

HOME CANNING

Fruits and Vegetables

Before you start, remember—

● The cleaner the product, the more effective will be your canning process.* Scale asparagus; pick spinach over carefully and cut off root ends to dislodge dirt. Put greens in wire basket in water and lift to fresh water, repeating several times, or wash with strong spray. Handle all vegetables gently, as bruising causes flavor loss.

● Spoilage organisms may develop on utensils as they are being used, especially if the product is starchy, juicy, or milky. When you can vegetables with these characteristics, after each pressure cooker load, wash, scald, and rinse utensils and kitchen table. Wood, being porous, is hard to keep clean, and, therefore is not desirable for canning utensils or work surfaces.

● Salt adds flavor only, and does not help preserve the canned product. Sugar, if desired, should be added when the vegetable is used, **never** canned with it.

● Low-acid products such as vegetables, meat, and fish should be canned by pressure cooker method because dangerous organisms sometimes present are not readily killed at boiling water temperature.

Before opening jars, examine for leakage or bulging. Note odor. Burn if spoiled. **Boil before tasting** even if there are no apparent signs of spoilage. Make sure every part of the vegetable reaches boiling point. It may require 10 to 15 minutes boiling for some products. Vegetables to be used for salad should be boiled and cooled.

* If canning for public use, consult State Department of Agriculture, Dairy and Food, State Office Building, St. Paul 1, Minneapolis.

YOUR PRESSURE COOKER

All vegetables (for tomatoes, sauerkraut, peppers, see section on fruits) should be canned under pressure, as boiling water is not hot enough to kill all spoilage organisms which may be present.

Condition your pressure cooker before the canning season starts. Have gauge and safety valve tested, all parts cleaned, and broken or missing parts replaced. Your County Extension Service may have a plan for checking pressure cookers. If it does not, remove gauge and safety valve from cooker and send them, postpaid and insured, with cash for return postage and insurance to: **Dr. G. A. Vacha, State Department of Agriculture, Dairy and Food, State Office Building, St. Paul 1, Minnesota.**

When gauge and safety valve are returned, replace carefully so that you will not strip threads.

Order new parts from manufacturer or hardware dealer. Gauges, safety valves, and petcocks are usually interchangeable among different makes of pressure cookers, but check before you buy.

Follow the manufacturer's instructions for opening and closing the pressure cooker. Follow pressure and timetables given in this folder.

Use an accurate thermometer for testing the temperature of the jars. A dairy, meat, sugar, or fat thermometer may be used if it is accurate, readable at 180° F. and can be inserted in the filled jar.

Step by Step from Seed to Jar

PLANT varieties desirable for canning (see Ext. Bul. 174. *The Home Vegetable Garden*).

ASSEMBLE AND WASH equipment and containers before vegetables are gathered. Examine jars and covers for nicks, cracks, rough edges, or other irregularities. Buy new rubbers and lids.

GATHER VEGETABLES EARLY, at peak quality and only as many as you can handle within two or three hours.

PREPARE as for table use, keeping vegetables cold until you are ready to can. They may be spread out on newspapers on cellar floor.

PACK THE JARS. Preheat vegetables in rapidly boiling water, pack hot into hot jars, and cover with boiling water. Allow $\frac{3}{4}$ -inch headspace. Work fast so product will not cool. Fill jar at once, set into the pressure cooker containing two inches of boiling water. As last jar is filled, test its temperature with a thermometer. If temperature of jar is 180° F., complete seal on all jars. If it is less than 180° F., continue heat until 180° F. is reached, then seal. When jar is removed from cooker, do not tighten the cover as you might break seal.

The temperature of the jar must be as high as 180° F. if completely sealed before processing. If you have no thermometer, complete the seal

before processing **only** on those jars closed with a **metal lid with screwband (self-seal type)**. **Partially seal** all others and finish sealing when processing is completed. When the jar is tightly sealed before processing, less liquid is lost.

Alternative method of pre-heating:

PACK raw, cold vegetables into clean, hot jars.

PACK crisp, green vegetables tightly to the top of the jar, as these will shrink.

PACK starchy vegetables loosely to within an inch of the top as these will swell.

PLACE open jars on rack in water bath or pressure cooker containing hot water to within two inches of rim of jars. Fill jars to overflowing with boiling water.

Cover the kettle and heat until the temperature at center of jar is 180° F. Test with a thermometer. If the product has shrunk leaving more than ¾-inch headspace, add some from another jar. If the jar is too full, remove some of product. Add boiling water to cover the product.

SEAL JARS. Put at once on rack in pressure cooker containing two inches of boiling water.

To seal jars.

- a. Self-seal type (metal lid edged with sealing compound, held in place with screwband). Wipe rim of jar, using a clean cloth dipped in boiling water. Put lid on jar, center carefully, and hold in place while screwing band on tight. Do not force. Do not tighten after processing. A vacuum forms as the jar cools and this seals the lid.
- b. Zinc caps with porcelain lining. Place rubber on shoulder of jar. Press it flat, using the blade of a knife. Screw cap down tight.* Do not force.
- c. Glass lid with top seal rubber and screw band. Wipe rim of jar. Place lid with rubber flat next to rim of jar. Center it carefully and hold while screwing metal band on tight.* Do not force.
- d. Lightning-type jars. Fit rubber jar ring flat on edge at top of jar, put on glass lid. Push long wire over top of lid into groove; push short wire down. For partial seal leave short wire up until processed.

You are now ready to "process."

Place jars on rack in cooker containing 2 inches of boiling water. Arrange jars so that they do not touch each other or sides of cooker. Fasten pressure cooker lid. Open petcock, close safety valve. Turn heat on full until steam flows from petcock in a steady stream for 7 to 10 minutes. At first, a mixture of steam and air are released which appears as a white vapor or cloud. When air is all driven out, the steam becomes almost invisible for 1 to 2 inches above the petcock. This is time to close petcock.

* If temperature is not known to be 180° F., turn back one half inch.

Timetable 1—Processing Nonacid Vegetables

PRODUCT	PACKING METHOD <small>Work rapidly. Place jars on rack in pressure cooker. Temperature of the product should be near boiling or not less than 180° F. when jar is sealed and placed in cooker.</small>	USE 10-POUND PRESSURE				
		PRESSURE COOKER				PRESSURE SAUCEPAN
		Glass Jars		Tin Cans		Glass Jars
		Pints	Quarts	#2	#3	Pints
		Min.	Min.	Min.	Min.	Min.
Asparagus*	Tie tender stalks in bundles. Stand upright with tough portion in boiling water. Boil 2 to 3 minutes. Pack hot; cover with boiling water. (May be cut in half-inch lengths.)	25	35	20	§	45
Beans Green Limas†	Can only young, tender Lima beans. Shell, cover with boiling water, and bring to boil. Pack hot; cover with boiling water.	35	60	40	40	55
Beans* Snap-green or wax	Wash and cut into pieces. Cover with boiling water and simmer, uncovered, for 5 minutes. Pack hot; cover with fresh boiling water.	20	25	25	30	40
Beans* Green soybeans, shelled	Cover with boiling water; boil 3 or 4 minutes. Pack hot; cover with boiling water.	60	70	50	65
Beans Dried† kidney or navy	Soak overnight. Blanch in boiling water for 3 or 4 minutes. Drain. Fill containers, leaving 1½-inch head space. Cover with boiling water, add salt, and sugar, or molasses, if desired.	80	90	70	85
Beets‡ (Only small young beets)	Trim off tops but leave 1 inch of stems and all of roots. Wash; boil for 15 minutes, or until the skins slip easily. Skin, trim, pack into containers, and fill with boiling water. If large beets are used, pare raw, cut, preheat in boiling water, pack hot, and cover with boiling water.	25	35	30	30	45
Carrots‡	Scrape and slice, dice, or leave whole. Cover with boiling water; boil 5 minutes. Pack hot; cover with hot liquid.	20	25	20	25	40
Corn‡ Whole-grain Cream style	Cut corn from cob deeply enough to remove most of the kernel. Do not scrape cob. To each quart of corn add 1 pint boiling water. Heat to boiling and pack. Leave 1-inch head space. Too hard to process. Not recommended.	55	65	50	§	75
Greens, including spinach*	Pick over greens, wash carefully in several waters, lifting the greens out each time. Cover with boiling water, heat to simmering (not boiling), and cook, uncovered, for 5 minutes. Pack hot, placing loosely in jar. With a long, sharp, freshly scaled knife, cut through packed greens. Cover with boiling water.	45 at 10 lbs.	70 at 10 lbs.	60 at 10 lbs.	75 at 10 lbs.	65 at 10 lbs.
Peas, Green*	Shell, wash, add water to cover, and simmer about 5 minutes. Pack hot; cover with boiling water. (Peas become overcooked and mushy in quart jars or No. 3 tin cans.)	40	§	30	§	60
Pumpkin‡ or Squash	Wash, peel, and cut into 1-inch cubes. Add boiling water, and simmer until heated through, stirring occasionally. Pack hot; cover with boiling water.	60	80	75	90	80

For peppers, sauerkraut, and tomatoes, see timetable 2.

When using tin cans:

* Use plain tin.

† Use C enamel cans.

‡ Use R or sanitary enamel.

§ Not recommended.

Timetable 2—Processing Fruits and Tomatoes in Boiling Water at 212° F

PRODUCT	PACKING METHOD All precooked fruits should be packed hot. Temperature at center of jar should be near boiling or not less than 180° F. when processing starts. Sugar is not necessary to keep fruit from spoiling. Process unsweetened fruit the same as sweetened.	Pt. and Qt. Glass Jars	Tin Cans	
			#2	#3
Apples*	Pare, core, cut into pieces. To keep from darkening, place in salt bath (2 tablespoons salt and 2 tablespoons vinegar to 1 gallon of water). Drain. Use one of the three following methods: 1. Steam, or precook for 5 minutes in thin sirup or water—cover with boiling sirup or water 2. Bake or boil whole; pack in hot thin sirup 3. Or make apple sauce, sweetened or unsweetened; pack hot	Min. 20 10 10	Min. 10 12 6	Min. 10 15 10
Blackberries† Blueberries Raspberries Gooseberries Currants	1. Pack raw, press gently into jars, and cover with thin or medium hot sirup made by using juice from small, imperfect berries 2. Precook by boiling with sugar 3-4 minutes; stir gently. Use from ¼ to ½ cup of sugar for each quart of fruit. Pack boiling hot, add juice Exception—currants and gooseberries: pack in sirup; process 15 minutes.	20 5	15 6	15 10
Cherries*	1. Pit, simmer for 5 minutes, sugar added, and pack boiling hot 2. If unpitted, prick, pack in hot containers, and cover with thin or medium hot sirup, depending on the sweetness of the fruit	10 25	10 20	10 20
Fruit Juices† Berries, Cherries, Currants, Grapes, Plums, Rhubarb	Wash, drain, crush fruit. Add ½ cup water per 1 pound of firmer fruits (no water for soft fruits). Heat to simmering, hold 5 minutes. Strain through cloth bag. Heat juice again to simmering. Fill hot sterilized jars to ¼ inch of top. Process in water bath.	10 (pt.) 15 (qt.)	Not recommended	
Peaches* or Apricots*	Peel and cut into halves. Remove pits. To keep from darkening, place in salt solution, same as apples. If fruit is juicy, add ½ cup sugar to each quart of raw fruit. Heat to boiling. For less juicy fruit, drop into thin to medium sirup, boiling hot, and just heat through. Pack hot, cover with sirup.	15	15	15
Pears*	Peel, cut into halves, core. Same as less juicy peaches.	15	15	15
Pimientos (ripe)† and Sweet Peppers	Place in hot oven (450° F.) for 6 to 8 minutes, then dip into cold water. Slip off skins, remove stems and seed cores. Fold and pack into containers; add ½ teaspoon of salt to each pint. Add no liquid.	40 (pt.)	30 (#1)	
Plums†	1. Wash, prick, pack into containers, and cover with hot medium sirup 2. Cook with sugar to taste. Pack boiling hot	20 15	15 15	15 15
Rhubarb†	Trim, wash, and cut into ½ inch pieces. 1. Add ½ cup sugar to each quart of rhubarb and let stand to draw out juice. Bring to boil. Pack hot; cover with hot juice 2. Add one fourth as much sugar as rhubarb by measure and bake until tender in a covered dish. Pack hot	10 10	10 10	10 10
Sauerkraut*	Heat to simmering but do not boil. Pack closely into containers while hot. Cover with hot juice leaving ¼-inch head space.	25 (pt.) 30 (qt.)	15	30
Strawberries*	Wash and stem. To each quart of fruit add ¾ cup of sugar. Bring slowly to boiling point; remove from stove. Let stand overnight. In the morning bring quickly to simmer, pack hot, and cover with juice.	10	10	10
Tomatoes	Scald just long enough to loosen skins; then plunge into cold water. Drain, peel, and core. 1. Pack closely and press with spoon until covered with juice 2. Cut in quarters, heat just to boiling, and pack hot	45 35	45 35	55 35
Tomato Juice	Use ripe but sound tomatoes. Wash, remove stem ends, cut into pieces. Simmer until softened. Put through a fine sieve. Add 1 teaspoon salt to each quart. Reheat at once just to boiling. Fill into hot jars or bottles at one. Leave ¼-inch head space.	30	35	45

NOTE—Ascorbic acid, ½ teaspoon per quart of sirup, will help to retain color of peaches and apricots.

When using tin cans:

* Use plain tin for apples, apricots, peaches, pears, pineapple, sauerkraut, and tomatoes.

† Use R enamel cans for berries, cherries, plums, pimientos, rhubarb, and grape juice.

Raise pressure rapidly to 3 pounds less than required, reduce heat, and bring up the last 3 pounds slowly to avoid overpressure. Hold at 10-pound pressure. Fluctuating pressure causes loss of liquid. When time is up, remove cooker from heat and let cool gradually until the dial registers zero. Open petcock at once. Wait a half minute. Open cooker. Wait 10 minutes, remove jars, using jar tongs. If petcock is not opened immediately when the pressure has dropped to zero, a vacuum forms which may draw liquid from jars and lock the lid to the cooker.

If jars were not sealed, remove them at once and complete the seal as mold may be drawn into jars by suction. Place jars upright on perfectly dry, non-metallic surface (newspapers may be used), spaced for free circulation of air.

Test seals when jars are thoroughly cool. Wash, dry, and label. Store where cold, but not freezing. A china marking pencil may be used for labeling.

Pressure saucepan canning.

The pressure saucepan is made especially for cooking, but can be used for canning small quantities of food if it has a pressure gauge which registers 10 pounds accurately and is large enough to hold pint jars on a rack with cover locked in place.

Because pressure saucepan heats and cools rapidly, time used for pressure saucepan canning is longer than for the large pressure canner.

Prepare jars and process the same as for pressure canner. When processing is finished, allow pressure to drop naturally. Do not run water over cover as this may draw liquid from the jars.

HOT WATER BATH PROCESS—TIMETABLE 2

Use only for acid products, such as fruits, tomatoes, and sauerkraut

For hot water bath, use a straight-sided kettle deep enough to allow jars on rack to be covered 1 or 2 inches with boiling water. Use close fitting cover.

1. Use same method as for pressure cooker in (1) packing hot in hot jars, and (2) adjusting jar lids.

2. Have water in water bath very hot but not boiling. Place hot jars on rack. Keep the water an inch or more over the top of the jars. If water evaporates, add boiling, not cold, water. Count time when water begins to boil; keep at rolling boil.

3. Remove jars from water bath; seal if lids are not self-seal or if jars were not packed at 180° F. and sealed. Cool and store right side up where cool and dark.

UNIVERSITY FARM, ST. PAUL 1, MINNESOTA

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