

RECIPES\* FOR CANNING IN TIN CANS  
FOR  
FRUITS, VEGETABLES, MEAT AND POULTRY

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TABLE OF CONTENTS

PROCESSING AND PREPARING FOOD FOR CANNING.....	2
FRUITS AND VEGETABLES.....	3
MEAT AND POULTRY.....	8
QUESTIONS AND ANSWERS.....	11
INDEX.....	12

NOTE: BEFORE TASTING CANNED LOW-ACID FOOD, SUCH AS, VEGETABLES AND LOW-ACID TOMATOES, BOIL IT HARD FOR 15 MINUTES TO DESTROY ANY HIDDEN TOXINS (20 MINUTES FOR GREENS, CORN, MEAT, POULTRY AND SEAFOOD). IF IT LOOKS SPOILED WHEN HOT, FOAMS OR HAS AN OFF-ODOR, BURN OR DESTROY IT COMPLETELY SO IT CANNOT BE EATEN BY PEOPLE OR ANIMALS. BY THE TIME FOOD HAS BEEN PROCESSED IN A PRESSURE CANNER, THIS ADDITIONAL BOILING DOES NOT AFFECT THE TEXTURE SIGNIFICANTLY. AFTER BOILING, FOOD THAT IS NOT TO BE USED AT ONCE, SHOULD BE REFRIGERATED IMMEDIATELY.

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## PROCESSING AND PREPARING FOOD FOR CANNING

**PLAIN CANS** have a tin surface both inside and outside and are used for the following:

Apple Butter	Beans—Green and Wax	Fish	Okra	Pineapple	Salmon
Apples	Blueberries	Kidney Beans	Okra and Tomatoes	Pork and Beans	Spinach
Apple Sauce	Carrots	Meats	Peaches	Potatoes—Sweet	Tamales
Apricots	Celery	Mincemeat	Pears	Potatoes—White	Tomatoes
Artichokes	Chicken	Mixed Vegetables	Peas	Prunes—Fresh	Tomato Juice
Asparagus	Chili Con Carne	Mustard Greens	Pimentos	Ravioli	Tomato Puree
Baked Beans					Turnip Greens

**R-ENAMEL CANS** have an inside coating of acid-resistant enamel intended primarily to prevent the bleaching of the color of the product. It is used for colored fruits, colored fruit juices, beets, squash and pumpkin.

*Beets	Cranberry Sauce	Grape Syrup	Olives	Pumpkin	Relish—India
Blackberries	Dewberries	Kraut	Pickles	Raspberries—Black	Rhubarb
Cherries, Sour	Grape Juice	Loganberries	Plums	Raspberries—Red	Strawberries
Cranberries					Winter Squash

**C-ENAMEL CANS** also have an inside enamel lining, and are designed for use in the canning of such vegetables and meat products as will discolor the interior of the plain cans during processing. Although the use of "C" enamel cans is preferable for these products, plain cans may be used. Also "C" enamel cans may be substituted for the fruit and vegetable products listed under "Plain Cans".

Broccoli	Cauliflower	Lobster	Oysters	Rutabagas	Turnips
Brussel Sprouts	Clams	Lima Beans	Peas—Blackeyed	Shrimp	Tripe
Cabbage	Corn			Succotash	Onions

**CAN SEALER ADJUSTMENT**—Before canning, be sure that your Can Sealer has been adjusted for the can size that you are going to use and that empty sealed cans have been tested for leakage according to the Sealer instruction sheets.

**PREPARING THE CANS AND LIDS**—Inspect cans and lids and discard badly bent, dented or rusted cans and lids with damaged sealing compound. Can lids have a band of sealing compound on the underside near the outer rim. Wash cans and lids in clean hot water just before using and drain on a clean cloth. Cans should be drained upside down and left that way until ready to be filled with food. This keeps the air in the room from contaminating the inside of the can.

**FILLING THE CANS**—Most raw fruits and vegetables should be packed tightly into the container because they shrink during processing; a few, like corn, lima beans and peas, should be packed loosely because they expand. Hot food should be packed loosely and should be at or near the boiling temperature when packed. There should be enough syrup, water or juice to fill in around the solid food in the container and to cover the food. Food at the top of the container tends to darken if not covered with liquid. Cans are sealed when the food in the center of the can is 170° F. or higher. The temperature can be determined with a thermometer pushed half-way down into the center of the food. Heating before sealing drives the air out of the food and liquid and insures that there will be a vacuum in the can after processing and cooling. Removal of the air prevents flavor changes and discoloring.

**HOT PACK**—Hot packed foods may be sealed immediately after filling if you are sure that the temperature of the food has not dropped below 170° F. To make sure, test with a thermometer, placing the bulb at the center of the can. If the thermometer registers lower than 170° F., or if you do not make this test, exhaust the cans before sealing. See Exhausting Procedure below. Processing must begin immediately after sealing since the processing times are based on the foods being at 170° F. when the sealed cans are placed in the canner. Therefore, fill and seal only as many cans at one time as you can process in your canner.

**RAW (COLD) PACK**—Food packed raw must be heated in the cans (exhausted) before the cans are sealed.

**HEADSPACE**—The distance from the level of the food in the can to the top rim of the can and is usually 1/4 inch. Headspace is shown in the individual recipes.

**EXHAUSTING**—Place open, filled cans on a rack in a kettle in which there is enough boiling water to come to about 2 inches below the tops of the cans. Cover the kettle and bring water back to boiling. Boil until a thermometer inserted at the center of the can registers 170° F., or for the length of time given in your recipe for the food you are canning. Remove cans from the water one at a time and add boiling packing liquid or water, if necessary, to bring headspace back to the level specified in your recipe. Place clean lid on filled can and seal immediately.

**PROCESSING**—(Cooking) sterilizes the contents of the can and must be started as soon as the cans are sealed. Fill and seal only as many cans as your boiling-water bath canner or pressure canner will hold. The boiling-water bath canner is suitable only for strong-acid foods, such as, fruits, pickled vegetables and most tomatoes. All other foods, such as, vegetables, meats, poultry and fish must be processed in a pressure canner. Your recipe will tell you which method to use.

**PROCESSING TIME CHANGES FOR VARIOUS ALTITUDES**—Times shown are based on sea level conditions. For processing at altitudes above sea level, increase processing times as follows:

**BOILING-WATER BATH CANNING**—If the processing time is 20 minutes or less, add 1 minute to the processing time for each 1000 feet above sea level. If the processing time is 20 minutes or more, add 2 minutes to the processing time for each 1000 feet above sea level.

**PRESSURE CANNING**—Increase pressure 1/2 pound for each 1000 feet above sea level.

**SEALING**—When cans are ready to be sealed, use a clean cloth to wipe the can rim to remove any food, salt or liquid. Any substance remaining on the rim could interfere with the seal.

**COOLING**—Products canned in tin must be cooled quickly after processing. Place cans gently in cold clean water. Change the water frequently or let cold water run while cooling. After cooling, dry the cans and set on a rack for further cooling, leaving space between cans for air to circulate between them. If you stack the cans, stagger them.

**INSPECTING CANS AFTER COOLING**—On the day after canning, inspect each can carefully for leakage and bulging ends. The can ends should be pulled in slightly, due to the vacuum inside. Inspect the seams for food leakage. Particles of food at the seams indicate bad seals. These cans should be opened and the contents refrigerated. This food may be reprocessed or served. If reprocessed, begin the second canning by heating the food through. Then pack and reprocess for the full time as originally.

## HOW TO CAN FRUITS AND VEGETABLES

Organisms that cause food spoilage—molds, yeasts and bacteria—are always present in the air, water and soil. Enzymes that may cause undesirable changes in flavor, color and texture are present in raw fruits and vegetables. When you can fruits and vegetables you heat them hot enough and long enough to destroy spoilage organisms. This heating (or processing) also stops the action of enzymes. Processing is done in either a boiling-water-bath canner or steam-pressure canner. The kind of canner that should be used depends on the kind of food being canned.

### RIGHT CANNER FOR EACH FOOD

**FRUITS, TOMATOES AND PICKLED VEGETABLES**—Use a boiling-water-bath canner. You can process these acid foods safely in boiling water.

**ALL COMMON VEGETABLES EXCEPT TOMATOES**—Use a steam-pressure canner. To process these low-acid foods safely in a reasonable length of time takes a temperature higher than that of boiling water.

### GETTING YOUR EQUIPMENT READY

**STEAM-PRESSURE CANNER**—For safe operation of your canner, clean petcock and safety-valve openings by drawing a string or narrow strip of cloth through them. Do this at beginning of canning season and often during the season.

Check pressure gauge—An accurate pressure gauge is necessary to get the processing temperature needed to make food keep.

A weighted gauge needs to be thoroughly clean.

A dial gauge, old or new, should be checked before the canning season, and also during the season if you use the canner often. Ask your county home demonstration agent, dealer or manufacturer about checking it.

If your gauge is off 5 pounds or more, you'd better get a new one. But if the gauge is not more than 4 pounds off, you can correct for it as shown below. As a reminder, tie on the canner a tag stating the reading to use to get the correct pressure.

The food is to be processed at 10 pounds steam pressure; so—

If the gauge reads high—  
1 pound high—process at 11 pounds  
2 pounds high—process at 12 pounds  
3 pounds high—process at 13 pounds  
4 pounds high—process at 14 pounds

If the gauge reads low—  
1 pound low—process at 9 pounds  
2 pounds low—process at 8 pounds  
3 pounds low—process at 7 pounds  
4 pounds low—process at 6 pounds

Have canner thoroughly clean—Wash canner kettle well if you have not used it for some time. Don't put cover in water—wipe it with a soapy cloth, then with a damp, clean cloth. Dry well.

**WATER-BATH CANNER**—These are available on the market. Any big metal container may be used as a boiling-water-bath canner if it is deep enough so that the water is well over tops of cans (1" to 2") and has space to boil freely. Allow 1" to 2" above water line for brisk boiling. The canner must have a tight-fitting cover and a wire or wooden rack. If the rack has dividers, cans will not touch each other or fall against the sides of the canner during processing.

If a steam-pressure canner is deep enough, you can use it for a water bath. Cover, but do not fasten. Leave petcock wide open, so that steam escapes and pressure does not build up inside the canner.

### GENERAL CANNING PROCEDURE

**SELECTING FRUITS AND VEGETABLES FOR CANNING**—Choose fresh, firm fruits and young, tender vegetables. Can them before they lose 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.

For best quality in the canned product, use only perfect fruits and vegetables. Sort them for size and ripeness; they cook more evenly that way.

**WASHING**—Wash all fruits and vegetables thoroughly, whether or not they are to be pared. Dirt contains some of the bacteria hardest to kill. Wash small lots at a time, under running water or through several changes of water. Lift the food out of the water each time so dirt that has been washed off won't go back on the food. Rinse pan thoroughly between washings. Don't let fruits or vegetables soak; they may lose flavor and food value. Handle them gently to avoid bruising.

**STORING CANNED FOOD**—Properly canned food stored in a cool, dry place will retain good eating quality for a year. Canned food stored in a warm place near hot pipes, a range, a furnace or in direct sunlight may lose some of its eating quality in a few weeks or months, depending on the temperature. Dampness may corrode cans and cause leakage so the food will spoil. Freezing does not cause food spoilage unless the seal is damaged. However, frozen canned food may be less palatable than properly stored canned food. In an unheated storage place it is well to protect canned food by wrapping in paper or covering with a blanket.

## HOW TO CAN FRUITS AND VEGETABLES

**POINTS ON PACKING—RAW PACK**—Put cold, raw fruits into container and cover with boiling-hot sirup, juice or water. Press tomatoes down in the containers so they are covered with their own juice; add no liquid. **HOT PACK**—Heat fruits in sirup, in water or steam, or in extracted juice before packing. Juicy fruits and tomatoes may be preheated without added liquid and packed in the juice that cooks out.

**SWEETENING FRUIT**—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 sirup. For very juicy fruit packed hot, use sugar without added liquid.

To make sugar sirup—Mix sugar with water or with juice extracted from some of the fruit. Use a thin, medium or heavy sirup to suit the sweetness of the fruit and your taste. To make sirup, combine—

4 cups of water or juice.....	2 cups sugar.....	For 5 cups THIN sirup
	3 cups sugar.....	For 5-1/2 cups MEDIUM sirup
	4-3/4 cups sugar..	For 6-1/2 cups HEAVY sirup

Heat sugar and water or juice together until sugar is dissolved. Skim if necessary.

To extract juice—Crush thoroughly ripe, sound juicy fruit. Heat to simmering (185° to 210° F.) over low heat. Strain through jelly bag or other cloth.

To add sugar direct to fruit—For juicy fruit to be packed hot, add about 1/2 cup sugar to each quart of raw, prepared fruit. Heat to simmering (185° to 210° F.) over low heat. Pack fruit in the juice that cooks out.

To add sweetening other than sugar—You can use light corn sirup or mild-flavored honey to replace as much as half the sugar called for in canning fruit. Do not use brown sugar, or molasses, sorghum or other strong-flavored sirups; their flavor overpower the fruit flavor and they may darken the fruit.

**CANNING UNSWEETENED FRUIT**—You may can fruit without sweetening—in its own juice, in extracted juice or in water. Sugar is not needed to prevent spoilage; processing is the same for unsweetened fruit as for sweetened.

**PROCESSING BOILING-WATER BATH**—Put filled tin cans into canner containing hot or boiling water. For raw pack have water boiling. Add boiling water if needed to bring water an inch or two over tops of cans. Put cover on canner. When water in 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 containers covered. Follow processing times carefully. The times given apply only when a specific food is prepared according to detailed directions.

**TO FIGURE YIELD OF CANNED FRUIT FROM FRESH**—The number of quarts of canned food you can get from a given quantity of fresh fruit depends upon the quality, variety, maturity and size of the fruit, whether it is whole, in halves, or in slices, and whether it is packed raw or hot. Generally, the following amounts of fresh fruit or tomatoes (as purchased or picked) make 1 quart of canned food:

	Pounds
Apples.....	2-1/2 to 3
Berries, except strawberries.....	1-1/2 to 3 (1 to 2 quart boxes)
Cherries (canned unpitted).....	2 to 2-1/2
Peaches.....	2 to 3
Pears.....	2 to 3
Plums.....	1-1/2 to 2-1/2
Tomatoes.....	2-1/2 to 3-1/2

In 1 pound there are about 3 medium apples and pears;  
4 medium peaches or tomatoes; 8 medium plums.

## DIRECTIONS FOR FRUITS AND VEGETABLES

### 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 sirup or water.

Pack hot fruit to 1/4 inch of top. Fill to top with hot sirup or water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans...10 minutes #2½ or 3 cans...10 minutes

### APPLESAUCE

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

Pack hot applesauce to top. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans...10 minutes #2½ or 3 cans...10 minutes

### APRICOTS

Follow method for peaches. Peeling may be omitted.

### BERRIES, EXCEPT STRAWBERRIES

**RAW PACK**—Wash berries; drain.

Fill cans to 1/4 inch of top. For a full pack, shake berries down while filling cans. Fill to top with boiling sirup. Exhaust to 170° F. (10 minutes); seal cans. Process in boiling-water bath (212° F.)—

#2 cans...15 minutes #2½ or 3 cans...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.

Pack hot berries to top. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans...15 minutes #2½ or 3 cans...20 minutes

### CHERRIES

**RAW PACK**—Wash cherries; remove pits, if desired.

Fill cans to 1/4 inch of top. For a full pack, shake cherries down while filling cans. Fill to top with boiling sirup. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans...20 minutes #2½ or 3 cans...25 minutes

**HOT PACK**—Wash cherries; remove pits, if desired. Add ½ cup sugar to each quart of fruit. Add a little water to unpitted cherries to keep them from sticking while heating. Cover pan and bring to a boil.

Pack hot cherries to top of cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans...15 minutes #2½ or 3 cans...20 minutes

### FRUIT JUICES

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

simmering.

Fill cans to top with hot juice. Seal at once. Process in boiling-water bath (212° F.)—

#2 cans... 5 minutes #2½ or 3 cans... 5 minutes

### FRUIT PUREES

Use sound, ripe fruit. Wash; remove pits, if desired. Cut large fruit in pieces. Simmer until soft; add a little water if needed to keep fruit from sticking. Put through a food mill or strainer. Add sugar to taste. Heat again to simmering (185°—210° F.).

Pack hot to top. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 10 minutes #2½ or 3 cans... 10 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.

Pack raw fruit to 1/4 inch of top. Fill to top with boiling sirup. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 30 minutes #2½ or 3 cans... 35 minutes

**HOT PACK**—Prepare peaches as directed above. Heat peaches through in hot sirup. If fruit is very juicy you may heat it with sugar, adding no liquid.

Pack hot fruit to 1/4 inch of top. Fill to top with boiling liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 25 minutes #2½ or 3 cans... 30 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.

Pack raw fruit to 1/4 inch of top. Fill to top with boiling sirup. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 15 minutes #2½ or 3 cans... 20 minutes

**HOT PACK**—Prepare plums as directed above. Heat to boiling in sirup or juice. If fruit is very juicy you may heat it with sugar, adding no liquid.

Pack hot fruit to 1/4 inch of top. Fill to top with boiling liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 15 minutes #2½ or 3 cans... 20 minutes

## RHUBARB

Wash rhubarb and cut into 1/2 inch pieces. Add 1/2 cup sugar to each quart rhubarb and let stand to draw out juice. Bring to boiling.

Pack hot to top of cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.)—

#2 cans... 10 minutes #2½ or 3 cans... 10 minutes

## TOMATOES

Some newer varieties of tomatoes are less acid than the older varieties. The higher acid older varieties of tomatoes can be safely processed in a boiling-water bath with assurance that all harmful bacteria will be killed. The lower acid tomatoes will have to have their acidity increased if they are to be safely processed in a boiling-water bath. An alternative to adding acid is to process the low-acid tomatoes in a pressure canner.

If you do not know whether your tomatoes are high or low acid, consult your University Extension Service or the Agricultural Agent in your county for processing recommendations for your specific variety of tomato.

To increase the acidity of low-acid varieties, add 1/4 teaspoon of pure crystalline citric acid (U.S.P.) (available in drug stores) to each No. 2 can and 1/2 teaspoon to each No. 2-1/2 or No. 3 can, on top of the tomatoes, just before the cans are sealed.

Use only firm, ripe, red tomatoes. Do not use overripe tomatoes, because tomatoes lose acidity as they mature. Tomatoes with soft spots or decayed areas are not suitable for canning. To loosen skins, dip into boiling water for about 1/2 minute; then dip quickly into cold water. Cut out

stem ends and peel tomatoes.

**RAW PACK**—High-Acid Tomatoes Only. Leave tomatoes whole or cut in halves or quarters.

Pack tomatoes to top of cans, pressing gently to fill spaces. Add no water. Add 1/2 teaspoon salt to No. 2 cans; 1 teaspoon to No. 2-1/2 cans. Exhaust to 170° F. (about 15 minutes) and seal cans. Process in boiling water bath (212° F.)—

#2 cans... 45 minutes #2½ or 3 cans... 55 minutes

**HOT PACK**—Quarter peeled tomatoes. Bring to boil; stir to keep tomatoes from sticking.

Pack boiling-hot tomatoes to 1/4 inch of top. Add no water. Add ½ teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in boiling-water bath (212° F.). High-acid tomatoes or low-acid tomatoes with citric acid as directed above.

#2 cans... 10 minutes #2½ or 3 cans... 10 minutes

Low acid tomatoes (without adding citric acid)—Process in pressure canner at 10 lb. pressure.

#2 cans... 15 minutes #2½ or 3 cans... 20 minutes

## TOMATO JUICE

Use ripe, juicy, red tomatoes. Do not use overripe tomatoes, because tomatoes lose acidity as they mature. Tomatoes with soft or decayed areas are not suitable for canning. Wash, remove stem ends, cut into pieces. Simmer until softened, stirring often. Put through strainer. Add 1 teaspoon salt to each quart juice and 1/2 teaspoon of pure crystalline citric acid (U.S.P.). Reheat at once just to boiling.

Fill cans to top with boiling-hot juice. Seal cans at once. Process in boiling-water bath (212° F.)—

#2 cans... 15 minutes #2½ or 3 cans... 15 minutes

## HOW TO CAN VEGETABLES

**POINTS ON PACKING**—**RAW PACK**—Pack cold raw vegetables (except corn, lima beans and peas) tightly into container and cover with boiling water. **HOT PACK**—Preheat vegetables in water or steam. Cover with cooking liquid or boiling water. 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 cooking liquid is dark, gritty or strong-flavored and when there isn't enough cooking liquid.

**PROCESSING IN A PRESSURE CANNER**—Use a steam-pressure canner for processing all vegetables except high-acid tomatoes. **DIRECTIONS**—Follow the manufacturer's directions for the canner you are using. Here are a few pointers on the use of any steam pressure canner:

1. Put 2 or 3 inches of boiling water in the bottom of the canner; the amount of water to use depends on the size and shape of the canner.
2. Set filled tin cans on rack in canner so that steam can flow around each container. If two layers of cans are put in, stagger the second layer.
3. Fasten canner cover securely so that no steam can escape except through vent (petcock or weighted-gauge opening).
4. Watch until steam pours steadily from vent. Let it escape for 10 minutes or more to drive all air from the canner. Then close petcock or put on weighted gauge.
5. Let 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 pressure by opening petcock. Keep drafts from blowing on canner.
6. When processing time is up, remove canner from heat immediately. Release steam in canner as soon as canner is removed from heat by opening petcock or taking off weighted gauge. Then take off canner cover and remove cans.

**PROCESSING TIME**—Follow processing times carefully. The times given apply only when a specific food is prepared according to detailed directions.

**TO FIGURE YIELD OF CANNED VEGETABLES FROM FRESH**—The number of quarts of canned food you can get from a given amount of fresh vegetables depends on quality, condition, maturity and variety of the vegetable, size of pieces and on the way the vegetable is packed—raw or hot pack. Generally, the following amounts of fresh vegetables (as purchased or picked) make 1 quart of canned food:

	Pounds		Pounds
Asparagus.....	2-1/2 to 4-1/2	Okra.....	1-1/2
Beans, lima, in pods.....	3 to 5	Peas, green, in pods.....	3 to 6
Beans, snap.....	1-1/2 to 2-1/2	Pumpkin or winter squash.....	1-1/2 to 3
Beets, without tops.....	2 to 3-1/2	Spinach and other greens.....	2 to 6
Carrots, without tops.....	2 to 3	Squash, summer.....	2 to 4
Corn, sweet, in husks.....	3 to 6	Sweet Potatoes.....	2 to 3

## DIRECTIONS FOR VEGETABLES

### ASPARAGUS

**RAW PACK**—Wash asparagus; trim off scales and tough ends and wash again. Cut into 1-inch pieces.

Pack asparagus as tightly as possible without crushing to 1/4 inch of top. Add ½ teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 20 minutes #2½ or 3 cans... 20 minutes

**HOT PACK**—Wash asparagus; trim off scales and tough ends and wash again. Cut in 1-inch pieces; cover with boiling water. Boil 2 or 3 minutes.

Pack hot asparagus loosely to ½ inch of top. Add ½ teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling-hot cooking liquid, or if liquid contains grit use boiling water. Exhaust to 170° F. (about 10 min.) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—#2 cans...20 minutes #2½ or 3 cans...20 minutes

## BEANS, DRY, WITH TOMATO OR MOLASSES SAUCE

Sort and wash dry 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.

Fill cans three-fourths full with hot beans. Add a small piece of salt pork, ham or bacon. Fill to 1/4 inch of top with hot sauce (see following recipes). Exhaust to 170° F. (about 20 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—  
#2 cans... 65 minutes #2½ or 3 cans... 75 minutes

**TOMATO SAUCE**—Mix 1 quart tomato juice, 3 tablespoons sugar, 2 teaspoons salt, 1 tablespoon chopped onion and 1/4 teaspoon mixture of ground cloves, allspice, mace and cayenne. Heat to boiling.

Or mix 1 cup tomato catsup with 3 cups water or soaking liquid from beans and 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 3/4 teaspoon powdered dry mustard. Heat to boiling.

## BEANS, DRY, BAKED

Soak and boil beans according to directions for beans with sauce.

Place small 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.

Pack hot beans to 1/4 inch of top. Exhaust to 170° F. (about 15 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 95 minutes #2½ or 3 cans... 115 minutes

## BEANS, FRESH LIMA

Can only young, tender beans.

**RAW PACK**—Shell and wash beans.

Pack raw beans to 3/4 inch of top; do not shake or press beans down. Add ½ teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill cans to top with boiling water.

Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 40 minutes #2½ or 3 cans... 40 minutes

**HOT PACK**—Shell the beans, cover with boiling water and bring to a boil.

Pack hot beans loosely to ½ inch of top. Add ½ teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 40 minutes #2½ or 3 cans... 40 minutes

## BEANS, SNAP

**RAW PACK**—Wash beans. Trim ends; cut into 1-inch pieces.

Pack raw beans tightly to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 25 minutes #2½ or 3 cans... 30 minutes

**HOT PACK**—Wash beans. Trim ends; cut into 1-inch pieces. Cover with boiling water; boil 5 minutes.

Pack hot beans loosely to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling-hot cooking liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 25 minutes #2½ or 3 cans... 30 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 1/2-inch cubes or slices; halve or quarter very large slices.

Pack hot beets to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 30 minutes #2½ or 3 cans... 30 minutes

## CARROTS

**RAW PACK**—Wash and scrape carrots. Slice or dice.

Pack raw carrots tightly into cans to 1/2 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill cans to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 25 minutes #2½ or 3 cans... 30 minutes

**HOT PACK**—Wash and scrape carrots. Slice or dice. Cover with boiling water and bring to boil.

Pack hot carrots to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill with boiling-hot cooking liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 20 minutes #2½ or 3 cans... 25 minutes

## CORN, CREAM-STYLE

**RAW PACK**—Husk corn and remove silk. Wash. Cut corn from cob at about center of kernel and scrape cobs.

Use #2 cans only. Pack corn to 1/2 inch of top; do not shake or press down. Add 1/2 teaspoon salt to each can. Fill cans to top with boiling water. Exhaust to 170° F. (about 25 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 105 minutes

**HOT PACK**—Husk corn and remove silk. Wash. Cut corn from cob at about center of kernel and scrape cob. To each quart of corn add 1 pint boiling water. Heat to boiling.

Use #2 cans only. Pack hot corn to top. Add 1/2 teaspoon salt to each can. Exhaust to 170° (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 105 minutes

## CORN, WHOLE-KERNEL

**RAW PACK**—Husk corn and remove silk. Wash. Cut from cob at about two-thirds the depth of kernel.

Pack corn to 1/2 inch of top; do not shake or press down. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 60 minutes #2½ or 3 cans... 60 minutes

**HOT PACK**—Husk corn and remove silk. Wash. Cut from cob at about two-thirds the depth of kernel. To each quart of corn add 1 pint boiling water. Heat to boiling.

Pack hot corn to 1/2 inch of top and fill to top with boiling-hot cooking liquid. Or fill to top with mixture of corn and liquid. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 60 minutes #2½ or 3 cans... 60 minutes

## HOMINY

Place 2 quarts of dry field corn in an enameled pan; add 8 quarts of water and 2 ounces of lye. Boil vigorously 1/2 hour, then allow to stand for 20 minutes. Rinse off the lye with several hot water rinses. Follow with cold water rinses to cool for handling.

Work hominy with the hands until dark tips of kernels are removed (about 5 minutes). Separate the tips from the corn by floating them off in water or by placing the corn in a coarse sieve and washing thoroughly. Add sufficient water to cover hominy about 1 inch, and boil 5 minutes; change water. Repeat 4 times. Then cook until kernels are soft (1/2 to 3/4 hour) and drain. This will make about 6 quarts of hominy.

Pack hot hominy to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.).—

#2 cans... 60 minutes #2½ or 3 cans... 70 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.

Pack hot mushrooms to 1/4 inch of top of cans. Add 1/2 teaspoon salt to #2 cans. For better color, add 1/8 teaspoon of crystalline ascorbic acid to #2 cans. Then fill to top

with boiling-hot cooking liquid or boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 30 minutes

#### OKRA

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

Pack hot okra to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 25 minutes #2½ or 3 cans... 35 minutes

#### PEAS, FRESH BLACKEYE (COWPEAS, BLACKEYE BEANS)

RAW PACK—Shell and wash blackeye peas.

Pack raw blackeye peas to 3/4 inch of top; do not shake or press down. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Cover with boiling water, leaving 1/4 inch space at top of cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 35 minutes #2½ or 3 cans... 40 minutes

HOT PACK—Shell and wash blackeye peas, cover with boiling water, and bring to a rolling boil. Drain

Pack hot blackeye peas to 1/2 inch of top; do not shake or press peas down. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Cover with boiling water, leaving 1/4 inch space at top of cans. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 30 minutes #2½ or 3 cans... 35 minutes

#### PEAS, FRESH GREEN

RAW PACK—Shell and wash peas.

Pack peas to 1/4 inch of top; do not shake or press down. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process at 10 pounds pressure (240° F.)—

#2 cans... 30 minutes #2½ or 3 cans... 35 minutes

HOT PACK—Shell and wash peas. Cover with boiling water. Bring to boil.

Pack hot peas loosely to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process at 10 pounds pressure (240° F.)—

#2 cans... 30 minutes #2½ or 3 cans... 35 minutes

#### POTATOES, CUBED

Wash, pare and cut potatoes into 1/2 inch cubes. Dip cubes in brine (1 teaspoon salt to 1 quart water) to prevent darkening. Drain. Cook for 2 minutes in boiling water, drain.

Pack hot potatoes to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 35 minutes #2½ or 3 cans... 40 minutes

#### POTATOES, WHOLE

Use potatoes 1 to 2½ inches in diameter. Wash, pare and cook in boiling water for 10 minutes. Drain.

Pack hot potatoes to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 35 minutes #2½ or 3 cans... 40 minutes

#### PUMPKIN, CUBED

Wash pumpkin, remove seeds and pare. Cut into 1-inch cubes. Add just enough water to cover; bring to boil.

Pack hot cubes to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with hot cooking liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 50 minutes #2½ or 3 cans... 75 minutes

#### PUMPKIN, STRAINED

Wash pumpkin, remove seeds and pare. Cut into 1-inch cubes. Steam until tender, about 25 minutes. Put through food mill or strainer. Simmer until heated through; stir to keep pumpkin from sticking to pan.

Pack hot to 1/8 inch of top. Add no liquid or salt. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 75 minutes #2½ or 3 cans... 90 minutes

#### SQUASH, SUMMER

RAW PACK—Wash but do not pare squash. Trim ends. Cut squash into 1/2-inch slices; halve or quarter to make pieces of uniform size.

Pack raw squash tightly into cans to 1/2 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill cans to top with boiling water. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 20 minutes #2½ or 3 cans... 20 minutes

HOT PACK—Wash squash and trim ends; do not pare. Cut squash into 1/2-inch slices; halve or quarter to make pieces of uniform size. Add just enough water to cover. Bring to boil.

Pack hot squash loosely to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling-hot cooking liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 20 minutes #2½ or 3 cans... 20 minutes

#### SQUASH, WINTER

Follow method for pumpkin.

#### SWEET POTATOES, DRY PACK

Wash sweet potatoes. Sort for size. Boil or steam until partially soft (20 to 30 minutes). Skin. Cut in pieces if large.

Pack hot sweet potatoes tightly to top of can, pressing gently to fill spaces. Add no salt or liquid. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 80 minutes #2½ or 3 cans... 95 minutes

#### SWEET POTATOES, WET PACK

Wash sweet potatoes. Sort for size. Boil or steam just until skins slip easily. Skin and cut in pieces.

Pack hot sweet potatoes to 1/4 inch of top. Add 1/2 teaspoon salt to #2 cans; 1 teaspoon to #2½ or 3 cans. Fill to top with boiling water or medium sirup. Exhaust to 170° F. (about 10 minutes) and seal cans. Process in pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 70 minutes #2½ or 3 cans... 90 minutes

## HOW TO CAN MEAT AND POULTRY

Fresh, wholesome meats and fresh, wholesome poultry are suitable for home canning. Frozen meats also may be canned at home. Popular meats for home canning are: beef, veal, mutton, lamb, pork, chicken, duck, goose, guinea, squab, turkey, rabbit, game birds and small and large game animals.

Meat and poultry canned at home must be processed in a pressure canner. To insure the safety and wholesomeness of the meats you can at home— (1) Start with good-quality fresh or frozen meat. (2) Keep all meat, work surfaces and equipment clean. (3) Make sure the pressure canner is in good working condition. (4) Pack and close containers carefully. (5) Process meat for recommended time. (6) Test seals after cooling containers. (7) Label containers. (8) Store canned meat in cool, dry place.

Follow all canning directions carefully. Processing times and temperatures were developed specifically for use with a pressure canner. Meats canned by these directions will be free of spoilage organisms.

Meat may contain bacteria that cause botulism, a severe form of food poisoning. These bacteria are destroyed when cans of food are processed at a temperature of 240° F. for the times specified.

There is a risk of botulism from home-canned meats if the processing temperature is lower than 240° F. or if processing time is shorter than recommended.

It is not safe to process canned meats in a boiling-water bath, an oven, a steamer without pressure or an open kettle. None of these methods will heat the meat enough to kill dangerous bacteria in a reasonable time.

There also is a risk of botulism if shortcuts are taken in canning meats, if untested directions are used or if processing times are changed.

### GETTING READY

Use only good-quality meat or poultry—home-produced or purchased from a farm or store.

Chill home-produced meat immediately after slaughter to prevent spoiling and to permit tenderizing. Meat is easier to handle when it is cold. For thorough chilling, keep meat at a temperature below 40° F. until time to prepare it for canning; can it within a few days after slaughter.

If refrigeration is not available and if the maximum daily temperature is above 40° F., process the meat as soon as body heat is gone.

If meat must be held for longer than a few days, freeze it. Store frozen meat at temperatures of 0° F. or lower until canning time. Then cut or saw frozen meat into pieces of desired size.

If frozen meat is thawed before canning, thaw it in a refrigerator at a temperature of 40° F. or lower until most of the ice crystals have disappeared.

Keep all meat clean and sanitary. Rinse poultry thoroughly in cold water, then drain.

Keep all meat as cool as possible during preparation for canning. Handle it rapidly; process it as soon as containers are packed.

### EQUIPMENT

To control the bacteria that cause spoilage, keep everything that touches meat as clean as possible. Scrub metal, enamel-ware and porcelain pans in hot soapy water. Rinse pans well in boiling water before putting meat in them. Wash knives and kitchen tools to be used in canning; rinse well with boiling water.

Cutting boards, wood utensils and wooden work surfaces need special treatment to keep spoilage bacteria under control. Scrape surfaces if necessary; scrub with hot soapy water and rinse well with boiling water. Then disinfect clean surfaces.

For disinfecting, use a liquid chlorine disinfectant—such as Clorox, Fyne Tex (liquid) Bleach or Purex (liquid)—or a quaternary disinfectant—such as Co-op Sanitizer or Roccal. Dilute according to directions on the container. Cover wooden surfaces with the disinfectant solution and leave 15 minutes. Wash solution off with boiling water.

**PRESSURE CANNER**—To insure the safety of canned meats and poultry, cans must be processed at a sufficiently high temperature for a long enough time to kill all bacteria that cause spoilage or food poisoning.

The only practical way to get this high temperature is to use a pressure canner. When steam is held under 10 pounds of pressure at sea level, the temperature in the canner quickly reaches 240° F.—the necessary safe temperature for canning meat.

A pressure canner should be equipped with a rack to hold cans.

Before using the canner, wash the kettle well. Do not put cover with dial gauge in water. Wipe the cover carefully with a hot soapy cloth; repeat with a clean damp cloth. Dry. Keep the petcock and safety valve clear. Before each use of the canner, inspect these openings. To clean, draw a string or narrow strip of cloth through the petcock.

If a weighted gauge is used at a high altitude, have it corrected for altitude by the manufacturer of the canner. When a weighted gauge is adjusted for altitude, it needs no further regulation.

A dial gauge should be checked before the canning season. If you use canner frequently, have the gauge checked several times a year. Ask your extension home economist, your dealer or the manufacturer about checking the accuracy of a dial gauge.

If the dial gauge is not accurate, tie a warning tag to the canner. On the tag, write the margin of error, the date the canner was tested and the gauge setting to use for the correct pressure (see below).

All directions in this bulletin require processing at 10 pounds of steam pressure. The following adjustments give the correct pressure:

If the gauge reads high—	If the gauge reads low—
1 pound high—process at 11 pounds	1 pound low—process at 9 pounds
2 pounds high—process at 12 pounds	2 pounds low—process at 8 pounds
3 pounds high—process at 13 pounds	3 pounds low—process at 7 pounds
4 pounds high—process at 14 pounds	4 pounds low—process at 6 pounds

It is not safe to use a canner if the dial gauge registers as much as 5 pounds high or low. Replace a faulty gauge with an accurate one.

**TIN CANS**—Use plain tin cans in good condition for canning meats. C-enamel, R-enamel and sanitary-enamel cans are not suitable for meat. Fat in meat or poultry may cause enamel to peel off the inside of the can. Meat in such cans appears unappetizing, but it is not harmful. Wash cans and lids in clean hot water just before use. Drain upside down.

**THERMOMETER**—It is a good idea to use a thermometer both when meat is packed hot and when the canning directions call for removing (exhausting) air from cans. With a thermometer, you are able to make sure meat is heated to 170° F.—the minimum temperature needed to exhaust air properly. If a thermometer is not available, follow the times given in the directions.

Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee or warranty of the product by Ives-Way Products Inc. or an endorsement by Ives-Way Products Inc. over products not mentioned.

## CANNING METHODS

Prepare and process meat and poultry according to general directions given. Directions specify the types of packs and types of containers suitable for each meat product listed. Instructions must be followed carefully to assure a product safe from spoilage.

**HOW TO MAKE A BROTH**—To make meat or poultry broth, place bony pieces in saucepan and cover with cold water. Simmer until meat is tender. Pour broth into another pan; skim off fat. Add boiling broth to containers packed with precooked meat or poultry; fill to level specified in directions.

**PACKING**—Pack meat loosely in containers. Work with one tin can at a time. Keep precooked meat hot while packing. Use boiling liquid—broth, meat juice or water—if directions call for added liquid. Two methods are used for packing meat: **HOT PACK**—Meat is precooked before it is packed in cans. Boiling broth or boiling water is poured over meat before containers are processed in a pressure canner. (See directions on how to make broth). The temperature of food packed hot should be at least 170° F. at the time cans are sealed. **RAW PACK**—Meat is packed uncooked. Raw-packed meat usually is heated to 170° F. to exhaust—or remove—air from cans before processing in a pressure canner. Directions for using tin cans include exhausting air from all raw-packed meat. It always is necessary to exhaust air from raw-packed meat in tin cans before processing because air has no way to escape after cans are sealed.

**EXHAUSTING AIR**—To exhaust—or remove—air, set open jars or cans packed with raw meat on a rack in a large pan of boiling water. Water level should be about 2 inches below tops of cans. Cover the pan. Cook meat in containers at slow boil until temperature at center of cans registers 170° F. If a thermometer is not available, follow times given to cook meat until medium done.

When raw-packed meat is heated to 170° F., air is driven out of the food so that a vacuum will be formed in cans after processing and cooling. Exhausting air also helps to prevent changes in the flavor of canned meat.

**SALT**—Salt may be added to canned meat for flavor. It does not act as a preservative in canned meat, so it is not needed to make the product safe. If you decide to use salt, add it after meat is packed in the can. Amounts for various sized containers are given in the canning directions.

**FAT**—Remove as much fat as possible from meat before canning. Cut off all large lumps; trim marbled meat without slashing the lean unnecessarily. Do not use excessively fat meat or poultry for canning. After packing containers, wipe the tops free of fat. Any fat that gets on the rim of cans may prevent an airtight seal.

**PROCESSING**—Always use a pressure canner for processing meat. Follow the manufacturer's directions carefully. Here are a few suggestions about using a pressure canner: (1) Put 2 or 3 inches of water in the canner; heat to boiling. Use enough water to prevent the canner from boiling dry. (2) Set packed cans on rack in the canner. Allow space for steam to flow around each container. If there are two layers of cans, stagger the top layer. (3) Fasten canner cover securely so that all steam escapes through the petcock or weighted-gauge opening. (4) Let steam pour steadily from vent for 10 minutes to drive all air from the canner. Then close petcock or put on weighted gauge. (5) Let pressure rise to 10 pounds (240° F.). The moment this pressure is reached, start to count processing time. Regulate heat under the canner to maintain even pressure. Do not lower pressure by opening petcock. Keep drafts from blowing on canner. (6) Watch processing time carefully. When time is up, remove canner from heat immediately. (7) Open petcock or take off weighted gauge at once to release steam. Then unfasten cover, tilting far side up so steam escapes away from your face. Remove cans.

**YIELD OF CANNED MEAT FROM FRESH**—The number of cans you get from a given amount of raw meat varies with the size of the pieces and the way the meat is packed. For a No. 3 can allow approximately the following amounts of fresh, untrimmed meat with bone or ready-to-cook chicken:

Beef: Round.....	3 to 3-1/2 pounds
Rump.....	5 to 5-1/2 pounds
Pork loin.....	5 to 5-1/2 pounds
Chicken: Canned with bone.....	3-1/2 to 4-1/4 pounds
Canned without bone.....	5-1/2 to 6-1/4 pounds

**DIRECTIONS FOR MEAT**—Directions for canning cut-up meat may be used for beef, veal, pork, lamb and mutton. Meat from large-game animals may be canned by the same directions. Use tender meat—loin and cuts suitable for roasts, steaks and chops—for canning as large pieces. Use less tender cuts that contain more connective tissue and small pieces for canning as stew meat or ground meat. Use bony pieces for soup.

**CUT-UP MEAT**—Cut tender meat into can-length strips. Strips should slide into cans easily, with the grain of the meat running the length of the container. Strips may be any convenient thickness, from 1 or 2 inches to can width.

Cut less tender meat into chunks or small pieces suitable for stew meat.

Small, tender pieces may be packed by themselves, with meat strips, or with stew meat.

**HOT PACK**—Put meat in large shallow pan; add just enough water to keep from sticking. Cover pan. Precook meat slowly until medium done. Stir occasionally, so meat heats evenly.

Pack hot meat loosely. Leave 1/2 inch of space above meat. Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Fill cans to top with boiling meat juice, adding boiling water if needed. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—  
#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

**RAW PACK**—Cut up meat. Pack containers loosely with raw, lean meat.

Pack tin cans to top. To exhaust air, cook raw meat in cans at slow boil to 170° F., or until medium done (about 50 minutes). Press meat down 1/2 inch below rim, and add boil-

ing water to fill to top, if needed. Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Seal cans. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

**GROUND MEAT**—For grinding, start with fresh, clean, cold meat. Use small pieces of meat from less tender cuts.

Never mix leftover scraps with fresh meat. Don't use lumps of fat.

If desired, add 1 level teaspoon of salt per pound of ground meat. Mix well.

**HOT PACK**—Shape ground meat into fairly thin patties that can be packed into cans without breaking.

Precook patties in slow oven (325° F.) until medium done. (When cut at center, patties show almost no red color). Skim fat off drippings; do not use fat in canning.

Pack patties to 1/2 inch of top of cans. Cover with boiling meat juice to fill cans to top; seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

## GROUND MEAT (Continued)

**RAW PACK**—Pack raw ground meat solidly to the top of the can. To exhaust air, cook meat at slow boil to 170° F., or until medium done (about 75 minutes). Press meat down into cans 1/2 inch below rim. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 100 minutes #2-1/2 or 3 cans... 135 minutes

## SAUSAGE

**HOT PACK**—Use any tested sausage recipe. (A recipe is given in Farmers' Bulletin 2138, "Slaughtering, Cutting and Processing Pork on the Farm." U.S. Department of Agriculture).

Use seasonings sparingly because sausage changes flavor in canning and storage. Measure spices, onion and garlic carefully. Omit sage—it makes canned sausage bitter.

Shape sausage meat into patties. Precook, pack and process as directed for hot-packed ground meat.

## CORNER BEEF

**HOT PACK**—Use any tested recipe to make corned beef. (see Farmers' Bulletin 2209, "Slaughtering, Cutting and Processing Beef on the Farm." U.S. Department of Agriculture).

Wash corned beef. Drain. Cut in pieces or strips that fit in containers.

Cover meat with cold water and bring to a boil. If broth is very salty, drain meat; boil again in fresh water. Pack while hot.

Leave 1/2 inch of space above meat. Fill cans to top with boiling broth or boiling water. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

**DIRECTIONS FOR POULTRY**—May be used to can chicken, duck, goose, guinea, squab and turkey. These directions also apply to game birds. Domestic rabbits and small-game animals should be canned like poultry. Poultry, rabbits and small-game animals may be canned with or without bone. To make soup stock from poultry for canning, follow directions for meat.

**DIRECTIONS FOR CUTTING UP POULTRY**—Rinse poultry thoroughly in cold water and drain. Use a sharp knife to disjoint bird. Pull on leg or wing as you cut through the joint. Cut from end of breastbone to backbone along ends of ribs. Separate breast and back. Break backbone; cut back in half. Cut breast straight down between wishbone and point of breast. Leave meat on wishbone. Remove breast meat from center bone by carving down the bone on one side of breast. Repeat on other side of breastbone. Cut legs into drumsticks and thighs. Saw drumsticks off short, if desired. Sort into meaty and bony pieces; set aside giblets to can separately. Use bony pieces for broth. See How to Make a Broth under CANNING METHODS.

## CUT-UP POULTRY - HOT PACK, WITH BONE

Bone breast. Saw drumsticks off short. Leave bone in other meaty pieces. Trim off large lumps of fat.

Place raw meaty pieces in pan and cover with hot broth or water. Put on lid. Heat, stirring occasionally until medium done. To test, cut piece at center; if pink color is almost gone, meat is medium done.

Pack poultry loosely. Place thighs and drumsticks with skin next to tin. Fit breasts into center and small pieces where needed.

Pack cans, leaving 1/2 inch of space about poultry. Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Fill cans to top with boiling broth. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 55 minutes #2-1/2 or 3 cans... 75 minutes

**HOT PACK, WITHOUT BONE**—Cut up poultry. Remove bone—but not skin—from meaty pieces either before or after precooking.

Pack loosely, leaving 1/2 inch above poultry. Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Fill cans to top with boiling broth. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

**RAW PACK, WITH BONE**—Cut up poultry. Bone breast. Saw drumsticks off short. Leave bone in other meaty pieces. Trim off large lumps of fat.

Pack raw poultry loosely. Place thighs and drumsticks with skin next to tin. Fit breasts into center and small pieces where needed.

Pack cans to top. To exhaust air, cook raw poultry in cans at slow boil to 170° F., or until medium done (about 50 minutes). Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Seal cans. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 55 minutes #2-1/2 or 3 cans... 75 minutes

## MEAT-VEGETABLE STEW

### RAW PACK—

Beef, lamb or veal, cut in 1-1/2-inch cubes..... 2 quarts  
Potatoes, pared or scraped, cut in 1/2-inch cubes.. 2 quarts  
Carrots, pared or scraped, cut in 1/2-inch cubes.. 2 quarts  
Celery, 1/4-inch pieces..... 3 cups  
Onions, small whole, peeled..... 7 cups  
Combine ingredients. Yield is 7 #3 cans or 14 #2 cans.

Fill cans to top with raw meat-vegetable mixture. Do not add liquid. Add salt if desired: 1/2 teaspoon to No. 2 cans or 1 teaspoon to No. 2-1/2 or 3 cans. To exhaust air, cook stew at slow boil to 170° F., or until medium done (about 50 minutes). Seal cans. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 40 minutes #2-1/2 or 3 cans... 45 minutes

### HEART AND TONGUE

**HOT PACK**—Heart and tongue usually are served as fresh meat. To can, prepare as described below; then follow hot pack directions for Cut-up Meat.

Heart—Remove thick connective tissue before cutting into pieces.

Tongue—Drop tongue into boiling water and simmer about 45 minutes or until skin can be removed. Then cut into pieces.

### SOUP STOCK

**HOT PACK**—For canning, make meat stock fairly concentrated. Cover bony pieces of meat (or chicken) with lightly salted water. Simmer until tender.

Skim off fat. Remove all bones. Leave meat and sediment in stock.

Fill cans to top with boiling soup stock. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 20 minutes #2-1/2 or 3 cans... 25 minutes

**RAW PACK, WITHOUT BONE**—Cut up poultry. Remove bone—but not skin—from meaty pieces before packing containers.

Pack raw poultry to top of cans. To exhaust air, cook poultry in cans at slow boil to 170° F., or until medium done (about 50 minutes). Add salt if desired: 1/2 teaspoon to No. 2 cans or 3/4 teaspoon to No. 2-1/2 or 3 cans. Seal cans. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes #2-1/2 or 3 cans... 90 minutes

### GIBLETS

Use No. 2 cans. Wash and drain giblets. Pack gizzards and hearts together. Precook and pack livers separately to avoid blending of flavors.

**HOT PACK**—Put giblets in pan; cover with hot broth or hot water. Cover pan and precook giblets until medium done. Stir occasionally. Pack hot.

Leave 1/2 inch of space above giblets. Fill cans to top with boiling broth or boiling water. Seal. Process in a pressure canner at 10 pounds pressure (240° F.)—

#2 cans... 65 minutes

## QUESTIONS AND ANSWERS

- Q. Why is open-kettle canning not recommended for fruits and vegetables?
- A. In open-kettle canning, food is cooked in an ordinary kettle, then packed into hot jars and sealed without processing. For vegetables, the temperatures obtained in open-kettle canning are not high enough to destroy all the spoilage organisms that may be in the food. Spoilage bacteria may get in when the food is transferred from kettle to jar. Open-kettle is safe ONLY FOR COOKED JELLIES.
- Q. Is it safe to use home canned food if liquid is cloudy?
- A. Cloudy liquid may be a sign of spoilage. But it may be caused by the minerals in hard water, or by starch from overripe vegetables. If liquid is cloudy, boil the food. Do not taste or use any food that foams during heating or has an off odor.
- Q. Why does canned fruit sometimes float in jars?
- A. Fruit may float because pack is too loose or sirup too heavy; or because some air remains in tissues of the fruit after heating and processing.
- Q. Is it safe to can foods without salt?
- A. Yes. Salt is used for flavor only and is not necessary for safe processing.
- Q. What makes canned foods change color?
- A. Darkening of foods at the tops of jars may be caused by oxidation due to air in the cans or by too little heating or processing to destroy enzymes. Overprocessing may cause discoloration of foods throughout the containers.  
Pink and blue colors sometimes seen in canned pears, apples and peaches are caused by chemical changes in the coloring matter of the fruit.  
Iron and copper from cooking utensils or from water in some localities may cause brown, black and gray colors in some foods.  
When canned corn turns brown, the discoloring may be due to the variety of corn, to stage of ripeness, to over-processing or to copper or iron pans.  
Packing liquid may dissolve coloring materials from the foods. The use of plain tin cans will cause some foods to lose color.
- Q. Is it safe to eat discolored canned foods?
- A. The color changes noted above do not mean the food is unsafe to eat. However, spoilage may also cause color changes. Any canned food that has an unusual color should be examined carefully before use.
- Q. Does ascorbic acid help keep fruits and vegetables from darkening?
- A. Yes. The addition of 1/4 teaspoon of crystalline ascorbic acid (Vitamin C) to a quart of fruit or vegetable before it is processed retards oxidation, which is one cause of darkening of canned foods. One teaspoon of crystalline ascorbic acid weighs about 3 grams (or 3,000 milligrams).
- Q. Is it all right to use preservatives in home canning?
- A. No. Some canning powders or other chemical preservatives may be harmful.
- Q. Why do the undersides of metal lids sometimes discolor?
- A. Natural compounds in some foods corrode the metal and make a brown or black deposit on the underside of the lid. This deposit is harmless.
- Q. When canned or frozen fruits are bought in large containers, is it possible to can them in smaller containers?
- A. Any canned or frozen fruit may be heated through, packed and processed the same length of time as recommended for hot packs. This canned food may be of lower quality than if fruit had been canned when fresh.
- Q. Is it safe to leave food in tin cans after opening?
- A. Yes. Food in tin cans needs only to be covered and refrigerated.
- Q. Is the processing time the same no matter what kind of range is used?
- A. Processing times and temperatures in this bulletin are for canning in a pressure canner or boiling-water bath with any type of range.
- Q. Can fruits and vegetables be canned without heating if aspirin is used?
- A. No. Aspirin cannot be relied on to prevent spoilage or to give satisfactory products. Adequate heat treatment is the only safe procedure.
- Q. Why must a pressure canner be used for canning meat and poultry?
- A. To insure a safe product. It takes a combination of high temperature and sufficient processing time to make sure of killing bacteria that cause dangerous spoilage in canned meat and poultry. The only practical way to get the necessary high temperature is to use a pressure canner.
- Q. How should meat and poultry for canning be handled?
- A. Keep meat and poultry clean and sanitary. Chill at once and keep cold until canning time.
- Q. Is it safe to can meat and poultry without salt?
- A. Yes. Salt is used for flavor only and is not necessary for safe processing.
- Q. Is it possible to can frozen meat or poultry?
- A. Yes, frozen meat or poultry may be canned. See directions under HOW TO CAN MEAT AND POULTRY, Getting Ready.

# INDEX

Altitude, various, canning at.....	2	Peaches.....	4
Apples.....	4	Pears.....	4
Applesauce.....	4	Peas, fresh blackeye.....	7
Apricots.....	4	Peas, fresh green.....	7
Ascorbic acid.....	6, 11	Plums.....	4
Asparagus.....	5	Pork.....	9
Aspirin.....	11	Potatoes.....	7
Beans, dry.....	6	Poultry.....	8, 10
Beans, fresh lima.....	6	Preservatives.....	11
Beans, snap.....	6	Processing.....	2
Beef.....	9	Pumpkin.....	7
Beef-Vegetable stew.....	10	Purees, fruit.....	4
Beets.....	6	Rabbit.....	10
Berries.....	4	Raw Pack.....	2
Botulinus poisoning.....	8	Recanning fruit.....	11
Broth.....	9	Rhubarb.....	5
Cans, see Tin Cans.....		Salt.....	9, 11
Canning Methods.....	9	Sausage.....	10
Carrots.....	6	Sealer, tin-can, testing.....	2
Cherries.....	4	Sealing cans.....	2
Chilling meat.....	8	Seals, testing.....	2
Cold Pack.....	2	Sirup, corn.....	4
Cooling.....	2	Sirup, sugar.....	3
Corn.....	6	Small game.....	10
Corned beef.....	10	Soup stock.....	10
Discoloration, causes.....	11	Spoilage.....	8, 11
Equipment.....	3, 8	Squash.....	7
Exhausting.....	2	STEAM PRESSURE CANNER—	
Fat.....	9	care.....	3, 8
Frozen fruits, canning.....	11	for processing fruit.....	3, 11
Frozen meat, canning.....	8	for processing meat.....	8, 9
FRUIT—		processing.....	5
floating, cause.....	11	Stew.....	10
how to can.....	3	Storage.....	3
juices.....	4	SUGAR—	
preparation for canning.....	3	canning without.....	4
purees.....	4	in canning fruit.....	3
yield of canned from fresh.....	4	Sweet Potatoes.....	7
Gauge.....	3, 8	Thermometer.....	8
Giblets.....	10	TIN CANS—	
Headspace.....	2	cooling.....	2
Heart.....	10	exhausting.....	2
Hominy.....	6	filling.....	3
Honey, used in canning.....	4	holding food in opened can.....	11
Hot Pack.....	2	packing.....	3, 9
Inspecting cans.....	2	preparing for use.....	2
JUICES—		processing.....	2, 5, 9
fruit.....	4	sealing.....	2
tomato.....	5	use.....	2, 8
Lamb.....	9	Tomatoes.....	5
Lamb-Vegetable stew.....	10	Tomato juice.....	5
Large game.....	9	Tongue.....	10
Lima beans, fresh.....	6	Veal.....	9
LIQUID—		Veal-Vegetable stew.....	10
cloudy.....	11	VEGETABLES—	
cooking, when to use.....	3, 9	how to can.....	3
loss in canning.....	9, 11	preparation for canning.....	3
MEAT—		yield of canned from fresh.....	5
how to can.....	8	WATER-BATH CANNER—	
preparation.....	8	preparing for use.....	3
yield of canned from fresh.....	9	processing in.....	4
MEAT, cut up—			
hot pack.....	9		
raw pack.....	9		
MEAT, ground—			
hot pack.....	9		
raw pack.....	10		
Meat-Vegetable stew.....	10		
Mushrooms.....	6		
Mutton.....	9		
Okra.....	7		
Open-kettle canning.....	11		
Oven canning.....	11		
PACKING—			
fruits.....	3		
meat.....	9		
poultry.....	10		
vegetables.....	5		