

50th

891

War-time HOME Canning

ALDA 77

of FRUITS & VEGETABLES

50th Anniversary

PREPARED BY THE CONSUMER SECTION

Marketing Service

DOMINION DEPARTMENT OF AGRICULTURE
OTTAWA

Honourable JAMES G. GARDINER, Minister

THE IMPORTANCE OF HOME CANNING IN WARTIME

Food is precious. None must be wasted. Therefore, as much as possible of Canada's perishable fruits and vegetables should be canned for use throughout the winter. The aim in canning fruits and vegetables is to prevent spoilage while preserving their natural shape, colour and fresh flavour. In order to avoid waste of sugar or fruit, extra care should be taken to follow directions given in this bulletin prepared especially for wartime canning. If this is done, even the beginner may feel confident of successful results. Before commencing to can for the season, READ ALL DIRECTIONS CAREFULLY—marking those sections dealing with the particular methods and equipment you will be using.

APPROXIMATE YIELDS OF CANNED FRUIT

Kind of Fruit	Type of Standard Container (Box, basket, etc.)	Weight of Fruit	Approx. No. Qts. Canned Fruit
		POUNDS	QUARTS
Berries, including Currants	12 qt. boxes	15	12
	24 pt. baskets (crate)*	15	12
Apricots	Box (crate)*	20	11
Crabapples	6 qt. basket (flat)	7	4
	11 qt. basket (flat)	14	9
	Box*	36	23
Cherries	6 qt. basket (flat)	8	5
	4 basket crate*	20	15
	Small box*	15	11
	Large box*	25	18
Peaches	6 qt. basket (heaped)	10	5
	Box (crate)*	20	10
Pears	6 qt. Basket (heaped)	11	5
	11 qt. basket (flat)	15	7
	Box*	42	23
Plums	6 qt. basket (flat)	8	4
	6 qt. basket (heaped)	11	6
	Small box*	15	9
	4 basket crate*	20	12
Prunes	6 qt. basket (flat)	8	4
	6 qt. basket (heaped)	11	6
	Small box*	15	9

*British Columbia fruit containers

QUALITY OF FRUITS AND VEGETABLES

The fresher the vegetables and fruit the better will be the canned product and the smaller the chance of failure.

VEGETABLES should be canned within a few hours of gathering. Pack only tender, young vegetables. Green or wax beans should be canned before the beans develop in the pod, asparagus before the stalks become woody. Peas should be freshly picked and not too ripe, and corn should be canned while the kernels are soft and tender.

FRUIT, well formed and mature, is best for canning. Under-ripe fruit is often of poor flavour and texture. Over-ripe fruit will be soft, broken and unattractive.

EQUIPMENT

PROCESSORS:

The processor may be a water bath, pressure cooker, steamer or thermostatically controlled oven.

UTENSILS:

Sharp knives, preferably stainless steel, a colander, bowls, measuring cups and spoons, towels, enamel pie plates and wooden spoons are essential. Additional utensils such as a jar lifter, wide-mouth funnel, strawberry huller, cherry pitter, small brush and wire basket are useful.

CONTAINERS:

There are two types of containers which may be used—glass sealers and tin cans.

GLASS SEALERS: Several types are available. All are equally satisfactory if they can be made completely air tight.

SCREW TOP SEALER: With glass lid, rubber ring and metal screw band.

SPRING TOP SEALER: With glass lid, rubber ring and metal bails.

VACUUM TYPE SEALER: Having either metal lid with metal screw band, or glass lid with clamp.

The glass jars in which mayonnaise, pickles and other commercial products are packed are not satisfactory for home canning since a perfect seal cannot be made. These, however, are excellent containers for jams, jellies and pickles.

TIN CANS: There are three types of tin cans sold.

PLAIN CAN is a general-purpose can which may be used for all foods.

R ENAMELLED CAN has a special coating designed to retain the natural color of red berries, cherries and beets.

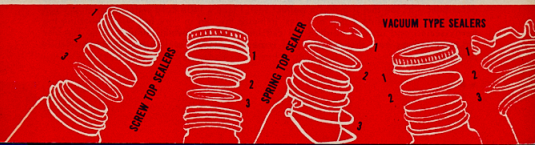
C ENAMELLED CAN has been developed to prevent discoloration in corn. C Enamelled Cans may also be used for green beans, peas, red kidney beans and succotash, but NOT for fruits or tomatoes.

1. Metal Screw Band
2. Glass Lid
3. Rubber Ring

1. Glass Lid
2. Rubber Ring
3. Wire Bails

1. Metal Screw Band
2. Metal Lid

1. Metal Clamp
2. Glass Lid
3. Rubber Ring



STEPS IN CANNING

1. Checking equipment

Check over equipment and have everything ready to use before starting to can.

2. Testing containers

GLASS SEALERS: Every part of the sealer—the sealer itself, the glass or metal lid, the rubber ring and metal screw band or wire bail, should be carefully examined and, with parts fitted together, each sealer should be tested for leakage before using. See that the sealer is not cracked and that the rim or glass lid is not chipped. Be sure that the wire bail on the spring top sealer springs into position with a snap. Use new metal screw bands for screw top sealers to replace any which have become cracked or corroded. If covers do not fit well exchange covers until the best possible fit is obtained.

Rubber rings are made in two thicknesses and widths—the thinner ring measures 14 to the inch when placed one on top of the other, and the thicker ring 12 to the inch. The rings are known as "14 cut" and "12 cut" respectively. Either rings may be used with screw top sealers, but only the "12 cut" ring should be used with spring top sealers. Buy the rings which will fit the sealers being used for canning. The boxes of rings are marked with the "cut" or the sealers on which the rings should be used are listed. Examine the rings carefully. If a ring appears uneven in thickness, irregular in shape or very narrow in width, discard it.

TO TEST SEALERS:

1. Place glass lid on sealer and see if it rocks. (This test applies to spring top sealers and to Crown and Corona screw top sealers which have a glass top fitting down on the sealer rim flange.) If it does, use a 12 cut ring instead of the 14 cut on this sealer. A sealer with slight irregularity will often seal perfectly if a 12 cut ring is used.
2. Put rubber ring and glass lid in place and examine the fit of the ring at all points. The ring must contact the glass surfaces at every point when the cover is held in place with the fingers. There must be no point at which either the sealer or the lid extends beyond the edge of the rubber ring.
3. Half fill the sealer with water, put rubber ring and glass lid in place, seal with metal band or wire bails.
4. Invert to test for leakage. If sealer leaks, repeat test with another lid, ring or band. Keep lids with matching sealers together after they are found to be air-tight.

TIN CANS: See that the rim of the can is smooth and in good condition. If using a can for the second time, it is important that the rim be carefully reflanged. Test the machine occasionally to see that it makes a perfect seal: Place a little cold water in an empty can and seal it. Then, using a pair of tongs, immerse the can in very hot water, keeping the newly-sealed end up and holding the can immersed for several minutes. If no bubbles are seen coming from the can, the seal is perfect and the sealing machine is operating properly.

3. Preparing containers

GLASS SEALERS: Wash sealers thoroughly in hot, soapy water and rinse well with clear hot drinking water. Half-fill each sealer with water. Place glass lids in position and stand sealers on rack in boiler; surround with water, bring to boiling point, leave in the water until ready to fill. If using the oven, put glass tops on empty sealers and place on a tray in oven. Heat to 225° F. Remove from oven as needed, place on dry cloth and allow to cool SLIGHTLY before filling.

RUBBER RINGS AND METAL LIDS: Dip rubber rings, metal screw bands, and metal lids with compound gasket into boiling water.

TIN CANS: Wash thoroughly in hot soapy water, rinse with boiling water and invert to drain.

CAN COVERS: The inside of the edge of the cover is lined with either a paper or compound gasket. Do not put covers into water, but wipe carefully with clean, slightly dampened cloth. Discard a cover if the paper gasket becomes broken or if the compound gasket is scratched or scraped.

4. Preparing fruits and vegetables

GRADING OR SORTING: A fruit or vegetable of uniform size and maturity cooks more evenly and makes a more attractive product. Unripe fruit and tomatoes should be allowed to ripen before canning. Bruised or spotted fruit should not be canned, but if bruises are cut out, the good portion of the fruit may be used for jam or fruit juices. Broken or irregular tomatoes may be made into juice and used as liquid for canned tomatoes.

WASHING: Fruits and vegetables—particularly greens—must be thoroughly washed in several waters. A spray is excellent for washing some vegetables. A small stiff brush is useful in cleaning others. Do not wash too much at one time. Lift from the water instead of draining it off to remove all sand since soil contains bacteria that are difficult to kill. A wire basket is excellent for this purpose, if available.

BLANCHING: This consists of placing peaches or tomatoes in steam or boiling water for 15 to 60 seconds and then dipping in cold water. This sets the colour and loosens the skins so that they will slip off easily. Blanch only sufficient fruit for two or three containers at a time. A wire basket, large strainer or a square of cheesecloth simplifies handling. Rhubarb may be blanched to reduce the acid flavour, set the colour and shrink fruit for a closer pack.

PEELING: Some fruits and vegetables need scraping or peeling with a knife, in which case the thinnest possible portion should be removed.

PREVENTING DISCOLORATION (Brine Bath). As soon as peeled, drop such fruits as peaches, pears and apples in a brine of 1 teaspoon salt to 1 quart cold water. Put in brine only sufficient fruit to fill two or three containers. Long standing in brine gives a definitely salty taste. Change brine as it discolours.

PRECOOKING:

VEGETABLES: Precooking shrinks vegetables to allow a better pack and to ensure quick and thorough heat penetration. Prepare the vegetables as for serving. Precook (see time table, pages 14, 15). Pack immediately, working as quickly as possible. Boiling water may be added if there is not sufficient cooking water to cover the vegetables.

FRUITS: Fruits may be simmered before packing. This is recommended for peaches, pears, apples and cherries, particularly when processed in the oven.

SYRUPS

Estimate the amount of syrup required for fruit to be canned and make syrup before preparing fruit. (See Yield Chart, page 2.)

FOR EACH QUART SEALER ALLOW:

1 to 1½ cups syrup for small fruits.

1½ to 2 cups syrup for large fruits.

TYPES OF SYRUP:

1. Very thin 1 cup sugar to 3 cups water yields approx. 3½ cups
2. Thin 1 cup sugar to 2 cups water yields approx. 2½ cups
3. Moderately thin 1 cup sugar to 1½ cups water yields approx. 2 cups
4. Medium 1 cup sugar to 1 cup water yields approx. 1½ cups

In making any of the above syrups, up to ½ of the sugar may be replaced by an equal quantity of honey; and up to ¼ of the sugar may be replaced by an equal amount of corn syrup.

TO MAKE SYRUP: Add water to sugar, bring to a boil, skim, keep hot.

APPROXIMATE NUMBER OF QUARTS CANNED FRUIT FROM 10 LBS. SUGAR

Type of Syrup	LARGE FRUIT		OR		SMALL FRUIT	
	Amount Syrup per Quart	Quarts Canned Fruit			Amount Syrup per Quart	Quarts Canned Fruit
Very thin	1½ cups	40			1 cup	65
Thin	1½ cups	30			1 cup	45
Moderately thin	1½ cups	27			1 cup	40
Medium	1½ cups	20			1 cup	30

Syrups of varying sweetness are used, depending upon the fruit to be canned.

VERY THIN Syrup is for very sweet fruits such as blueberries and pears.

THIN AND MODERATELY THIN Syrups are for sweet fruits such as strawberries and peaches.

MEDIUM Syrup is for fruits such as sour cherries and plums.

DRY SUGAR METHOD: Half-fill sealer with fruit, then add sugar in small amounts between remaining layers of fruit. Cover fruit with boiling water. This method gives better results with small fruits than with large fruits.

FOR 1 QUART SEALER (Large Fruit)		FOR 1 QUART SEALER (Small Fruit)	
Sugar	Equivalent Syrup	Sugar	Equivalent Syrup
½ cup	Very thin	5 tablespoons	Very thin
¾ cup	Thin	7 tablespoons	Thin
¾ cup	Moderately thin	½ cup	Moderately thin
1 cup	Medium	¾ cup	Medium

CANNING WITHOUT SUGAR

The keeping quality of canned fruit does not depend on the addition of sugar but rather on sufficient processing and the use of airtight sealers. However, the shape, colour and flavour of some fruits are retained better when some sugar is added.

METHOD 1—For small juicy fruits, berries, cherries, rhubarb and juicy plums. Wash and crush part of fruit in bottom of preserving kettle. Add remaining fruit and heat for a few minutes or until juice just starts to flow. If necessary, add a little water to prevent scorching. Pack solidly in sealers, crushing fruit down slightly so that it is covered with juice. Process (see time table, pages 12, 13).

Fruit canned by this method and sweetened to taste is excellent for pies and desserts. This method may also be used for canning with sugar, using the amounts of sugar recommended for dry-sugar canning (see page 6) but eliminating the water.

METHOD 2—For large fruits, such as peaches, pears and plums. Prepare fruit and pack in sealers. Put about 2 inches boiling water in bottom of canner, place uncovered sealers on rack in canner, cover tightly and steam from 20 to 30 minutes or until fruit shrinks and juice flows. Remove sealers, using fruit and juice from one or two sealers to fill the others. If juice does not completely cover fruit, boiling water may be added. Process (see time table, pages 12, 13).

To serve as canned fruit, drain off juice, add water to make two cups of liquid for each quart sealer. Bring to boil, sweeten to taste and pour over fruit. Let stand several hours before using.

DO NOT USE CHEMICALS OR CANNING COMPOUNDS: Airtight containers and sufficient processing are all that is needed to preserve fruits and vegetables satisfactorily. Such chemicals as boric acid, salicylic acid and saccharine are prohibited for commercial canning and may be harmful. Others such as sulphur compounds are restricted in commercial use.

5. Filling containers

Work as quickly as possible when packing food into containers. Fill the containers one at a time. To prevent cracking, place the hot empty sealers on a dry cloth and slowly pour the hot liquid directly on the food. Don't pack vegetables such as corn and peas very tightly as this prevents the heat from penetrating to the centre of the container.

Use one of the two recommended methods of packing—the cold pack or the hot pack.

COLD PACK—Pack the food raw and cold into the container. Cover with hot syrup or juice. Juicy fruits and berries may be packed solidly into the sealers and covered with fruit juice.

HOT PACK—Precook the food and pack while hot (see page 5). Cover fruit with hot syrup, and vegetables with the water in which they were cooked or fresh boiling water. If there is not sufficient of the cooking liquid to cover the vegetable, add some boiling water.

THE OPEN KETTLE METHOD IS NOT RECOMMENDED. With this method the fruit is cooked in an open kettle, packed and sealed without further processing. There is frequent loss due to spoilage because of danger of contamination while filling the sealers.

HEAD SPACE: WITH SPRING TOP AND SCREW TOP GLASS SEALERS AND TIN CANS, fill to within $\frac{1}{4}$ inch of top of containers for all fruits and vegetables except corn and peas, which expand considerably during processing. Allow $\frac{1}{2}$ inch head space for these vegetables.

WITH VACUUM TYPE SEALERS, leave $\frac{1}{2}$ inch head space at top of sealer for all fruits and vegetables except corn and peas. Allow 1 inch head space for these vegetables. AFTER FILLING, run the blade of a knife down and around the inside of the container to remove air bubbles. This allows a fuller pack and helps to prevent discoloration.

Make sure there are no seeds or particles of food adhering to edge of the container. Adjust wet rubber ring, making sure it is flat, then put lid in place and partially seal. For sealers with metal lids, dip the lids in boiling water, put in place immediately and seal.

6. Closing containers

Partially seal spring top and screw top sealers. Completely seal vacuum type sealers and tin cans.

SCREW TOP SEALER: Screw tightly, then loosen slightly, unscrewing not more than one inch.

SPRING TOP SEALER: Adjust the top bail but do not spring down the lower one.

VACUUM TYPE SEALER: Screw metal band tightly or adjust metal clamp.

TIN CANS: Any fruit or vegetable which is not pre-cooked nor covered with hot syrup or juice, should be exhausted.

EXHAUSTING means heating the contents of the can before sealing, to drive the air out of the product. Place filled uncovered cans on a rack in processor with boiling water about 2 inches from the top of the cans. Be sure the water does not bubble into the cans during the exhausting period. Cover processor and keep water simmering until the contents of the cans are heated. Seal with sealing machine according to manufacturer's directions.

NEVER ALLOW FILLED CONTAINERS TO STAND AND GET COOL BEFORE PROCESSING.

7. Processing

Processing is heating the filled containers to a sufficiently high temperature or a sufficiently long time to destroy any bacteria, yeasts or moulds that might cause the food to spoil, and to prevent undesirable changes in food due to enzymes. Processing may be done in Pressure Cooker, Boiling Water Bath, Steamer, or thermostatically controlled Oven.

BE A CLOCK WATCHER. Be sure to allow full processing time. Count time from the minute the gauge on the pressure cooker registers the required pressure, the water in the water bath starts to boil vigorously, or the temperature in the oven reaches 275°F.

PRESSURE COOKER—This cooker is specially designed to heat foods to a higher temperature than can be reached in the Boiling Water Bath, Oven or Steamer. This high temperature kills the spore-forming bacteria which may not be destroyed at boiling temperature in non-acid foods. (See page 16.) For this reason, the pressure cooker is particularly recommended for all vegetables (except tomatoes), meat, fish and poultry. If using a pressure cooker, carefully follow specific directions supplied by the manufacturer.

GENERAL DIRECTIONS:

1. Keep the pressure cooker clean, particularly the openings to the petcock, safety valve and pressure gauge—a toothpick or sharpened match may be used. Never immerse the lid in water.
2. Use sufficient water to provide steam during the necessary processing—usually about 1 inch of water is required.

3. Place filled containers in cooker at least one inch apart. Tin cans may be stacked, but be sure there is good circulation of steam around, over and under them.
4. Adjust lid of cooker and fasten securely. If there are several clamps, fasten in pairs those opposite to each other moderately tightly, then go back over the whole set and tighten each pair.
5. Open petcock and keep open until steam escapes with a distinctly audible sound. This takes from 5 to 10 minutes.
6. Close the petcock and allow pressure to rise slowly until the gauge registers the desired point. Regulate heat to keep pressure constant. Liquid will be drawn out of sealers if pressure fluctuates.
7. Process the required time for each product (see time table, pages 14, 15).
8. At end of processing time, remove cooker from fire, allow pressure to drop gradually to zero. Sudden cooling may crack cooker or cause loss of liquid from sealers.
9. Let indicator stand at zero for a few minutes before opening petcock. Then open GRADUALLY. If there is a hissing sound, close and leave a minute or two longer.
10. Remove lid in such a way that the steam will be directed away from the face.
11. Leave sealers in cooker for a few minutes until bubbling ceases, before removing from cooker.
12. With tin cans, the petcock may be opened as soon as the gauge registers zero. Remove cans immediately and plunge into COLD water to cool quickly.

BOILING WATER BATH—This method is very satisfactory for fruits and tomatoes. If a pressure cooker is not available, the Boiling Water Bath may be used for vegetables, but great care must be taken to allow the FULL PROCESSING TIME. A wash boiler or any large kettle or pail that has a tight cover can be used. It should be fitted with a rack which allows circulation of water under containers. The canner should be deep enough so that water will cover the containers by 2 inches. This provides sufficient pressure to prevent liquid being drawn out of the sealers and the water from the processor entering the sealers. If the water does not cover the containers, the food will not cook evenly and the food above the water line may become discoloured.

1. Place filled sealers on rack, one inch apart. The water in canner should be near the temperature of the filled sealers. Cans may be stacked but there must be sufficient space for circulation of water around, over and under them.
2. Add boiling water if necessary to cover sealers or cans 2 inches over the top. Do not pour boiling water directly on sealers as tops may crack.
3. Put cover on canner.
4. Bring water to boiling point. COUNT PROCESSING TIME FROM WHEN WATER IS ACTUALLY BOILING VIGOROUSLY, not just beginning to show bubbles. (See time tables, pages 12-15.)
5. KEEP WATER BOILING until processing is finished, adding boiling water if necessary.

STEAMER—A specially constructed steamer is satisfactory for processing fruits and tomatoes.

1. Use sufficient water to reach the rack.
2. Be sure water is boiling and steam is rising before placing sealers or cans in steamer.
3. Place sealers or cans one inch apart on rack.



4. Put tightly-fitting cover in place.
5. Count time of processing from 3 minutes after putting cover in place.
6. Keep water boiling, creating steam, until processing is finished.

OVEN—A THERMOSTATICALLY CONTROLLED OVEN may be used for processing small fruits, tomatoes or large fruits (preferably precooked). Precooking aids in preventing discoloration. THE CONTROL MUST REGISTER ACCURATELY and the temperature must be kept steady during processing. TIN CANS must not be processed in the oven because of the danger of the seams bursting and the use of vacuum type sealers with metal lids is not recommended.

1. Heat oven to required temperature, 275°F. Do not use top element. DO NOT USE HIGHER TEMPERATURE because sealers may break.
2. Be sure that screwtop and springtop sealers are only PARTIALLY SEALED.
3. Place sealers two inches apart on a tray or pan. Pour sufficient water in the pan to cover the bottom about one inch deep—this prevents burning in case some of the syrup boils over.
4. Count time of processing from the time at which the oven has RETURNED to the required temperature AFTER placing sealers in it (see time table, pages 12, 13). Temperature must be kept constant during processing.

SPECIAL METHOD—FOR CANNING RASPBERRIES AND RHUBARB.

Raspberries or rhubarb may be canned successfully by what is known as the raw canning method. Pack fruit in sealers. Cover with boiling syrup. Adjust top and completely seal. Place on several layers of newspaper in a tub and pour in enough boiling water to cover the sealers 3 inches over the top. In pouring in boiling water care should be taken not to pour directly on the sealers. Place a blanket or rug over the tub and leave overnight or until cool.

8. Sealing

1. Remove sealers and cans from processor as soon as time is up to avoid overcooking or danger of flat souring. Sealers should be left in uncovered pressure cooker or open oven one or two minutes until bubbling ceases.
2. To avoid cracking, do not place hot sealers in draughts nor on metal or porcelain surfaces. Place on a folded dry cloth or newspaper.
3. Tighten tops as soon as sealers are removed from processor.

SCREW TOP SEALERS: Give metal bands a final turn.

SPRING TOP SEALERS: Push down the lower bail.

VACUUM TYPE SEALERS: Require no further tightening. The seal is formed as the sealer cools.

NEVER OPEN A SEALER AFTER PROCESSING: Sometimes the contents of a sealer will shrink in processing, leaving space at the top of the sealer; but if the sealer is airtight and sufficiently processed the food will keep perfectly. Opening the sealer may cause contamination and spoilage.

9. Cooling

1. Cool sealers in an upright position.
2. Leave space between sealers while cooling.
3. Cool uncovered and out of draughts.
4. With tin cans, plunge immediately in COLD water and leave until cold. Change the water so that they will cool rapidly.

NEVER TIGHTEN THE BAND AFTER A SEALER IS COLD. THIS MAY BREAK THE SEAL.

TESTING FOR LEAKAGE:

1. When cold, carefully invert, holding in the hand, screw top or spring top sealers to see if there is leakage.
2. To test vacuum type sealers with metal lids, when cold gently tap lids with a spoon. If properly sealed, they will give a clear ringing note and be curved slightly inward. NEVER INVERT VACUUM TYPE SEALERS.
3. If a sealer does leak, either use food immediately or transfer to an airtight sealer and re-process.

10. Storing

1. Before storing, wipe sealers with a damp cloth, then dry thoroughly.
2. A label with name, date, method and other particulars may be placed on plain side of the sealer.
3. After one week, examine each sealer for any signs of spoilage (see page 16).
4. Store in a dry, dark place where the heat is uniform, preferably cool, but where there is no danger of freezing. If the storage place cannot be kept dark, wrap each sealer in newspaper or store in the cartons in which new sealers were packed.
5. As each sealer is emptied, wash and dry. Be sure the sealer is dry before putting top in place and storing. Set aside any that have nicks in the rim or glass top. Discard broken or corroded screw bands.
6. FREEZING may change the appearance and texture of canned fruits and vegetables but there is no danger in using canned fruits or vegetables which have been frozen as long as there is no sign of leakage or spoilage, and if the products are kept frozen until used. Do not allow them to thaw and refreeze.



TIME TABLE FOR FRUITS

Pressure Cooker not generally recommended for fruits, but if used, allow 5 minutes hot pack, and 10 minutes cold pack at 5 pounds pressure. When using boiling water bath—for each 1,000 feet above 1,500 feet, increase processing time by one-fifth. If using steamer for processing, allow same time as for boiling water bath.

1. Fill container to within $\frac{1}{4}$ or $\frac{1}{2}$ inch of top. (See head space pages 7, 8). The fruit must be covered with syrup or juice.
2. Tilt containers when syrup is added; this allows the air under cups to escape.

FRUITS	PREPARATION	PROCESSING TIME					
		BOILING WATER BATH			OVEN 275°F.		
		Glass Sealers	Tin Cans	Glass Sealers Only	Pts. Min.	Ots. Min.	
APPLES	HOT PACK—Wash, peel, slice or quarter, drop in brine. Drain. Simmer 5 minutes in syrup. Pack hot. (1) Make into applesauce. Pack hot.	Pts. Min.	20-oz. Min.	28-oz. Min.	Pts. Min.	Ots. Min.	
		15 10	15 10	20 15	20 15	25 20	30 30
APRICOTS	COLD PACK—Leave whole, or halve and pit. Pack halves, cups down (3). Cover with boiling syrup (1). HOT PACK—Wash. Leave whole or halve and pit. Simmer 3 minutes. Pack hot. (1)	20 15	20 15	20 15	25 20	35 25	45 30
		15 15	15 15	20 15	20 15	25 20	30 30
BERRIES and CURRANTS (Except Strawberries)	COLD PACK: 1. Wash. Pack. Cover with boiling syrup. (1) 2. Wash. Pack solidly. (See Method 1—page 7). (1) 3. See also special method for raspberries—page 10.	15 15	15 15	20 15	20 15	25 20	30 30
		20 15	20 15	20 15	25 15	35 25	45 30
CHERRIES	COLD PACK—Wash, stem, pit if desired. Pack. Cover with boiling syrup (1). HOT PACK—Wash, stem, pit if desired. Simmer 5 minutes in syrup. Pack hot (1)	20 15	20 15	20 15	25 15	35 25	45 30
		20 15	20 15	20 15	25 15	35 25	45 30
PEACHES	COLD PACK—Blanch. Remove skins and pit. Halve or slice. Drop in brine. Drain. Pack, cups down (3). Cover with boiling syrup (1). HOT PACK—Blanch. Remove skins and pit. Halve or slice. Drop in brine. Drain, simmer 5 minutes in syrup. Pack hot (1)	20 15	20 15	20 15	25 15	35 25	45 30
		20 15	20 15	20 15	25 15	35 25	45 30
PEARS	COLD PACK—Wash, peel, halve. Remove core. Drop in brine. Drain. Pack, cups down (3). Cover with boiling syrup (1). HOT PACK—Wash. Peel. Halve. Remove core. Drop in brine. Drain. Simmer 4 to 8 minutes in syrup. Pack hot (1)	25 20	25 20	30 25	30 25	40 35	50 40
		25 20	25 20	30 25	30 25	40 35	50 40

PLUMS	COLD PACK —Wash, Prick skins. Pack. Cover with boiling syrup (1). HOT PACK —Wash, Prick skins. Simmer 5 minutes in syrup. Pack hot (1).	20 15	25 20	20 15	25 20	35 25	45 30
RHUBARB	COLD PACK : 1. Wash. Cut in 1-inch pieces. Blanch if desired. Pack. Cover with boiling syrup (1). 2. Wash. Cut in small pieces. Blanch and add sugar if desired. Pack solidly (see page 7) (1). 3. See special method—(page 16).	15 15	20 20	15 15	20 20	25 25	30 30
STRAWBERRIES	COLD PACK —Wash. Hull. Pack. Cover with boiling syrup (1). HOT PACK —Wash. Hull. Simmer 3 minutes in syrup. Let stand at least 3 hours or overnight. Bring quickly to boiling point. Pack hot (1).	15 10	20 15	15 10	20 15	25 15	35 20
TOMATOES	COLD PACK — $\frac{1}{2}$ teaspoon salt per pint. 1. Scald, remove stem end, peel. Pack. Add salt*. Cover with tomato juice brought to boiling point (1). 2. Scald, remove stem end, peel. Quarter or leave whole. Pack, pressing down until juice covers tomatoes (1). Add salt*. HOT PACK —Scald, remove stem end, peel. Quarter or leave whole. Bring to boiling point. Pack hot (1). Add salt*.	30 35 10	35 40 15	30 35 10	35 40 15	45 — 15	45 — 25
TOMATO JUICE	COLD PACK —Blanch $1\frac{1}{2}$ minutes. Press through sieve. Fill sterilized containers. Partially seal. HOT PACK —Wash, core, cut into small pieces. Boil 5 minutes in covered kettle. Press through sieve, keeping kettle on stove. Bring juice to boiling point. Quickly fill hot, sterilized containers. Add 1 teaspoon salt per quart. Seal.	30 20	30 20	30 20	30 20	— —	— —
CURRENT JUICE	Wash, add $\frac{2}{3}$ cup of water per cup of currants. Crush slightly. Simmer 10 minutes. Strain through moist jelly bag. Add sugar if desired. Reheat to boiling point. Pour into hot containers. Seal.	10	10	10	10	—	—
RHUBARB JUICE	Wash, cut in small pieces. Add 1 cup water per quart of rhubarb. Simmer 5 minutes or steam without adding water. Strain through moist jelly bag. Reheat to boiling point. Pour into hot containers. Seal.	10	10	10	10	—	—
GRAPE JUICE	Wash stem and crush. Add water, allowing 1 pint per six-quart basket of grapes. Simmer 15 minutes. Strain through moist jelly bag. Add sugar if desired. Reheat to boiling point. Pour into hot containers. Seal.	10	10	10	10	—	—

TIME TABLE FOR VEGETABLES

The pressure cooker is recommended for all vegetables except tomatoes.

When vegetables are processed in the boiling water bath, it is preferable to use pint containers.

When using pressure cooker—for each 1,000 feet above sea level, increase the pressure by half a pound.

When using boiling water bath—for each 1,000 feet above 1,500 feet, increase processing time by one-fifth.

1. Add one-half teaspoon of salt to each pint container.

2. Fill container to within 1/4 to 1 inch of top. (See head space, pages 7, 8).

VEGETABLES	PREPARATION	PROCESSING TIME						BOILING WATER BATH
		PRESSURE COOKER			Tin Cans			
		Glass Sealers		20-oz. Min.	28-oz. Min.	Hours Cans or Sealers		
		Pressure Lbs.	Pts. Min.				Qts. Min.	
ASPARAGUS.....	Wash, scale, tie in uniform bundles, stand upright in 2 inches of boiling water. Boil 4 minutes. Pack hot, tips up, except 3 down in centre. Add salt and cover with Boiling water (1, 2).....	10	30	35	30	30	2	
BEANS, Green or Wax.....	Wash, string, leave whole or cut in pieces. Cover with boiling water. Boil 5 minutes. Pack hot. Add salt and cover with boiling, cooking water (1, 2).....	10	35	40	35	35	3	
BEETS.....	Wash, leave roots and 2 inches of stems on beets. Boil 15 minutes. Cold dip. Remove skins and roots. Pack. Add salt and cover with boiling water (1, 2).....	10	30	35	30	30	2	
CARROTS.....	Wash and scrape young tender carrots. Boil 5 minutes. Pack upright, alternate stem and root ends. Add salt and cover with boiling cooking water (1, 2).....	10	30	35	30	30	2	
CORN, Whole Kernel.....	Cut corn from cobs. Do not scrape. Cover with boiling water and bring to boiling point. Pack loosely. Add salt and cover with boiling cooking water (1, 2).....	15	65	75	60	70	3	

GREENS—Chard Spinach Kale Beet Tops	Wash thoroughly. Cook in very little water until wilted. Pack loosely. Cut through centre of greens twice with sharp knife. Add salt and cover with boiling water (1, 2)	15	55	65	50	55	3
PEAS	Shell and wash young tender peas. Cover with boiling water. Boil 5 minutes. Pack loosely. Add salt and cover with boiling cooking water (1, 2)	10	45	50	40	45	3
PUMPKIN and SQUASH	Cut in small pieces. Remove seeds and membrane. Peel and steam or cook in small amount of water until tender. Mash or sieve. Bring to boiling point. Pack hot (1)	15	65	75	60	70	3
MUSHROOMS	Wash and peel. Drop into water with vinegar (1 tablespoon vinegar per quart water). Drain. Boil 3 minutes in fresh water to which vinegar and salt are added. (1 tablespoon vinegar and 1 teaspoon salt per quart). Pack hot. Cover with boiling water (2)	10	30	35	25	25	3
SWEET PEPPERS	Wash. Place in hot oven 6 to 8 minutes. Cold dip. Remove skins and seed cores. Pack, add salt but no liquid. Wash, remove seeds. Boil 3 minutes. Cold dip. Remove skins, pack (allow 1 teaspoon salt to a pint sealer). Add salt. Cover with boiling water (2)	—	—	—	—	—	40 mins. (pints) 40 mins. (pints)

READ ALL DIRECTIONS CAREFULLY



SPOILAGE OF CANNED FOOD



Canned food will not spoil if all forms of life are destroyed by using sufficient heat for the proper length of time and by using airtight containers. Some forms of spoilage are not harmful, others are extremely dangerous.

ENZYMES: Enzymes are the chemical substances which bring about the normal ripening of fruits and vegetables. They also cause spoilage if not checked, but since enzymes are readily destroyed by heat during processing, they are not usually troublesome. However, if the fruit is under-processed, they may not be destroyed and there will be a darkening of the product. This occurs most frequently in pears, peaches, apricots and plums. This type of spoilage is not harmful and the fruit may be used if the darkening is detected soon enough.

MOULDS: Since mould and mould spores are readily destroyed by moist heat, spoilage of this type will not occur so long as the product has been sufficiently processed and remains sealed. A light growth of mould may be removed from the surface, the contents of the sealer brought to boiling point and used immediately.

YEASTS: The formation of gas (bubbling), resulting from yeast fermentation, makes this type of spoilage easily recognized. Since yeasts are readily destroyed by heat, fermentation will not occur if the product is sufficiently processed and the containers are airtight. Yeast fermentation is not harmful but it imparts a distinct flavour to food. When slight yeast fermentation occurs, boiling the canned fruit with a small amount of additional sugar generally makes it palatable.

BACTERIA: In some cases, bacterial spoilage is readily detected by odour, gas or cloudiness of the liquid, but in other cases, no evidence is apparent. Bacteria such as those causing botulism, produce spores which are extremely difficult to kill at boiling temperature unless the food is sufficiently acid, as in the case of fruits and tomatoes. It is therefore recommended that other vegetables, all of which are non-acid, should be processed at the higher temperature obtained in a pressure cooker. If a pressure cooker is not available and the boiling water bath is used, strict attention must be paid to all steps in canning and the full processing time must be given.

FLAT SOUR: The most common type of Bacterial Spoilage. No gas is formed but the food develops an objectionable sour taste or rancid odour and should be discarded. The liquid is generally cloudy. It is most commonly found in peas, beans, corn and tomatoes.

BOTULISM: Bacteria which cause botulism are mostly found in the soil and are present on the outer skins of many vegetables. If vegetables are allowed to stand several hours after gathering it is much more difficult to destroy the bacteria. The spores when not destroyed in the canning process produce an extremely poisonous toxin in the food which may cause serious illness or death. However, if after the food is removed from its container, it is boiled sufficiently in an uncovered saucepan before using, this toxin will be destroyed. Since this poison gives no sign of its presence, it is very important that all home-canned vegetables (except tomatoes) be boiled for ten minutes **BEFORE EVEN TASTING**. Never taste any canned food that you suspect; destroy it, preferably by burning.

