

# **THE SURVIVAL GUIDE TO CANNING AND PRESERVING**

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Home canning has changed greatly in the 180 years since it was introduced as a way to preserve food. In this guide, you will learn how to safely can and preserve your garden fruits and vegetables so that you will be able to enjoy them for years to come.

Recently, canning and preserving has become much more popular since there are more and more people who are interested in becoming self sufficient. In order to obtain complete self sufficiency, you must be able to grow your own food and preserve it for later use.

Research is continually being conducted in areas that affect food preservation recommendations. Make sure your food preservation information is always current with up-to-date tested guidelines.

### **For Safety's Sake**

There are a few things that you are going to need in order to safely can your food. Pressure canning is the only recommended method for canning meat, poultry, seafood, and vegetables. The bacterium *Clostridium botulinum* is destroyed in low-acid foods when they are processed at the correct time and pressure in pressure canners. Using boiling water canners for these foods poses a real risk of botulism poisoning.

If *Clostridium botulinum* bacteria survive and grow inside a sealed jar of food, they can produce a poisonous toxin. Even a taste of food containing this toxin can be fatal. Boiling food 10 minutes at

altitudes below 1,000 ft should destroy this poison when it is present. For altitudes at and above 1,000 ft, add 1 additional minute per 1,000 ft additional elevation. **Caution:** To prevent the risk of botulism, low-acid and tomato foods not canned according to the recommendations in this publication or according to other USDA-endorsed recommendations should be boiled as above, in a saucepan before consuming, even if you detect no signs of spoilage.

This is not intended to serve as a recommendation for consuming foods known to be significantly underprocessed according to current standards and recommended methods. It is not a guarantee that all possible defects and hazards with other methods can be overcome by this boiling process. All low-acid foods canned according to the approved recommendations may be eaten without boiling them when you are sure of all the following:

- ⤴ Food was processed in a pressure canner.
- ⤴ Gauge of the pressure canner was accurate.
- ⤴ Up-to-date researched process times and pressures were used for the size of jar, style of pack, and kind of food being canned.
- ⤴ The process time and pressure recommended for sterilizing the food at your altitude was followed.
- ⤴ Jar lid is firmly sealed and concave.
- ⤴ Nothing has leaked from jar.
- ⤴ No liquid spurts out when jar is opened.
- ⤴ No unnatural or “off” odors can be detected.

## How canning preserves foods

The high percentage of water in most fresh foods makes them very perishable. They spoil or lose their quality for several reasons:

- growth of undesirable microorganisms—bacteria, molds, and yeasts,
- activity of food enzymes,
- reactions with oxygen,
- moisture loss.

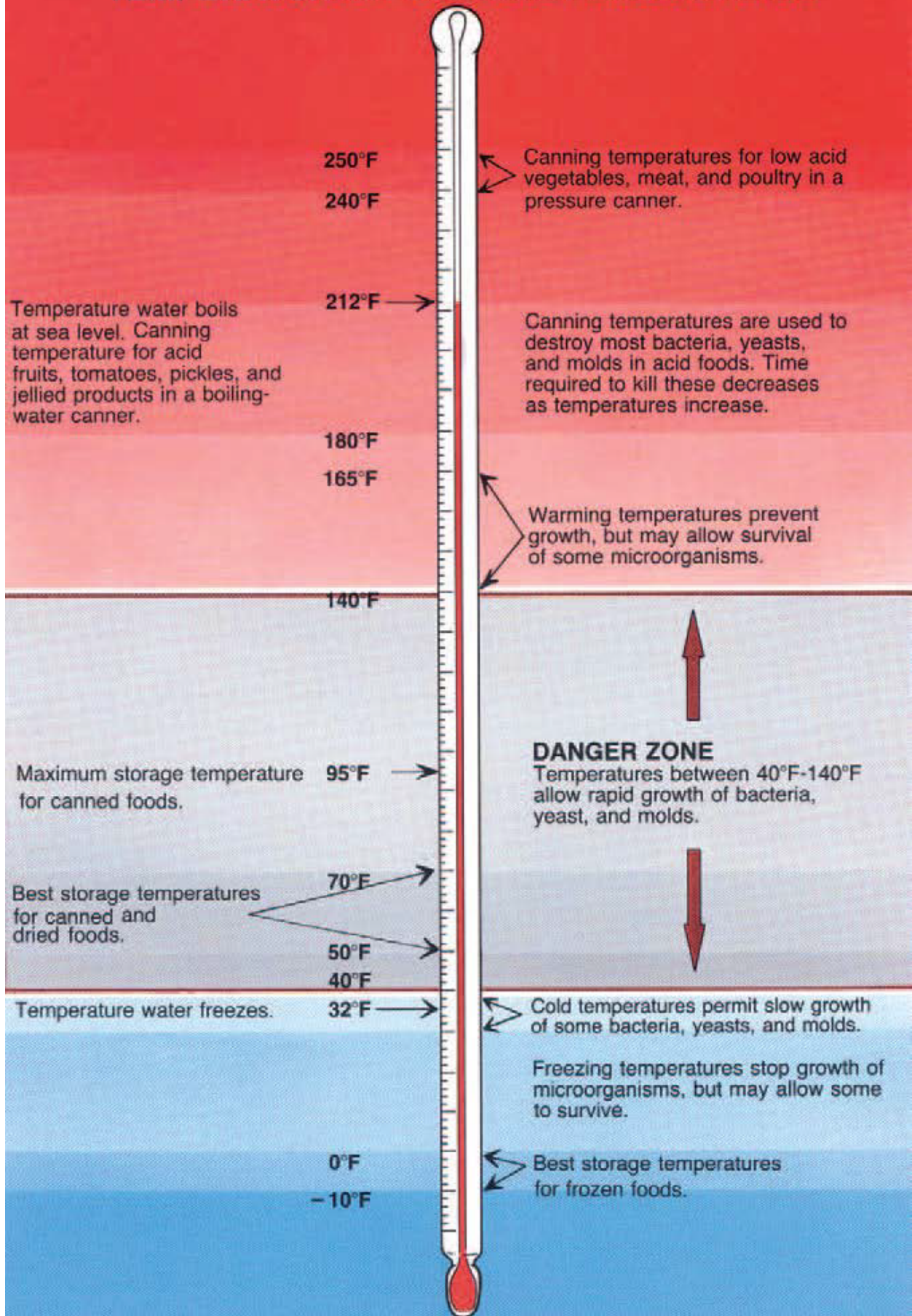
Microorganisms live and multiply quickly on the surfaces of fresh food and on the inside of bruised, insect-damaged, and diseased food. Oxygen and enzymes are present throughout fresh food tissues.

*Proper canning practices include:*

- carefully selecting and washing fresh food,
- peeling some fresh foods,
- hot packing many foods,
- adding acids (lemon juice or vinegar) to some foods,
- using acceptable jars and self-sealing lids,
- processing jars in a boiling-water or pressure canner for the correct period of time.

Collectively, these practices remove oxygen; destroy enzymes; prevent the growth of undesirable bacteria, yeasts, and molds; and help form a high vacuum in jars. Good vacuums form tight seals which keep liquid in and air and microorganisms out.

# TEMPERATURES FOR FOOD PRESERVATION



## ***Equipment and methods not recommended***

Canning can be a very safe process, however there are a few methods that are not recommended. Open-kettle canning and the processing of freshly filled jars in conventional ovens, microwave ovens, and dishwashers are not recommended, because these practices do not prevent all risks of spoilage.

Steam canners are not recommended because processing times for use with current models have not been adequately researched. Because steam canners do not heat foods in the same manner as boiling-water canners, their use with boiling-water process times may result in spoilage.

It is not recommended that pressure processes in excess of 15 PSI 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 no longer recommended. Both glass and zinc caps use flat rubber rings for sealing jars, but too often fail to seal properly.

## **Ensuring high-quality canned foods**

Begin with good-quality fresh foods suitable for canning. Quality varies among varieties of fruits and vegetables. Many county Extension offices can recommend varieties best suited for canning. Examine food carefully for freshness and wholesomeness. Discard diseased and moldy food. Trim small diseased lesions or spots from food.

Can fruits and vegetables picked from your garden or purchased from nearby producers when the products are at their peak of quality-within 6 to 12 hours after harvest for most vegetables. For best quality, apricots, nectarines, peaches, pears, and plums should be ripened 1 or more days between harvest and canning.

If you must delay the canning of other fresh produce, keep it in a shady, cool place. Fresh home-slaughtered red meats and poultry should be chilled and canned without delay. Do not can meat from sickly or diseased animals. Ice fish and seafoods after harvest, eviscerate immediately, and can them within 2 days.

## **Jars and Lids**

Food may be canned in glass jars or metal containers. Metal containers can be used only once. They require special sealing equipment and are much more costly than jars.

Regular and wide-mouth Mason-type, threaded, home-canning jars with self-sealing lids are the best choice. They are available in 1/2 pint, pint, 1-1/2 pint, quart, and 1/2 gallon sizes.

The standard jar mouth opening is about 2-3/8 inches. Wide-mouth jars have openings of about 3 inches, making them more easily filled and emptied. Half-gallon jars may be used for canning very acid juices. Regular-mouth decorator jelly jars are available in 8 and 12 ounce sizes. With careful use and handling, Mason jars may be reused many times, requiring only new lids each time. When jars and lids are used properly, jar seals and vacuums are excellent and jar breakage is rare.

### **Recommended Canners**

Equipment for heat-processing home-canned food is of two main types—boiling water canners and pressure canners. Most are designed to hold seven quart jars or eight to nine pints. Small pressure canners hold four-quart jars; some large pressure canners hold 18 pint jars in two layers, but hold only seven quart jars.

Pressure saucepans with smaller volume capacities are not recommended for use in canning. Small capacity pressure canners are treated in a similar manner as standard larger canners, and should be vented using the typical venting procedures.

## *Boiling-water Canners*

These canners are made of aluminum or porcelain-covered steel. They have removable perforated racks and fitted lids. The canner must be deep enough so that at least 1 inch of briskly boiling water will be over the tops of jars during processing. Some boiling-water canners do not have flat bottoms. A flat bottom must be used on an electric range. Either a flat or ridged bottom can be used on a gas burner. To ensure uniform processing of all jars with an electric range, the canner should be no more than 4 inches wider in diameter than the element on which it is heated.

## *Using Boiling-water Canners*

Follow these steps for successful boiling-water canning:

1. Before you start preparing your food, fill the canner halfway with clean water. This is approximately the level needed for a canner load of pint jars. For other sizes and numbers of jars, the amount of water in the canner will need to be adjusted so it will be 1 to 2 inches over the top of the filled jars.
2. Preheat water to 140°F for raw-packed foods and to 180°F for hot-packed foods. Food preparation can begin while this water is preheating.
3. Load filled jars, fitted with lids, into the canner rack and use the handles to lower the rack into the water; or fill the canner with the rack in the bottom, one jar at a time, using a jar lifter. When using a jar lifter, make sure it is securely positioned below the neck of the jar (below the screw band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid.

4. Add more boiling water, if needed, so the water level is at least 1 inch above jar tops. For process times over 30 minutes, the water level should be at least 2 inches above the tops of the jars.
5. Turn heat to its highest position, cover the canner with its lid, and heat until the water in the canner boils vigorously.
6. Set a timer for the total minutes required for processing the food.
7. Keep the canner covered and maintain a boil throughout the process schedule. The heat setting may be lowered a little as long as a complete boil is maintained for the entire process time. If the water stops boiling at any time during the process, bring the water back to a vigorous boil and begin the timing of the process over, from the beginning.
8. Add more boiling water, if needed, to keep the water level above the jars.
9. When jars have been boiled for the recommended time, turn off the heat and remove the canner lid. Wait 5 minutes before removing jars.
10. Using a jar lifter, remove the jars and place them on a towel, leaving at least 1-inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.

### *Pressure Canners*

Pressure canners for use in the home have been extensively redesigned in recent years. Models made before the 1970's were heavy-walled kettles with clamp-on or turn-on lids. They were

fitted with a dial gauge, a vent port in the form of a petcock or counterweight, and a safety fuse.

Modern pressure canners are lightweight, thin walled kettles; most have turn-on lids. They have a jar rack, gasket, dial or weighted gauge, an automatic vent/cover lock, a vent port (steam vent) to be closed with a counterweight or weighted gauge, and a safety fuse.

Pressure does not destroy microorganisms, but high temperatures applied for an adequate period of time do kill microorganisms. The success of destroying all microorganisms capable of growing in canned food is based on the temperature obtained in pure steam, free of air, at sea level. At sea level, a canner operated at a gauge pressure of 10.5 lbs provides an internal temperature of 240°F.

### *Using Pressure Canners*

Follow these steps for successful pressure canning:

1. Put 2 to 3 inches of hot water in the canner. Some specific products in this guide require that you start with even more water in the canner. Always follow the directions with USDA processes for specific foods if they require more water added to the canner. Place filled jars on the rack, using a jar lifter. When using a jar lifter, make sure it is securely positioned below the neck of the jar (below the screw band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid. Fasten canner lid securely.

2. Leave weight off vent port or open petcock. Heat at the highest setting until steam flows freely from the open petcock or vent port.
3. While maintaining the high heat setting, let the steam flow (exhaust) continuously for 10 minutes, and then place the weight on the vent port or close the petcock. The canner will pressurize during the next 3 to 5 minutes.
4. Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached, or when the weighted gauge begins to jiggle or rock as the canner manufacturer describes.
5. Regulate heat under the canner to maintain a steady pressure at or slightly above the correct gauge pressure. Quick and large pressure variations during processing may cause unnecessary liquid losses from jars. Follow the canner manufacturer's directions for how a weighted gauge should indicate it is maintaining the desired pressure.

**IMPORTANT:** If at any time pressure goes below the recommended amount, bring the canner back to pressure and begin the timing of the process over, from the beginning (using the total original process time). This is important for the safety of the food.
6. When the timed process is completed, turn off the heat, remove the canner from heat if possible, and let the canner depressurize. **Do not force-cool the canner.** Forced cooling may result in unsafe food or food spoilage. Cooling the canner with cold running water or opening the vent port before the canner is fully depressurized will cause loss of liquid from jars and seal failures. Force-cooling may also warp the canner lid of older model canners, causing steam

leaks. Depressurization of older models without dial gauges should be timed. Standard-size heavy-walled canners require about 30 minutes when loaded with pints and 45 minutes with quarts. Newer thin-walled canners cool more rapidly and are equipped with vent locks. These canners are depressurized when their vent lock piston drops to a normal position.

7. After the canner is depressurized, remove the weight from the vent port or open the petcock. Wait 10 minutes, unfasten the lid, and remove it carefully. Lift the lid away from you so that the steam does not burn your face.
8. Remove jars with a jar lifter, and place them on a towel, leaving at least 1-inch spaces between the jars during cooling. Let jars sit undisturbed to cool at room temperature for 12 to 24 hours.

### **Cooling Jars**

When you remove hot jars from a canner, **do not** retighten their jar lids. Retightening of hot lids may cut through the gasket and cause seal failures. Cool the jars at room temperature for 12 to 24 hours. Jars may be cooled on racks or towels to minimize heat damage to counters. The food level and liquid volume of raw-packed jars will be noticeably lower after cooling. Air is exhausted during processing and food shrinks. If a jar loses excessive liquid during processing, do not open it to add more liquid. Check for sealed lids as described below.

## **Testing Jar Seals**

After cooling jars for 12 to 24 hours, remove the screw bands and test seals with one of the following options:

*Option 1.* Press the middle of the lid with a finger or thumb. If the lid springs up when you release your finger, the lid is unsealed.

*Option 2.* Tap the lid with the bottom of a teaspoon. If it makes a dull sound, the lid is not sealed. If food is in contact with the underside of the lid, it will also cause a dull sound. If the jar is sealed correctly, it will make a ringing, high-pitched sound.

*Option 3.* Hold the jar at eye level and look across the lid. The lid should be concave (curved down slightly in the center). If center of the lid is either flat or bulging, it may not be sealed.

## **Storing Canned Foods**

If lids are tightly vacuum sealed on cooled jars, remove screw bands, wash the lid and jar to remove food residue; then rinse and dry jars. Label and date the jars and store them in a clean, cool, dark, dry place. Do not store jars above 95°F or near hot pipes, a range, a furnace, under a sink, in an uninsulated attic, or in direct sunlight. Under these conditions, food will lose quality in a few weeks or months and may spoil. Dampness may corrode metal lids, break seals, and allow recontamination and spoilage.

Accidental freezing of canned foods will not cause spoilage unless jars become unsealed and recontaminated. However, freezing and thawing may soften food. If jars must be stored where they may freeze, wrap them in newspapers, place them in heavy cartons, and cover with more newspapers and blankets.

## **Canning and Preserving Recipes**

Now that you know the basics about canning, you will be able to safely store your garden fruits and veggies. If you are planning to survive on just your garden ware however, you might want to spice it up a bit. Here are some canning recipes that you can use to create yummy foods that you can use in the months to come.

### ***APPLE BUTTER***

Use Jonathan, Winesap, Stayman, Golden Delicious, MacIntosh, or other tasty apple varieties for good results.

*8 lbs apples*

*2 cups cider*

*2 cups vinegar*

*2-1/4 cups white sugar*

*2-1/4 cups packed brown sugar*

*2 tbsp ground cinnamon*

*1 tbsp ground cloves*

**Yield:** About 8 to 9 pints

**Procedure:** Wash, remove stems, quarter, and core fruit. Cook slowly in cider and vinegar until soft. Press fruit through a colander, food mill, or strainer. Cook fruit pulp with sugar and spices, stirring frequently. To test for doneness, remove a spoonful and hold it away from steam for 2 minutes. It is done if the butter remains mounded on the spoon. Another way to determine when the butter is cooked adequately is to spoon a small quantity onto a plate.

When a rim of liquid does not separate around the edge of the butter, it is ready for canning. Fill hot into sterile half-pint or pint jars, leaving 1/4-inch headspace. Quart jars need not be presterilized but should be clean and kept hot until filling. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***APPLE JUICE***

**Quality:** Good quality apple juice is made from a blend of varieties. For best results, buy fresh juice from a local cider maker within 24 hours after it has been pressed.

**Procedure:** Refrigerate juice for 24 to 48 hours. Without mixing, carefully pour off clear liquid and discard sediment. Strain clear liquid through a paper coffee filter or double layers of damp cheesecloth. Heat quickly, stirring occasionally, until juice begins to boil.

Fill immediately into sterile pint or quart jars (see page 1-14 to sterilize jars), or fill into clean hot half-gallon jars, leaving 1/4-

inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***APPLES—SLICED***

**Quantity:** An average of 19 pounds is needed per canner load of 7 quarts; an average of 12-1/4 pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds and yields 16 to 19 quarts—an average of 2-3/4 pounds per quart.

**Quality:** Select apples that are juicy, crispy, and preferably both sweet and tart.

**Procedure:** Wash, peel, and core apples. To prevent discoloration, slice apples into water containing ascorbic acid. Raw packs make poor quality products. Place drained slices in large saucepan and add 1 pint water or very light, light, or medium syrup (see page 2-5) per 5 pounds of sliced apples. Boil 5 minutes, stirring occasionally to prevent burning. Fill hot jars with hot slices and hot syrup or water, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***APPLESAUCE***

**Quantity:** An average of 21 pounds is needed per canner load of 7 quarts; an average of 13-1/2 pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds and yields 14 to 19 quarts of sauce—an average of 3 pounds per quart.

**Quality:** Select apples that are sweet, juicy, and crisp. For a tart flavor, add 1 to 2 pounds of tart apples to each 3 pounds of sweeter fruit.2-8

**Procedure:** Wash, peel, and core apples. If desired, slice apples into water containing ascorbic acid to prevent browning. Placed drained slices in an 8 to 10-quart pot. Add 1/2 cup water. Stirring occasionally to prevent burning, heat quickly until tender (5 to 20 minutes, depending on maturity and variety). Press through a sieve or food mill, or skip the pressing step if you prefer chunk-style sauce. Sauce may be packed without sugar. If desired, add 1/8 cup sugar per quart of sauce. Taste and add more, if preferred. Reheat sauce to a rolling boil. Fill hot jars with hot sauce, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***APRICOTS—HALVED OR SLICED***

**Quantity:** An average of 16 pounds is needed per canner load of 7 quarts; an average of 10 pounds is needed per canner load of 9 pints. A bushel weighs 50 pounds and yields 20 to 25 quarts—an average of 2-1/4 pounds per quart.

**Quality:** Select firm, well-colored mature fruit of ideal quality for eating fresh.

**Procedure:** Follow directions for peaches. The boiling water dip and removal of skin process is optional. Wash fruit well if skins

are not removed; use either hot or raw pack, and use the same process time.

### ***BERRIES—WHOLE***

Blackberries, blueberries, currants, dewberries, elderberries, gooseberries, huckleberries, loganberries, mulberries, raspberries.

**Quantity:** An average of 12 pounds is needed per canner load of 7 quarts; an average of 8 pounds is needed per canner load of 9 pints. A 24-quart crate weighs 36 pounds and yields 18 to 24 quarts—an average of 1-3/4 pounds per quart.

**Quality:** Choose ripe, sweet berries with uniform color.

**Procedure:** Wash 1 or 2 quarts of berries at a time. Drain, cap, and stem if necessary. For gooseberries, snip off heads and tails with scissors. Prepare and boil preferred syrup, if desired. Add 1/2 cup syrup, juice, or water to each clean jar.

Hot pack—For blueberries, currants, elderberries, gooseberries, and huckleberries. Heat berries in boiling water for 30 seconds and drain. Fill hot jars and cover with hot juice, leaving 1/2-inch headspace.

Raw pack—Fill hot jars with any of the raw berries, shaking down gently while filling. Cover with hot syrup, juice, or water, leaving 1/2-inch headspace.

Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

## ***CRANBERRY ORANGE CHUTNEY***

*24 ounces fresh whole cranberries*  
*2 cups chopped white onion*  
*2 cups golden raisins*  
*1-1/2 cups white sugar*  
*1-1/2 cups packed brown sugar*  
*2 cups white distilled vinegar (5%)*  
*1 cup orange juice*  
*4 tsp peeled, grated fresh ginger*  
*3 sticks cinnamon*

**Yield:** About 8 half-pint jars

**Procedure:** Rinse cranberries well. Combine all ingredients in a large Dutch oven. Bring to a boil over high heat; reduce heat and simmer gently for 15 minutes or until cranberries are tender. Stir often to prevent scorching. Remove cinnamon sticks and discard. Fill the hot chutney into hot half-pint jars, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

## ***FIGS***

**Important:** All home-canned Figs must be acidified before canning in a boiling water canner to make them safe from the microorganism that causes botulism.

**Quantity:** An average of 16 pounds is needed per canner load of 7 quarts; an average of 11 pounds is needed per canner load of 9 pints—an average of 2-1/2 pounds yields 1 quart.

**Quality:** Select firm, ripe, uncracked figs. The mature color depends on the variety. Avoid overripe figs with very soft flesh.

**Procedure:** Wash figs thoroughly in clean water. Drain. Do not peel or remove stems. Cover figs with water and boil 2 minutes. Drain. Gently boil figs in light syrup (see page 2-5) for 5 minutes. **Add 2 tablespoons bottled lemon juice per quart or 1 tablespoon per pint to the jars; or add 1/2 teaspoon citric acid per quart or 1/4 teaspoon per pint to the jars.** Fill hot jars with hot figs and cooking syrup, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***GRAPEFRUIT AND ORANGE SECTIONS***

**Quantity:** An average of 15 pounds is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9 pints—an average of about 2 pounds yields 1 quart.

**Quality:** Select firm, mature, sweet fruit of ideal quality for eating fresh. The flavor of orange sections is best if the sections are canned with equal parts of grapefruit. Grapefruit may be canned without oranges. Sections may be packed in your choice of water, citrus juice or syrup.

**Procedure:** Wash and peel fruit and remove white tissue to prevent a bitter taste. If you use syrup, prepare a very light, light, or medium syrup (see page 2-5) and bring to boil. Fill hot jars with sections and water, juice or hot syrup, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***GRAPES—WHOLE***

**Quantity:** An average of 14 pounds is needed per canner load of 7 quarts; an average of 9 pounds is needed per canner load of 9 pints. A lug weighs 26 pounds and yields 12 to 14 quarts of whole grapes—an average of 2 pounds per quart.

**Quality:** Choose unripe, tight-skinned, preferably green seedless grapes harvested 2 weeks before they reach optimum eating quality.

**Procedure:** Stem, wash, and drain grapes. Prepare very light, or light syrup.

Hot pack—Blanch grapes in boiling water for 30 seconds. Drain, and proceed as for raw pack.

Raw pack—Fill hot jars with grapes and hot syrup, leaving 1-inch headspace.

Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

## ***PEACHES—HALVED OR SLICED***

**Quantity:** An average of 17-1/2 pounds is needed per canner load of 7 quarts; an average of 11 pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds and yields 16 to 24 quarts—an average of 2-1/2 pounds per quart.

**Quality:** Choose ripe, mature fruit of ideal quality for eating fresh or cooking.

**Procedure:** Dip fruit in boiling water for 30 to 60 seconds until skins loosen. Dip quickly in cold water and slip off skins. Cut in half, remove pits and slice if desired. To prevent darkening, keep peeled fruit in ascorbic acid solution. Prepare and boil a very light, light, or medium syrup or pack peaches in water, apple juice, or white grape juice. Raw packs make poor quality peaches.

Hot pack—In a large saucepan place drained fruit in syrup, water, or juice and bring to boil. Fill hot jars with hot fruit and cooking liquid, leaving 1/2-inch headspace. Place halves in layers, cut side down.

Raw pack—Fill hot jars with raw fruit, cut side down, and add hot water, juice, or syrup, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

## ***PINEAPPLE***

**Quantity:** An average of 21 pounds is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9 pints—an average of 3 pounds per quart.

**Quality:** Select firm, ripe pineapples.

**Procedure:** Wash pineapple. Peel and remove eyes and tough fiber. Slice or cube. Pineapple may be packed in water, apple juice, white grape juice, or in very light, light, or medium syrup. In a large saucepan, add pineapple to syrup, water, or juice, and simmer 10 minutes. Fill hot jars with hot pieces and cooking liquid, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

## **Some General Information about Canning Tomatoes**

**Quality:** Select only disease-free, preferably vine-ripened, firm fruit for canning.

**Caution:** Do not can tomatoes from dead or frost-killed vines. Green tomatoes are more acidic than ripened fruit and can be canned safely with any of the following recommendations.

**Acidification:** To ensure safe acidity in whole, crushed, or juiced tomatoes, add 2 tablespoons of bottled lemon juice or 1/2

teaspoon of citric acid per quart of tomatoes. For pints, use 1 tablespoon bottled lemon juice or 1/4 teaspoon citric acid. Acid can be added directly to the jars before filling with product. Add sugar to offset acid taste, if desired. Four tablespoons of a 5 percent acidity vinegar per quart may be used instead of lemon juice or citric acid. However, vinegar may cause undesirable flavor changes.

When a procedure in this Guide for canning tomatoes offers both boiling water and pressure canning options, all steps in the preparation (“Procedure”) are still required even if the pressure processing option is chosen. This includes acidification. The boiling water and pressure alternatives are equal processes with different time/temperature combinations calculated for these products.

**Recommendation:** Use of a pressure canner will result in higher quality and more nutritious canned tomato products. If your pressure canner cannot be operated above 15 PSI, select a process time at a lower pressure.

### ***TOMATOES-CRUSHED* (with no added liquid)**

A high-quality product, ideally suited for use in soups, stews, and casseroles. This recipe is similar to that formerly referred to as “Quartered Tomatoes.”

**Quantity:** An average of 22 pounds is needed per canner load of 7 quarts; an average of 14 fresh pounds is needed per canner load

of 9 pints. A bushel weighs 53 pounds and yields 17 to 20 quarts of crushed tomatoes—an average of 2-3/4 pounds per quart.

**Procedure:** Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Then dip in cold water, slip off skins, and remove cores. Trim off any bruised or discolored portions 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 will exude juice.

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. **Add bottled lemon juice or citric acid to jars.** Add 1 teaspoon of salt per quart to the jars, if desired. Fill hot jars immediately with hot tomatoes, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process. (Acidification is still required for the pressure canning options; follow all steps in the Procedures above for any of the processing options.)

### ***STANDARD TOMATO SAUCE***

**Quantity:** For thin sauce—an average of 35 pounds is needed per canner load of 7 quarts; an average of 21 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 10

to 12 quarts of sauce—an average of 5 pounds per quart. For thick sauce—an average of 46 pounds is needed per canner load of 7 quarts; an average of 28 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 7 to 9 quarts of thick sauce—an average of 6-1/2 pounds per quart.

**Procedure:** Prepare and press as for making tomato juice, see page 3-5. Simmer in large-diameter saucepan until sauce reaches desired consistency. Boil until volume is reduced by about one-third for thin sauce, or by one-half for thick sauce. **Add bottled lemon juice or citric acid to jars.** Add 1 teaspoon of salt per quart to the jars, if desired. Fill hot jars, leaving 1/4-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***EASY HOT SAUCE***

*8 cups (64 ounces) canned, diced tomatoes, undrained*  
*1-1/2 cups seeded, chopped Serrano peppers*  
*4 cups distilled white vinegar (5%)*  
*2 tsp canning salt*  
*2 tbsp whole mixed pickling spices*

**Yield:** About 4 half-pints

**Procedure: Caution:** Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers. If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Place mixed pickling spices in a spice bag and tie the ends firmly. Mix all ingredients in a Dutch oven or large saucepot. Bring to a boil, stirring occasionally. Simmer another 20 minutes, until tomatoes are soft. Press mixture through a food mill. Return the liquid to the stockpot, heat to boiling and boil for another 15 minutes. Fill hot sauce into hot half-pint jars, leaving 1/4-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***ASPARAGUS—SPEARS OR PIECES***

**Quantity:** An average of 24-1/2 pounds is needed per canner load of 7 quarts; an average of 16 pounds is needed per canner load of 9 pints. A crate weighs 31 pounds and yields 7 to 12 quarts—an average of 3-1/2 pounds per quart.

**Quality:** Use tender, tight-tipped spears, 4 to 6 inches long.

**Procedure:** Wash asparagus and trim off tough scales. Break off tough stems and wash again. Cut into 1-inch pieces or can whole.

Hot pack—Cover asparagus with boiling water. Boil 2 or 3 minutes. Loosely fill hot jars with hot asparagus, leaving 1-inch headspace.

Raw pack—Fill hot jars with raw asparagus, packing as tightly as possible without crushing, leaving 1-inch headspace.

Add 1 teaspoon of salt per quart to the jars, if desired. Add boiling water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***BEANS, FRESH LIMA—SHELLED***

**Quantity:** An average of 28 pounds is needed per canner load of 7 quarts; an average of 18 pounds is needed per canner load of 9 pints. A bushel weighs 32 pounds and yields 6 to 10 quarts—an average of 4 pounds per quart.

**Quality:** Select well-filled pods with green seeds. Discard insect-damaged and diseased seeds.

**Procedure:** Shell beans and wash thoroughly.

Hot pack—Cover beans with boiling water and heat to boil. Fill hot jars loosely, leaving 1-inch headspace.

Raw pack—Fill hot jars with raw beans. Do not press or shake down.

Small beans—leave 1-inch of headspace for pints and 1-1/2 inches for quarts.

Large beans—leave 1-inch of headspace for pints and 1-1/4 inches for quarts.

Add 1 teaspoon of salt per quart to the jar, if desired. Add boiling water, leaving the same headspaces listed above. Remove air

bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***BEANS, SNAP AND ITALIAN—PIECES***

**Quantity:** An average of 14 pounds is needed per canner load of 7 quarts; an average of 9 pounds is needed per canner load of 9 pints. A bushel weighs 30 pounds and yields 12 to 20 quarts—an average of 2 pounds per quart.

**Quality:** Select filled but tender, crisp pods. Remove and discard diseased and rusty pods.

**Procedure:** Wash beans and trim ends. Leave whole or cut or snap into 1-inch pieces.

Hot pack—Cover with boiling water; boil 5 minutes. Fill hot jars, loosely leaving 1-inch headspace.

Raw pack—Fill hot jars tightly with raw beans, leaving 1-inch headspace.

Add 1 teaspoon of canning salt per quart to the jar, if desired. Add boiling water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***BEETS—WHOLE, CUBED, OR SLICED***

**Quantity:** An average of 21 pounds (without tops) is needed per canner load of 7 quarts; an average of 13-1/2 pounds is needed per canner load of 9 pints. A bushel (without tops) weighs 52

pounds and yields 15 to 20 quarts—an average of 3 pounds per quart.

**Quality:** Beets with a diameter of 1 to 2 inches are preferred for whole packs. Beets larger than 3 inches in diameter are often fibrous.

**Procedure:** Trim off beet tops, leaving an inch of stem and roots to reduce bleeding of color. Scrub well. Cover with boiling water. Boil until skins slip off easily; about 15 to 25 minutes depending on size. Cool, remove skins, and trim off stems and roots. Leave baby beets whole. Cut medium or large beets into 1/2-inch cubes or slices. Halve or quarter very large slices. Add 1 teaspoon of salt per quart to the jar, if desired. Fill hot jars with hot beets and fresh hot water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***CARROTS—SLICED OR DICED***

**Quantity:** An average of 17-1/2 pounds (without tops) is needed per canner load of 7 quarts; an average of 11 pounds is needed per canner load of 9 pints. A bushel (without tops) weighs 50 pounds and yields 17 to 25 quarts—an average of 2-1/2 pounds per quart.

**Quality:** Select small carrots, preferably 1 to 1-1/4 inches in diameter. Larger carrots are often too fibrous.

**Procedure:** Wash, peel, and rewash carrots. Slice or dice.

Hot pack—Cover with boiling water; bring to boil and simmer for 5 minutes. Fill hot jars, leaving 1-inch of headspace.

Raw pack—Fill hot jars tightly with raw carrots, leaving 1-inch headspace.

Add 1 teaspoon of salt per quart to the jar, if desired. Add hot cooking liquid or water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***CORN—WHOLE KERNEL***

**Quantity:** An average of 31-1/2 pounds (in husks) of sweet corn is needed per canner load of 7 quarts; an average of 20 pounds is needed per canner load of 9 pints. A bushel weighs 35 pounds and yields 6 to 11 quarts—an average of 4-1/2 pounds per quart.

**Quality:** Select ears containing slightly immature kernels or of ideal quality for eating fresh. Canning of some sweeter varieties or too immature kernels may cause browning. Can a small amount, check color and flavor before canning large quantities.

**Procedure:** Husk corn, remove silk, and wash. Blanch 3 minutes in boiling water. Cut corn from cob at about 3/4 the depth of kernel. **Caution: Do not scrape cob.**

Hot pack—To each clean quart of kernels in a saucepan, add 1 cup of hot water, heat to boiling and simmer 5 minutes. Add 1

teaspoon of salt per quart to the jar, if desired. Fill hot jars with corn and cooking liquid, leaving 1-inch headspace.

**Raw pack**—Fill hot jars with raw kernels, leaving 1-inch headspace. Do not shake or press down. Add 1 teaspoon of salt per quart to the jar, if desired.

Add fresh boiling water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***MIXED VEGETABLES***

*6 cups sliced carrots*

*6 cups cut, whole kernel sweet corn*

*6 cups cut green beans*

*6 cups shelled lima beans*

*4 cups whole or crushed tomatoes*

*4 cups diced zucchini*

**Yield:** 7 quarts

**Optional mix**—You may change the suggested proportions or substitute other favorite vegetables except leafy greens, dried beans, cream-style corn, squash and sweet potatoes.

**Procedure:** Except for zucchini, wash and prepare vegetables as described previously for each vegetable. Wash, trim, and slice or cube zucchini; combine all vegetables in a large pot or kettle, and add enough water to cover pieces. Add 1 teaspoon salt per quart to the jar, if desired. Boil 5 minutes and fill hot jars with hot pieces and liquid, leaving 1-inch headspace. Remove air bubbles

and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***MUSHROOMS—WHOLE OR SLICED***

**Quantity:** An average of 14-1/2 pounds is needed per canner load of 9 pints; an average of 7-1/2 pounds is needed per canner load of 9 half-pints—an average of 2 pounds per pint.

**Quality:** Select only brightly colored, small to medium-size domestic mushrooms with short stems, tight veils (unopened caps), and no discoloration. **Caution: Do not can wild mushrooms.**

**Procedure:** Trim stems and discolored parts. Soak in cold water for 10 minutes to remove dirt. Wash in clean water. Leave small mushrooms whole; cut large ones. Cover with water in a saucepan and boil 5 minutes. Fill hot jars with hot mushrooms, leaving 1-inch headspace. Add 1/2 teaspoon of salt per pint to the jar, if desired. For better color, add 1/8 teaspoon of ascorbic acid powder, or a 500-milligram tablet of vitamin C. Add fresh hot water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***OKRA***

**Quantity:** An average of 11 pounds is needed per canner load of 7 quarts; an average of 7 pounds is needed per canner load of 9

pints. A bushel weighs 26 pounds and yields 16 to 18 quarts—an average of 1-1/2 pounds per quart.

**Quality:** Select young, tender pods. Remove and discard diseased and rust-spotted pods.

**Procedure:** Wash pods and trim ends. Leave whole or cut into 1-inch pieces. Cover with hot water in a saucepan, boil 2 minutes and drain. Fill hot jars with hot okra and cooking liquid, leaving 1-inch headspace. Add 1 teaspoon of salt per quart to the jar, if desired. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***PEAS, GREEN OR ENGLISH—SHELLED***

It is recommended that sugar snap and Chinese edible pods be frozen for best quality.

**Quantity:** An average of 31-1/2 pounds (in pods) is needed per canner load of 7 quarts; an average of 20 pounds is needed per canner load of 9 pints. A bushel weighs 30 pounds and yields 5 to 10 quarts—an average of 4-1/2 pounds per quart.

**Quality:** Select filled pods containing young, tender, sweet seeds. Discard diseased pods.

**Procedure:** Shell and wash peas. Add 1 teaspoon of salt per quart to the jar, if desired.

Hot pack—Cover with boiling water. Bring to a boil in a saucepan, and boil 2 minutes. Fill hot jars loosely with hot peas, and add cooking liquid, leaving 1-inch headspace.

Raw pack—Fill hot jars with raw peas, add boiling water, leaving 1-inch headspace. Do not shake or press down peas.

### ***POTATOES, SWEET—PIECES OR WHOLE***

**It is not recommended to dry pack sweet potatoes.**

**Quantity:** An average of 17-1/2 pounds is needed per canner load of 7 quarts; an average of 11 pounds is needed per canner load of 9 pints. A bushel weighs 50 pounds and yields 17 to 25 quarts—an average of 2-1/2 pounds per quart.

**Quality:** Choose small to medium-sized potatoes. They should be mature and not too fibrous. Can within 1 to 2 months after harvest.

**Procedure:** 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.** Fill hot jars, 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 (see page 2-5), leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***POTATOES, WHITE—CUBED OR WHOLE***

**Quantity:** An average of 20 pounds is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9

pints. A bag weighs 50 pounds and yields 18 to 22 quarts—an average of 2-1/2 to 3 pounds per quart.

**Quality:** Select small to medium-size mature potatoes of ideal quality for cooking. Tubers stored below 45°F may discolor when canned. Choose potatoes 1 to 2 inches in diameter if they are to be packed whole.

**Procedure:** Wash and peel potatoes. Place in ascorbic acid solution to prevent darkening (see pages 1-11). If desired, cut into 1/2-inch cubes. Drain. Cook 2 minutes in boiling water and drain again. For whole potatoes, boil 10 minutes and drain. Add 1 teaspoon of salt per quart to the jar, if desired. Fill hot jars with hot potatoes and fresh hot water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***SPINACH AND OTHER GREENS***

**Quantity:** An average of 28 pounds is needed per canner load of 7 quarts; an average of 18 pounds is needed per canner load of 9 pints. A bushel weighs 18 pounds and yields 3 to 9 quarts—an average of 4 pounds per quart.

**Quality:** Can only freshly harvested greens. Discard any wilted, discolored, diseased, or insect-damaged leaves. Leaves should be tender and attractive in color.

**Procedure:** Wash only small amounts of greens at one time. Drain water and continue rinsing until water is clear and free of grit. Cut out tough stems and midribs. Place 1 pound of greens at a time in cheesecloth bag or blancher basket and steam 3 to 5 minutes or until well wilted. Add 1/2 teaspoon of salt to each quart jar, if desired. Fill hot jars loosely with greens and add fresh

boiling water, leaving 1-inch headspace. Remove air bubbles and adjust

headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***CHICKEN OR RABBIT***

**Procedure:** Choose freshly killed and dressed, healthy animals.

Large chickens are more flavorful than fryers. Dressed chicken should be chilled for 6 to 12 hours before canning.

Dressed rabbits should be soaked 1 hour in water containing 1 tablespoon of salt per quart, and then rinsed. Remove excess fat. Cut the chicken or rabbit into suitable sizes for canning.

Can with or without bones.

Hot pack—Boil, steam, or bake meat until about two-thirds done.

Add 1 teaspoon salt per quart to the jar, if desired. Fill hot jars with pieces and hot broth, leaving 1-1/4 inch headspace.

Remove air bubbles and adjust headspace if needed.

Raw pack—Add 1 teaspoon salt per quart, if desired. Fill hot jars loosely with raw meat pieces, leaving 1-1/4-inch headspace. Do not add liquid.

Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***GROUND OR CHOPPED MEAT***

**Bear, beef, lamb, pork, sausage, veal, venison**

**Procedure:** Choose fresh, chilled meat. With venison, add one part high-quality pork fat to three or four parts venison before grinding. Use freshly made sausage, seasoned with salt and

cayenne pepper (sage may cause a bitter off-flavor). Shape chopped meat into patties or balls or cut cased sausage into 3- to 4-inch links. Cook until lightly browned. Ground meat may be sauteed without shaping. Remove excess fat. Fill hot jars with pieces. Add boiling meat broth, tomato juice, or water, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Add 1 teaspoon of salt per quart to the jars, if desired. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***STRIPS, CUBES, OR CHUNKS OF MEAT***

**Bear, beef, lamb, pork, veal, venison**

**Procedure:** Choose quality chilled meat. Remove excess fat. Soak strong-flavored wild meats for 1 hour in brine water containing 1 tablespoon of salt per quart. Rinse. Remove large bones.

Hot pack—Precook meat until rare by roasting, stewing, or browning in a small amount of fat. Add 1 teaspoon of salt per quart to the jar, if desired. Fill hot jars with pieces and add boiling broth, meat drippings, water, or tomato juice (especially with wild game), leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed.

Raw pack—Add 1 teaspoon of salt per quart to the jar, if desired. Fill hot jars with raw meat pieces, leaving 1-inch headspace. Do not add liquid.

Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***MEAT STOCK (BROTH)***

**Beef:** Saw or crack fresh trimmed beef bones to enhance extraction of flavor. Rinse bones and place in a large stockpot or kettle, cover bones with water, add pot cover, and simmer 3 to 4 hours. Remove bones, cool broth, and pick off meat. Skim off fat, add meat trimmings removed from bones to broth, and reheat to boiling. Fill hot jars, leaving 1-inch headspace.

Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

**Chicken or turkey:** Place large carcass bones (with most of meat removed) in a large stockpot, add enough water to cover bones, cover pot, and simmer 30 to 45 minutes or until

remaining attached meat can be easily stripped from bones.

Remove bones and pieces, cool broth, strip meat, discard excess fat, and return meat trimmings to broth. Reheat to boiling and fill jars, leaving 1-inch headspace. Wipe rims of jars with a dampened clean paper towel.

Adjust lids and process.

### **Selection of fresh cucumbers**

**Quantity:** An average of 14 pounds is needed per canner load of 7 quarts; an average of 9 pounds is needed per canner load of 9 pints. A bushel weighs 48 pounds and yields 16 to 24 quarts—an average of 2 pounds per quart.

**Quality:** Select firm cucumbers of the appropriate size: about 1-1/2 inches for gherkins and 4 inches for dills. Use odd-shaped and more mature cucumbers for relishes and bread-and-butter style pickles.

### **Low-temperature pasteurization treatment**

The following treatment results in a better product texture but must be carefully managed to avoid possible spoilage. Place jars in a canner filled half way with warm (120° to 140°F) water. Then, add hot water to a level 1 inch above jars. Heat the water enough to maintain 180° to 185°F water temperature for 30 minutes.

Check with a candy or jelly thermometer to be certain that the water temperature is at least 180°F during the entire 30 minutes.

Temperatures higher than 185°F may cause unnecessary

softening of pickles. **Caution: Use only when recipe indicates.**

### **Suitable containers, covers, and weights for fermenting food**

A 1-gallon container is needed for each 5 pounds of fresh vegetables. Therefore, a 5-gallon stone crock is of ideal size for fermenting about 25 pounds of fresh cabbage or cucumbers.

Food-grade plastic and glass containers are excellent substitutes for stone crocks. Other 1- to 3-gallon non-food-grade plastic containers may be used if lined inside with a clean food-grade plastic bag. **Caution: Be certain that foods contact only food-**

**grade plastics. Do not use garbage bags or trash liners.**

Fermenting sauerkraut in quart and half-gallon Mason jars is an acceptable practice, but may result in more spoilage losses.

Cabbage and cucumbers must be kept 1 to 2 inches under brine while fermenting. After adding prepared vegetables and brine, insert a suitably sized dinner plate or glass pie plate inside the fermentation container. The plate must be slightly smaller than the container opening, yet large enough to cover most of the

shredded cabbage or cucumbers. To keep the plate under the brine, weight it down with 2 to 3 sealed quart jars filled with water. Covering the container opening with a clean, heavy bath towel helps to prevent contamination from insects and molds while the vegetables are fermenting. Fine quality fermented vegetables are also obtained when the plate is weighted down with a very large clean, plastic bag filled with 3 quarts Fermented Foods and Pickled Vegetables 66-7 of water containing 4-1/2 tablespoons of canning or pickling salt. Be sure to seal the plastic bag. Freezer bags sold for packaging turkeys are suitable for use with 5-gallon containers. The fermentation container, plate, and jars must be washed in hot sudsy water, and rinsed well with very hot water before use.

### **Salts used in pickling**

Use of canning or pickling salt is recommended. Fermented and nonfermented pickles may be safely made using either iodized or noniodized table salt. However, noncaking materials added to table salts may make the brine cloudy. Flake salt varies in density and is not recommended for use.

Reduced-sodium salts, for example mixtures of sodium and potassium chloride, may be used in quick pickle recipes, as indicated in this guide. The pickles may, however, have a slightly different taste than expected. **Caution: Use of reduced-sodium salt in fermented pickle recipes is not recommended.**

### ***DILL PICKLES***

Use the following quantities for each gallon capacity of your container.

*4 lbs of 4-inch pickling cucumbers*

*2 tbsp dill seed or 4 to 5 heads fresh or dry dill weed*

*1/2 cup salt*

*1/4 cup vinegar (5%)*

*8 cups water and one or more of the following ingredients:*

*2 cloves garlic (optional)*

*2 dried red peppers (optional)*

*2 tsp whole mixed pickling spices (optional)*

**Procedure:** Wash cucumbers. Cut 1/16-inch slice off blossom end and discard. Leave 1/4- inch of stem attached. Place half of dill and spices on bottom of a clean, suitable container (see page 6-6). Add cucumbers, remaining dill, and spices. Dissolve salt in vinegar and water and pour over cucumbers. Add suitable cover and weight. Store where temperature is between 70° and 75°F for about 3 to 4 weeks while fermenting. Temperatures of 55° to 65°F are acceptable, but the fermentation will take 5 to 6 weeks. Avoid temperatures above 80°F, or pickles will become too soft during fermentation. Fermenting pickles cure slowly. Check the container several times a week and promptly remove surface scum or mold. **Caution: If the pickles become soft, slimy, or develop a disagreeable odor, discard them.** Fully fermented pickles may be stored in the original container for about 4 to 6 months, provided they are refrigerated and surface scum and molds are removed regularly. Canning fully fermented pickles is a better way to store them. To can them, pour the brine into a pan, heat slowly to a boil, and simmer 5 minutes. Filter brine through paper coffee filters to reduce cloudiness, if desired. Fill hot jar with pickles and hot brine, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process as below, or use the low temperature pasteurization treatment described on page 6-5.

## ***QUICK FRESH-PACK DILL PICKLES***

*8 lbs of 3- to 5-inch pickling cucumbers*

*2 gals water*

*1-1/4 cups canning or pickling salt (divided)*

*1-1/2 qts vinegar (5%)*

*1/4 cup sugar*

*2 qts water*

*2 tbsp whole mixed pickling spice*

*about 3 tbsp whole mustard seed (1 tsp per pint jar)*

*about 14 heads of fresh dill (1-1/2 heads per pint jar) or*

*4-1/2 tbsp dill seed (1-1/2 tsp per pint jar)*

**Yield:** About 7 to 9 pints

**Procedure:** Wash cucumbers. Cut 1/16-inch slice off blossom end and discard, but leave 1/4-inch of stem attached. Dissolve 3/4 cup salt in 2 gallons water. Pour over cucumbers and let stand 12 hours. Drain. Combine vinegar, 1/2 cup salt, sugar, and 2 quarts water. Add mixed pickling spices tied in a clean white cloth. Heat to boiling. Fill hot jars with cucumbers. Add 1 tsp mustard seed and 1-1/2 heads fresh dill per pint. Cover with boiling pickling solution, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process as below or use the low-temperature pasteurization treatment described on page 6-5.

## ***QUICK SWEET PICKLES***

**May be canned as either strips or slices**

*8 lbs of 3- to 4-inch pickling cucumbers*

*1/3 cup canning or pickling salt*

*4-1/2 cups sugar*

*3-1/2 cups vinegar (5%)*

*2 tsp celery seed*

*1 tbsp whole allspice*

*2 tbsp mustard seed*

*1 cup pickling lime (optional) for use in variation below for making firmer pickles*

**Yield:** About 7 to 9 pints

**Procedure:** Wash cucumbers. Cut 1/16-inch off blossom end and discard, but leave 1/4 inch of stem attached. Slice or cut in strips, if desired. Place in bowl and sprinkle with 1/3 cup salt. Cover with 2 inches of crushed or cubed ice. Refrigerate 3 to 4 hours. Add more ice as needed. Drain well.

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

Hot pack—Add cucumbers and heat slowly until vinegar solution returns to boil. Stir occasionally to make sure mixture heats evenly. Fill sterile jars, leaving 1/2-inch headspace.

Raw pack—Fill hot jars, leaving 1/2-inch headspace. Add hot pickling syrup, leaving 1/2-inch headspace.

Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process as below or use the low temperature pasteurization treatment described on page 6-5.

**Variation for firmer pickles:** Wash cucumbers. Cut 1/16-inch off blossom end and discard, but leave 1/4-inch of stem attached. Slice or strip cucumbers. Mix 1 cup pickling lime and 1/2 cup salt to 1 gallon water in a 2- to 3-gallon crock or enamelware container. **Caution: Avoid inhaling lime dust while mixing the lime-water solution.** Soak cucumber slices or strips in lime water solution for 12 to 24 hours, stirring occasionally. Remove

from lime solution and rinse and resoak 1 hour in fresh cold water. Repeat the rinsing and resoaking two more times. Handle carefully because slices or strips will be brittle. Drain well.

### ***PICKLED DILLED BEANS***

*4 lbs fresh tender green or yellow beans (5 to 6 inches long)*

*8 to 16 heads fresh dill*

*8 cloves garlic (optional)*

*1/2 cup canning or pickling salt*

*4 cups white vinegar (5%)*

*4 cups water*

*1 tsp hot red pepper flakes (optional)*

**Yield:** About 8 pints

**Procedure:** Wash and trim ends from beans and cut to 4-inch lengths. In each hot sterile pint jar (see page 1-14), place 1 to 2 dill heads and, if desired, 1 clove of garlic. Place whole beans upright in jars, leaving 1/2-inch headspace. Trim beans to ensure proper fit, if necessary. Combine salt, vinegar, water, and pepper flakes (if desired). Bring to a boil. Add hot solution to beans, leaving 1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***PICKLED BREAD-AND-BUTTER ZUCCHINI***

*16 cups fresh zucchini, sliced*

*4 cups onions, thinly sliced*

*1/2 cup canning or pickling salt*

*4 cups white vinegar (5%)*

*2 cups sugar*

*4 tbsp mustard seed*

*2 tbsp celery seed*

*2 tsp ground turmeric*

**Yield:** About 8 to 9 pints

**Procedure:** Cover zucchini and onion slices with 1 inch of water and salt. Let stand 2 hours and drain thoroughly. Combine vinegar, sugar, and spices. Bring to a boil and add zucchini and onions. Simmer 5 minutes and fill hot jars with mixture and pickling solution, leaving

1/2-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process or use low-temperature pasteurization treatment described on page 6-5.

### **Making jelly without added pectin**

Use only firm fruits naturally high in pectin. Select a mixture of about 3/4 ripe and 1/4 underripe fruit. Do not use commercially canned or frozen fruit juices. Their pectin content is too low.

Wash all fruits thoroughly before cooking. Crush soft fruits or berries; cut firmer fruits into small pieces. Using the peels and cores adds pectin to the juice during cooking. Add water to fruits that require it, as listed in the table of ingredients below. Put fruit and water in large saucepan and bring to a boil. Then simmer according to the times below until fruit is soft, while stirring to prevent scorching. One pound of fruit should yield at least 1 cup of clear juice.

When fruit is tender, strain through a colander, then strain through a double layer of cheesecloth or a jelly bag. Allow juice to drip through, using a stand or colander to hold the bag. Pressing or squeezing the bag or cloth will cause cloudy jelly.

Using no more than 6 to 8 cups of extracted fruit juice at a time, measure fruit juice, sugar, and lemon juice according to the ingredients in the table above and heat to boiling. Stir until the

sugar is dissolved. Boil over high heat to the jelling point. To test jelly for doneness, use one of the following methods.

**Sheet or spoon test**—Dip a cool metal spoon into the boiling jelly mixture. Raise the spoon about 12 inches above the pan (out of steam). Turn the spoon so the liquid runs off the side. The jelly is done when the syrup forms two drops that flow together and sheet or hang off the edge of the spoon.

Remove from heat and quickly skim off foam. Fill sterile jars (see page 1-14) with jelly. Use a measuring cup or ladle the jelly through a wide-mouthed funnel, leaving 1/4 inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### **Making jams and jellies with added pectin**

Fresh fruits and juices as well as commercially canned or frozen fruit juice can be used with commercially prepared powdered or liquid pectins. The order of combining ingredients depends on the type of pectin used. Complete directions for a variety of fruits are provided with packaged pectin. Jelly or jam made with added pectin requires less cooking and generally gives a larger yield. These products have more natural fruit flavors, too. In addition, using added pectin eliminates the need to test hot jellies and jams for proper gelling. Adding 1/2 teaspoon of butter or margarine with the juice and pectin will reduce foaming. However, these may cause off-flavor in long-term storage of jellies and jams. Recipes available using packaged pectin include:

Jellies—Apple, crab apple, blackberry, boysenberry, dewberry, currant, elderberry, grape, mayhaw, mint, peach, plum, black or red raspberry, loganberry, rhubarb, and strawberry.

Jams—Apricot, blackberry, boysenberry, dewberry, loganberry, red raspberry, youngberry, blueberry, cherry, currant, fig, gooseberry, grape, orange marmalade, peach, pear, plum, rhubarb, strawberry, and spiced tomato.

Be sure to use pre-sterilized Mason canning jars, self-sealing two-piece lids, and a 5-minute process (corrected for altitude, as necessary) in boiling water. (See page 1-30 about spoilage of jams and jellies.)

### ***PEAR-APPLE JAM***

*2 cups peeled, cored, and finely chopped pears (about 2 lbs)*

*1 cup peeled, cored, and finely chopped apples*

*6-1/2 cups sugar*

*1/4 tsp ground cinnamon*

*1/3 cup bottled lemon juice*

*6 oz liquid pectin*

**Yield:** About 7 to 8 half-pints

**Procedure:** Crush apples and pears in a large saucepan and stir in cinnamon. Thoroughly mix sugar and lemon juice with fruits and bring to a boil over high heat, stirring constantly.

Immediately stir in pectin. Bring to a full rolling boil and boil hard 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and fill sterile jars (see page 1-14) leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***BLUEBERRY-SPICE JAM***

*2-1/2 pints ripe blueberries*

*1 tbsp lemon juice*

*1/2 tsp ground nutmeg or cinnamon*

*5-1/2 cups sugar*

*3/4 cup water*

*1 box (1-3/4 oz) powdered pectin*

**Yield:** About 5 half-pints

**Procedure:** Wash and thoroughly crush blueberries, one layer at a time, in a saucepan. Add lemon juice, spice, and water. Stir in pectin and bring to a full rolling boil over high heat, stirring frequently. Add the sugar and return to a full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and fill sterile jars (see page 1-14), leaving 1/4-inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.

### ***GRAPE-PLUM JELLY***

*3-1/2 lbs ripe plums*

*3 lbs ripe Concord grapes*

*1 cup water*

*1/2 tsp butter or margarine to reduce foaming (optional)*

*8-1/2 cups sugar*

*1 box (1-3/4 oz) powdered pectin*

**Yield:** About 10 half-pints

**Procedure:** Wash and pit plums; do not peel. Thoroughly crush the plums and grapes, one layer at a time, in a saucepan with water. Bring to a boil, cover, and simmer 10 minutes. Strain juice through a jelly bag or double layer of cheesecloth. Measure sugar and set aside. Combine 6-1/2 cups of juice with butter and pectin in large saucepan. Bring to a hard boil over high heat, stirring constantly. Add the sugar and return to a full rolling boil. Boil hard for 1 minute, stirring constantly. Remove from heat, quickly skim off foam, and fill sterile jars (see page 1-14), leaving 1/4-

inch headspace. Wipe rims of jars with a dampened clean paper towel. Adjust lids and process.