
1 orange
4 cups sugar
1 cup seedless raisins
½ teaspoon salt
Skins from grapes
1 cup nuts, chopped fine

To prepare fruit. Sort and wash grapes; remove from stems. Slip skins from grapes; save skins. Measure skinned grapes into a kettle and boil, stirring constantly, for about 10 minutes or until seeds show. Press through a sieve to remove seeds.

Chop orange fine without peeling it.

To make conserve. Add orange, sugar, raisins, and salt to sieved grapes. Boil rapidly, stirring constantly, until the mixture begins to thicken (about 10 minutes).

Add grape skins and boil, stirring constantly, to 9 °F above the boiling point of water (about 10 minutes). Do not overcook; the mixture will thicken more on cooling. Add nuts and stir well. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes 8 or 9 half-pint jars.

Too much pectin (fruit was not ripe enough or added too much pectin) and overcooking can cause jelly to be too stiff.

Too little sugar or improper sealing can cause fermentation of jelly.

Mint Jelly with Liquid Pectin

1 cup chopped mint leaves and tender stems
1 cup water
½ cup cider vinegar
3 ½ cups sugar
5 drops green food coloring
½ bottle liquid pectin

To prepare mint. Wash and chop mint. Pack solidly in a cup.

To make jelly. Measure mint into a kettle. Add vinegar, water, and sugar; stir well. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down.

Add food coloring and pectin; heat again to a full, rolling boil. Boil hard for ½ minute.

Remove from heat. Skim. Strain through two thicknesses of damp cheesecloth. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes three or four 8-ounce jars.

Mint-Pineapple Jam with Liquid Pectin

One 20-oz. can crushed pineapple
¾ cup water
¼ cup lemon juice
7 ½ cups sugar
1 bottle liquid pectin
½ teaspoon mint extract
Few drops green coloring

Place crushed pineapple in a kettle. Add water, lemon juice, and sugar. Stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly. Remove from heat; add pectin, flavor extract, and coloring. Skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes 9 or 10 half-pint jars.

Variation. Use 10 drops oil of spearmint instead of mint extract.



Mixed Fruit Jelly with Liquid Pectin

2 cups cranberry juice (about 1 pound cranberries and 2 cups water)
2 cups quince juice (about 2 pounds quince and 4 cups water)
1 cup apple juice (about $\frac{3}{4}$ pound apples and $\frac{3}{4}$ cup water)
7 $\frac{1}{2}$ cups sugar
 $\frac{1}{2}$ bottle liquid pectin

To prepare fruit. Sort and wash fully ripe cranberries. Add water, cover, and bring to a boil on high heat. Reduce heat and simmer for 20 minutes. Extract juice.

Sort and wash quince. Remove stem and blossom ends; do not pare or core. Slice very thin or cut into small pieces. Add water, cover, and bring to a boil on high heat. Reduce heat and simmer for 25 minutes. Extract juice.

Sort and wash apples. Remove stem and blossom ends; do not pare or core. Cut into small pieces. Add water, cover, and bring to a boil on high heat. Reduce heat and simmer 20 minutes. Extract juice.

NOTE: These juices may be prepared when the fruits are in season and then frozen or canned until the jelly is made.

To make jelly. Measure juices into a kettle. Stir in sugar. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down.

Add pectin and return to a full, rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal, and process 5 minutes in a boiling water bath.

Makes nine or ten 8-ounce jars.

Orange Jelly Made from Frozen Concentrated Juice

3 $\frac{1}{4}$ cups sugar
1 cup water
3 tablespoons lemon juice
 $\frac{1}{2}$ bottle liquid pectin
One 6-ounce can ($\frac{3}{4}$ cup) frozen concentrated orange juice

Stir the sugar into the water. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down. Add lemon juice. Boil hard for 1 minute.

Remove from heat. Stir in pectin. Add thawed concentrated orange juice and mix well.

Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes 4 or 5 half-pint jars.



Spiced Orange Jelly with Powdered Pectin

2 cups orange juice (about 5 medium oranges)
 $\frac{1}{3}$ cup lemon juice (about 2 medium lemons)
 $\frac{2}{3}$ cup water
1 package powdered pectin
2 tablespoons orange peel, finely chopped
1 teaspoon whole allspice
 $\frac{1}{2}$ teaspoon whole cloves
4 sticks cinnamon, 2 inches long
3 $\frac{1}{2}$ cups sugar

Mix orange juice, lemon juice, and water in a large saucepan. Stir in pectin.

Place orange peel, allspice, cloves, and cinnamon sticks loosely in a clean white cloth, tie with a string, and add fruit mixture.

Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down.

Add sugar, continue stirring, and heat again to a full, rolling boil. Boil hard for 1 minute.

Remove from heat. Remove spice bag and skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from top. Seal, and process 5 minutes in a boiling water bath.

Makes 4 half-pint jars.

Orange Marmalade without Added Pectin

$\frac{3}{4}$ cup grapefruit peel ($\frac{1}{2}$ grapefruit)
 $\frac{3}{4}$ cup orange peel (1 orange)
 $\frac{1}{2}$ cup lemon peel (1 lemon)
1 quart cold water
Pulp of 1 grapefruit
Pulp of 4 medium-sized oranges
 $\frac{1}{2}$ cup lemon juice
2 cups boiling water
3 cups sugar

To prepare fruit. Wash and peel fruit. Cut peel into thin strips. Add cold water and simmer in a covered pan until tender (about 30 minutes). Drain.

Remove seeds and membrane from peeled fruit. Cut fruit into small pieces.

To make marmalade. Add boiling water to peel and fruit. Add sugar and boil rapidly to 9 °F above the boiling point of water (about 20 minutes), stirring frequently. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal and process 5 minutes in boiling water bath.

Makes 3 or 4 half-pint jars.

Apricot-Orange Conserve without Added Pectin

3 ½ cups chopped drained apricots
(about two 20-ounce cans of unpeeled
apricots or 1 pound dried apricots)
1 ½ cups orange juice (3 or 4 medium-
sized oranges)
Peel of ½ orange, finely shredded
2 tablespoons lemon juice
3 ¼ cups sugar
½ cup chopped nuts



To prepare dried apricots. Cook apricots uncovered in 3 cups water until tender (about 20 minutes); drain and chop.

To make conserve. Combine all ingredients except nuts. Cook to 9 °F above the boiling point of water or until thick, stirring constantly. Add nuts; stir well. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes about 5 half-pint jars.

Thiamine in canned fruits and vegetables is well retained when stored for 1 year at 65 °F. When stored at 80 °F for 1 year, losses of this nutrient may increase to 15 percent in canned fruits and to 25 percent in canned vegetables.

Peach Jam with Powdered Pectin

3 ¾ cups crushed peaches (about 3 pounds
peaches)
½ cup lemon juice
1 package powdered pectin
5 cups sugar



To prepare fruit. Sort and wash fully ripe peaches. Remove stems, skins, and pits. Crush peaches.

To make jam. Measure crushed peaches into a kettle. Add lemon juice and pectin; stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full, bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes about 6 half-pint jars.

Spiced Blueberry-Peach Jam without Added Pectin

4 cups chopped or ground peaches (about 4 pounds peaches)
4 cups blueberries (about 1 quart fresh blueberries or two
10-ounce packages of unsweetened frozen blueberries)
2 tablespoons lemon juice
½ cup water
5 ½ cups sugar
½ teaspoon salt
1 stick cinnamon
½ teaspoon whole cloves
¼ teaspoon whole allspice

To prepare fruit. Sort and wash fully ripe peaches; peel and remove pits. Chop or grind peaches.

Sort, wash, and remove any stems from fresh blueberries. Thaw frozen berries.

To make jam. Measure fruits into a kettle; add lemon juice and water. Cover, bring to a boil, and simmer for 10 minutes, stirring occasionally.

Add sugar and salt; stir well. Add spices tied in cheese-cloth. Boil rapidly, stirring constantly, to 9 °F above the boiling point of water, or until the mixture thickens.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 6 or 7 half-pint jars.

Peach-Orange Marmalade without Added Pectin

5 cups finely chopped or ground peaches (about 4 pounds
peaches)
1 cup finely chopped or ground oranges (about 2 medium-
sized oranges)
Peel of 1 orange, finely shredded
2 tablespoons lemon juice
6 cups sugar

To prepare fruit. Sort and wash fully ripe peaches. Finely chop or grind the peaches.

Remove peel, white portion, and seeds from oranges. Finely chop or grind the pulp.

To make marmalade. Measure the prepared fruit into a kettle. Add remaining ingredients and stir well. Boil rapidly, stirring constantly to 9 °F above the boiling point of water, or until the mixture thickens. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 6 or 7 half-pint jars.

Pineapple Jam with Liquid Pectin

One 20-ounce can crushed pineapple
3 tablespoons lemon juice
3 ¼ cups sugar
½ bottle liquid pectin

Combine pineapple and lemon juice in a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat; stir in pectin. Skim.

Let stand for 5 minutes.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 4 or 5 half-pint jars.



Plum Jelly with Powdered Pectin

5 cups plum juice (about 4 ½ pounds plums and 1 cup water)
1 package powdered pectin
7 cups sugar

To prepare juice. Sort and wash fully ripe plums and cut into pieces; do not peel or pit. Crush fruit, add water, cover, and bring to boil on high heat. Reduce heat and simmer for 10 minutes. Extract juice.

To make jelly. Measure juice into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down.

Add sugar, continue stirring, and heat again to a full, rolling boil. Boil hard for 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in a boiling water bath.

Makes 7 or 8 half-pint jars.

Plum Jelly with Liquid Pectin

4 cups plum juice (about 4 ½ pounds plums and ½ cup water)
7 ½ cups sugar
½ bottle liquid pectin

To prepare juice. Sort and wash fully ripe plums and cut into pieces; do not peel or pit. Crush fruit, add water, cover, and bring to boil over high heat. Reduce heat and simmer for 10 minutes. Extract juice.

To make jelly. Measure juice into a kettle. Stir in sugar. Place on high heat and, stirring constantly, bring quickly to a full, rolling boil that cannot be stirred down.

Add pectin; bring again to full, rolling boil. Boil hard 1 minute.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal and process 5 minutes in a boiling water bath.

Makes 7 or 8 half-pint jars.

Plum Jam with Powdered Pectin

6 cups crushed plums (about 3 ½ pounds plums)
1 package powdered pectin
8 cups sugar

To prepare fruit. Sort fully ripe plums, wash, cut into pieces, and remove pits. If flesh clings tightly to pits, cook plums slowly in a small amount of water for a few minutes until they are softened, then remove pits. Crush fruit.

To make jam. Measure crushed plums into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full, bubbling boil. Boil hard for 1 minute. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes about 9 half-pint jars.



Quince Jelly without Added Pectin

3 ¾ cups quince juice (about 3 ½ pounds quince and 7 cups water)
1/3 cup lemon juice
3 cups sugar

To prepare juice. Select a proportion of about one-fourth underripe quince and three-fourths fully ripe fruit. Sort, wash, and remove stems and blossom ends; do not pare or core. Slice quince very thin or cut into small pieces. Add water, cover, and bring to boil on high heat. Reduce heat and simmer for 25 minutes. Extract juice.

To make jelly. Measure quince juice into a kettle. Add lemon juice and sugar. Stir well. Boil over high heat to 8 °F above the boiling point of water, or until jelly mixture forms a sheet from a spoon.

Remove from heat; skim off foam quickly. Pour jelly immediately into hot, sterile canning jars to ¼ inch from the top. Seal, and process 5 minutes in a boiling water bath.

Makes about four 8-ounce jars.

Strawberry Jam with Powdered Pectin

5 ½ cups crushed strawberries (about 3 quart boxes strawberries)
1 package powdered pectin
8 cups sugar

To prepare fruit. Sort and wash fully ripe strawberries; remove stems and caps. Crush berries.

To make jam. Measure crushed strawberries into a kettle. Add pectin and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full, bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 9 or 10 half-pint jars.

Strawberry Jam with Liquid Pectin

4 cups crushed strawberries (about 2 quart boxes strawberries)

7 cups sugar

$\frac{1}{2}$ bottle liquid pectin

To prepare fruit. Select large, firm, tart strawberries. Wash and drain berries; remove caps.

To make preserves. Combine prepared fruit and sugar in alternate layers and let stand for 8 to 10 hours or overnight in the refrigerator or other cool place. Heat the fruit mixture to boiling, stirring gently. Boil rapidly, stirring as needed to prevent sticking.

Cook to 9 °F above the boiling point of water, or until the syrup is somewhat thick (about 15 or 20 minutes).

Remove from heat and stir in pectin; skim. Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes about 4 half-pint jars.



Strawberry Jelly with Liquid Pectin

Follow directions for blackberry jelly with liquid pectin.

Strawberry Jelly with Powdered Pectin

Follow directions for blackberry jelly with powdered pectin.

Rhubarb-Strawberry Jam with Liquid Pectin

1 cup cooked red-stalked rhubarb (about 1 pound rhubarb and $\frac{1}{4}$ cup water)

2 $\frac{1}{2}$ cups crushed strawberries (about 1 $\frac{1}{2}$ quart boxes)

6 $\frac{1}{2}$ cups sugar

$\frac{1}{2}$ bottle liquid pectin

To prepare fruit. Wash rhubarb and slice thin or chop; do not peel. Add water, cover, and simmer until rhubarb is tender (about 1 minute).

Sort and wash fully ripe strawberries; remove stems and caps. Crush berries.

To make jam. Measure prepared rhubarb and strawberries into a kettle. Add sugar and stir well. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface. Boil hard for 1 minute, stirring constantly.

Remove from heat and stir in pectin. Skim.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 7 or 8 half-pint jars.

Tutti-Frutti Jam with Powdered Pectin

3 cups chopped or ground pears (about 2 pounds pears)

1 large orange

$\frac{3}{4}$ cup drained crushed pineapple

$\frac{1}{4}$ cup chopped maraschino cherries (3-ounce bottle)

$\frac{1}{4}$ cup lemon juice

1 package powdered pectin

5 cups sugar

To prepare fruit. Sort and wash ripe pears; pare and core. Chop or grind the pears. Peel orange, remove seeds, and chop or grind pulp.

To make jam. Measure chopped pears into a kettle. Add orange, pineapple, cherries, and lemon juice. Stir in pectin. Place on high heat and, stirring constantly, bring quickly to a full boil with bubbles over the entire surface.

Add sugar, continue stirring, and heat again to a full bubbling boil. Boil hard for 1 minute, stirring constantly. Remove from heat; skim.

Pour immediately into hot, sterile canning jars to $\frac{1}{4}$ inch from the top. Seal, and process 5 minutes in boiling water bath.

Makes 6 or 7 half-pint jars.

DIRECTIONS FOR VEGETABLES & FRUITS

Asparagus



Raw pack. Wash asparagus; trim off scales and tough ends, and wash again. Cut into 1-inch pieces.

In glass jars. Pack asparagus as tightly as possible without crushing to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 10 pounds pressure:

Pint jars30 minutes
Quart jars.....40 minutes

Beans, Dried (with Tomato or Molasses Sauce)

Sort and wash dried beans (kidney, navy, or yellow eye). Cover with boiling water; boil 2 minutes, remove from heat, and let soak 1 hour. Heat to boiling, drain, and save liquid for making sauce.

In glass jars. Fill jars three-fourths full with hot beans. Add a small piece of salt pork, ham, or bacon. Fill to 1 inch of the top with hot sauce (see recipes below). Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars65 minutes
Quart jars.....75 minutes

Tomato sauce. Either mix 1 quart tomato juice, 3 tablespoons sugar, 2 teaspoons salt, 1 tablespoon chopped onion, and ¼ teaspoon each of ground cloves, allspice, mace, and cayenne pepper; or mix 1 cup of

tomato ketchup with 3 cups of cooking liquid from beans. Heat to boiling.

Molasses sauce. Mix 1 quart water or soaking liquid from beans, 3 tablespoons dark molasses, 1 tablespoon vinegar, 2 teaspoons salt, and ¾ teaspoon powdered dry mustard. Heat to boiling.

Beans, Baked (Dried)

Soak and boil beans according to directions for beans with sauce. Place seven ¾-inch pieces of salt pork, ham, or bacon in earthenware crock or a pan.

Add beans. Add enough molasses sauce to cover beans. Cover crock and bake 4 to 5 hours at 350 °F (moderate oven). Add water as needed – about every hour.

In glass jars. Pack hot beans to 1 inch of the top. Adjust jar lids. Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars65 minutes
Quart jars75 minutes

Beans, Lima (Fresh)

Can only beans that are young and tender.

Raw pack. Shell and wash beans.

In glass jars. Pack raw beans into clean jars. For small-type beans, fill to 1 inch of the top of the jar for pints and 1 ½ inches for quarts; for large beans, fill to 1 inch of top for pints and 1 ½ inches for quarts. Beans should not be pressed or shaken down. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Fill jar to 1 inch of the top with boiling water. Adjust jar lids.

Process in dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars.....40 minutes
Quart jars.....50 minutes

Hot pack. Shell the beans, cover with boiling water, and bring to boil.

In glass jars. Pack hot beans loosely to 1 inch of the top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at the top of the jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars.....40 minutes
Quart jars.....50 minutes

Beans, Snap

Raw pack. Wash beans. Trim ends; cut into 1-inch pieces.

In glass jars. Pack raw beans tightly to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars20 minutes
Quart jars.....25 minutes

Beets



Sort beets for size. Cut off tops, leaving an inch of stem. Also leave root. Wash beets. Cover with boiling water and boil until skins slip easily – 15 to 25 minutes, depending on size. Skin and trim. Leave baby beets whole. Cut medium or large beets in ½-inch cubes or slice; halve or quarter very large slices.

In glass jars. Pack hot beets to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1 inch at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at

10 pounds pressure:
 Pint jars30 minutes
 Quart jars35 minutes

Carrots



Raw pack. Wash and scrape carrots. Slice or dice.

In glass jars. Pack raw carrots tightly into clean jars, to 1 inch of the top of the

jar. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Fill jar to 1 inch of top with boiling water. Adjust jar lids.

Process in dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars.....25 minutes
 Quart jars.....30 minutes

Hot pack. Wash and scrape carrots. Slice or dice. Cover with boiling water, bring to boil, and simmer 5 minutes.

In glass jars. Pack hot carrots to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling-hot cooking liquid, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars25 minutes
 Quart jars.....30 minutes

Corn, Cream-Style

Hot pack. Husk corn and remove silk. Wash. Blanch ears 4 minutes in boiling water. Cut corn from cob at about center of kernel and scrape cob. To each quart of corn and scrapings add 1 pint boiling water. Heat to boiling.

In glass jars. Use pint jars only. Pack hot corn to 1 inch of top. Add ½ teaspoon salt to each jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a

weighted gauge pressure canner at 10 pounds pressure:
 Pint jars85 minutes

Corn, Whole-Style

Raw pack. Husk corn and remove silk. Wash. Cut from cob at about three-fourths the depth of kernel.



CAUTION: Do not scrape cob.

In glass jars. Pack corn to 1 inch of top; do not shake or press down. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Fill to 1 inch of top with boiling water. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars.....55 minutes
 Quart jars85 minutes

Hot pack. Husk corn and remove silk. Wash. Cut from cob at about three-fourths the depth of kernel. Caution: Do not scrape cob. To each quart of corn add 1 cup boiling water. Heat to boiling and simmer 5 minutes.

In glass jars. Pack hot corn to 1 inch of top and cover with boiling-hot cooking liquid, leaving 1-inch space at top of jar. Or fill to 1 inch of top with mixture of corn and liquid. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars.....55 minutes
 Quart jars85 minutes

Mushrooms

Trim stems and discolored parts of mushrooms. Soak mushrooms in cold water for 10 minutes to remove adhering soil. Wash in clean water. Leave small mushrooms whole; cut larger ones in halves or quarters. Steam 4 minutes or heat gently for

15 minutes without added liquid in a covered saucepan.

In glass jars. Pack hot mushrooms to 1 inch of top. Add ¼ teaspoon salt to half pints; ½ teaspoon to pints. For better color, add crystalline ascorbic acid – 1/16 teaspoon to half-pints; 1/8 teaspoon to pints. Add boiling-hot cooking liquid or boiling water to cover mushrooms, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Half-pint jars.....45 minutes
 Pint jars45 minutes

Okra

Can only the tender pods. Wash; trim. Cook for 2 minutes in boiling water. Cut into 1-inch lengths or leave pods whole.

In glass jars. Pack hot okra to 1 inch of top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars25 minutes
 Quart jars.....40 minutes

Peas, Blackeyed, Crowder, or Field

Raw pack. Raw pack blackeyed peas to 1 ½ inches from the top of pint jars and 2 inches from the top of quart jars; do not shake or press peas down.



Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at the top of jars. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at

10 pounds pressure:

Pint jars40 minutes

Quart jars.....50 minutes

Hot pack. Shell and wash black-eyed peas, cover with boiling water, and bring to a rolling boil. Drain.

In glass jars. Pack hot blackeyed peas to 1 ½ inches of top of pint jars and 1 ½ inches of top of quart jars; do not shake or press peas down. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars40 minutes

Quart jars50 minutes

Peas, Green (Fresh)

Raw pack. Shell and wash peas.

In glass jars. Pack peas loosely to 1 inch of the top. Do not shake or press down. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars40 minutes

Quart jars40 minutes

Hot pack. Shell and wash peas.

Cover with boiling water. Bring to boil.

In glass jars. Pack hot peas loosely to 1 inch of the top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1 inch space at the top of the jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars40 minutes

Quart jars40 minutes

Peppers, Hot or Sweet (including Chiles, Jalapeno, and Pimento)

Select your favorite

pepper(s).

CAUTION: If you choose hot pepper, wear plastic gloves while handling them



or wash hands thor-

oughly with soap and water before touching your face. Small peppers may be left whole. Large peppers may be quartered. Remove cores and seeds. Slash two or four slits in each pepper, and either blanch in boiling water or blister using one of the following methods:

- **Oven or broiler method:**

Place pepper in a hot oven (400 °F) or broiler from 6 minutes to 8 minutes until skins blister.

- **Range-top method:** Cover hot burner, either gas or electric, with heavy wire mesh. Place peppers on burner for several minutes until skins blister.

Allow peppers to cool. Place in a pan and cover with a damp cloth. This will make peeling the peppers easier. After several minutes, peel each pepper. Flatten whole peppers. Add ½ teaspoon of salt to each pint jar, if desired. Fill jars loosely with peppers and add fresh boiling water, leaving 1-inch headspace. Adjust lids and process.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Half-pint jars.....35 minutes

Pint jars35 minutes

Sweetpotatoes (Pieces or Whole)

It is not recommended to dry pack sweetpotatoes.

Choose small to medium-sized potatoes. They should be mature and not too fibrous. Can within 1 to 2

months after harvest. Wash potatoes and boil or steam until partially soft (15 to 20 minutes). Remove skins. Cut medium potatoes, if needed, so that pieces are uniform in size.

CAUTION: Do not mash or puree pieces.

In glass jars. Pack hot potatoes leaving 1-inch headspace. Add 1 teaspoon salt per quart to the jar, if desired. Cover with your choice of fresh boiling water or syrup, leaving 1-inch headspace. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars65 minutes

Quart jars90 minutes

Potatoes, White (Cubed or Whole)

Use potatoes from 1 inch to 2 ½ inches in diameter.



Wash, pare, and cook in boiling water for 10 minutes. Drain.

In glass jars. Pack hot potatoes to 1 inch of the top. Add ½ teaspoon salt to pints; 1 teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars 35 minutes

Quart jars 40 minutes

Pumpkin and Winter Squash (Cubed)

Wash, remove seeds, cut into 1-inch-wide slices, and peel. Cut flesh into 1-inch cubes. Boil 2 minutes.



CAUTION: Do not mash or puree.

In glass jars. Fill jars with hot cubes and cooking liquid leaving 1-inch headspace. Adjust lids and process.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars55 minutes
Quart jars90 minutes

Tomatoes (Whole or Halved)

Packed raw without added liquid

Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; then dip in cold water.



Slip off skins and remove cores. Leave whole or halve.

Fill jars with raw tomatoes, leaving ½-inch headspace. Press tomatoes in the jars until spaces between them fill with juice. Leave ½-inch headspace. Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, use 1 tablespoon bottled lemon juice or ¼ teaspoon citric acid for each jar. Add 1 teaspoon of salt per quart or ½ teaspoon of salt per pint to the jars, if desired. Adjust lids and process by one of the following methods:

Boiling water bath:

Pint jars.....85 minutes
Quart jars.....85 minutes

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars40 minutes
Quart jars40 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars25 minutes
Quart jars25 minutes

Process in a weighted gauge pressure canner at 15 pounds pressure:

Pint jars15 minutes
Quart jars15 minutes

Tomatoes (Whole or Halved)

Packed in tomato juice

Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; then dip in cold water. Slip off skins and remove cores. Leave whole or cut into halves.

Raw pack. Heat tomato juice in a saucepan. Fill jars with raw tomatoes, leaving ½-inch headspace. Cover tomatoes in the jars with hot tomato juice, leaving ½-inch headspace. Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, use 1 tablespoon bottled lemon juice or ¼ teaspoon of salt per quart or ½ teaspoon of salt per pint to the jars, if desired. Adjust lids and process by one of the following methods:

Boiling water bath:

Pint jars85 minutes
Quart jars.....85 minutes

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars40 minutes
Quart jars.....40 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars25 minutes
Quart jars.....25 minutes

Process in a weighted gauge pressure canner at 15 pounds pressure:

Pint jars.....15 minutes
Quart jars.....15 minutes

Hot pack. Put tomatoes in a large saucepan and add enough tomato juice to cover them completely. Boil tomatoes and juice gently for 5 min-

utes. Fill jars with hot tomatoes, leaving ½-inch headspace. Add hot tomato juice to the jars to cover the tomatoes, leaving ½-inch headspace.

Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, use 1 tablespoon bottled lemon juice or ¼ teaspoon citric acid for each jar. Add 1 teaspoon of salt per quart or ½ teaspoon of salt per pint to the jars, if desired. Adjust lids and process by one of the following methods:

Boiling water bath:

Pint jars85 minutes
Quart jars85 minutes

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars40 minutes
Quart jars40 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars25 minutes
Quart jars25 minutes

Process in a dial gauge pressure canner at 15 pounds pressure:

Pint jars15 minutes
Quart jars15 minutes

Tomatoes (Whole or Halved)

Packed in water

Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; then dip in cold water. Slip off skins and remove cores. Leave whole or cut into halves. For hot pack products, put tomatoes in a large saucepan and add enough water to cover the tomatoes. Boil them gently for 5 minutes. Fill jars with hot tomatoes or with raw peeled tomatoes. Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, use 1 tablespoon bottled lemon juice or ¼

teaspoon citric acid for each jar. Add ½ teaspoon of salt per pint or 1 teaspoon of salt per quart to the jars, if desired. Add the hot cooking liquid to the hot pack, or hot water for raw pack to cover, leaving ½-inch headspace. Adjust lids and process by one of the following methods:

Boiling water bath (raw or hot pack):

Pint jars40 minutes

Quart jars45 minutes

Pressure canner (raw or hot pack):

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars15 minutes

Quart jars15 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars10 minutes

Quart jars10 minutes

Process in a weighted gauge pressure canner at 15 pounds pressure:

Pint jars1 minute

Quart jars1 minute

Tomatoes (Crushed)

With no added liquid

Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; then dip in cold water. Slip off skins, remove cores, and quarter. Heat one-sixth of the quarters quickly in a large pot, crushing them with a wooden mallet or spoon as they are added to the pot. This technique will separate the juice from the pulp. Continue heating the tomatoes, stirring to prevent burning. Once the tomatoes are boiling, gradually add remaining quartered tomatoes, stirring constantly. These remaining tomatoes do not need to be crushed. They will soften with heating and stirring. Continue until all tomatoes are added. Then boil gently 5 minutes. Fill jars with hot

tomatoes, leaving ½-inch headspace. Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, use 1 tablespoon bottled lemon juice to ¼ teaspoon citric acid for each jar. Add 1 teaspoon citric acid for each jar. Add 1 teaspoon of salt per quart or ½ teaspoon of salt per pint to the jars, if desired. Adjust lids and process by one of the following methods:

Boiling water bath:

Pint jars35 minutes

Quart jars45 minutes

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars20 minutes

Quart jars20 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars15 minutes

Quart jars15 minutes

Process in a weighted gauge pressure canner at 15 pounds pressure:

Pint jars10 minutes

Quart jars10 minutes

Tomato Juice

Wash, remove stems, and trim off bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of tomatoes into quarters and put directly into saucepan. Heat immediately to boiling while crushing. Continue to add and crush freshly-cut tomato quarters slowly to the boiling mixture. Make sure the mixture boils constantly and vigorously while adding the remaining tomatoes. Simmer 5 minutes after adding all pieces.

If you are not concerned about juice separation, simply slice or quarter tomatoes into a large

saucepan. Crush, heat, and simmer for 5 minutes before juicing.

Press both types of heated juice through a sieve or food mill to remove skins and seeds. Add 2 tablespoons bottled lemon juice or ½ teaspoon citric acid to each quart jar. For pints, add 1 tablespoon bottled lemon juice or ¼ teaspoon citric acid to each jar. Heat juice again to boiling. Add ½ teaspoon of salt per pint or 1 teaspoon of salt per quart to the jars, if desired. Fill jars with hot tomato juice, leaving ½-inch headspace. Adjust lids and process by one of the following methods:

Boiling water bath:

Pint jars35 minutes

Quart jars40 minutes

Process in a dial gauge pressure canner at 6 pounds pressure or in a weighted gauge pressure canner at 5 pounds pressure:

Pint jars20 minutes

Quart jars20 minutes

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars15 minutes

Quart jars15 minutes

Process in a weighted gauge pressure canner at 15 pounds pressure:

Pint jars10 minutes

Quart jars10 minutes

Spinach and Other Greens

Can only freshly picked, tender spinach. Pick over and wash thoroughly. Cut out tough stems and midribs. Place about 1 pound of spinach in a cheesecloth bag and steam about 3 to 5 minutes or until well wilted.

In glass jars. Pack hot spinach loosely to 1 inch of top. Add ¼ teaspoon salt to pints; ½ teaspoon to quarts. Cover with boiling water, leaving 1-inch space at top of jar. Adjust jar lids.

Process in a dial gauge pressure canner at 11 pounds pressure or in a weighted gauge pressure canner at 10 pounds pressure:

Pint jars70 minutes
Quart jars.....90 minutes

Apples

Pare and core apples; cut in pieces. To keep fruit from darkening, drop pieces into water containing 2 tablespoons each of salt and vinegar per gallon. Drain; then boil 5 minutes in thin syrup or water.

In glass jars. Pack hot fruit to ½ inch of top. Cover with hot syrup water, leaving ½-inch space at top of jar. Adjust jar lids. Process in boiling water bath (212 °F):

Pint jars20 minutes
Quart jars20 minutes

Applesauce and Fruit Purees

Make applesauce, sweetened or unsweetened. Heat to simmering (185 °F to 210 °F); stir to keep it from sticking.

In glass jars. Pack hot applesauce to ½ inch of the top. Adjust lids. Process in boiling water bath (212 °F):

Pint jars.....15 minutes
Quart jars20 minutes

Berries

(except Strawberries)

Raw pack. Wash berries; drain.

In glass jars. Fill jars to ½ inch of top. For a full pack, shake berries down while filling jars. Cover with boiling syrup, leaving ½-inch space at top. Adjust lids. Process in boiling water bath (212 °F):

Pint jars15 minutes
Quart jars.....20 minutes

Hot pack (For Firm Berries).

Wash berries and drain well. Add ½ cup sugar to each quart fruit. Cover pan and bring to boil; shake pan to keep berries from sticking.

In glass jar. Pack hot berries and juice to ½ inch of top. Adjust jar lids. Process in boiling water bath (212 °F):

Pint jars15 minutes
Quart jars15 minutes

Fruit Juices

Wash; remove pits, if desired, and crush fruit. Heat to simmering (185 °F to 210 °F). Strain through cloth bag. Add sugar, if desired – about 1 cup to 1 gallon juice. Reheat to simmering.

In glass jars. Fill jars to ¼ inch of top with the juice. Adjust lids. Process in boiling water bath (212 °F):

Pint jars.....5 minutes
Quart jars5 minutes

Peaches

Wash peaches and remove skins. Dipping the fruit in boiling water then quickly in cold water makes peeling easier. Cut peaches in halves; remove pits. Slice if desired. To prevent fruit from darkening during preparation, drop it into water containing 2 tablespoons each of salt and vinegar per gallon. Drain just before heating or packing raw.

Raw pack. Prepare peaches as directed above.

In glass jars. Pack raw fruit to ½ inch of top. Cover with boiling syrup, leaving ½-inch space at top of jar. Adjust jar lids. Process in boiling-water bath (212 °F):

Pint jars20 minutes
Quart jars25 minutes

Pears

Wash pears. Peel, cut in halves, and core. Continue as with peaches, either raw pack or hot pack.

Plums

Wash plums. To can whole, prick skins. Freestone varieties may be halved and pitted.

Raw pack. Prepare plums as directed above.

In glass jars. Pack raw fruit to ½ inch of top. Cover with boiling syrup, leaving ½-inch space at top of jar. Adjust jar lids. Process in boiling water bath (212 °F):

Pint jars.....20 minutes
Quart jars25 minutes

Hot pack. Prepare plums as directed above. Heat to boiling in syrup or juice. If fruit is very juicy, you may heat it with sugar, adding no liquid.

In glass jars. Pack hot fruit to ½ inch of the top. Cover with boiling liquid, leaving ½-inch space at top of jar. Adjust jar lids. Process in boiling water bath (212 °F):

Pint jars20 minutes
Quart jars25 minutes

Apricots

Follow method for peaches. Peeling may be omitted.



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