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Home Canning of Fruits and Vegetables

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PREPARED BY

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APPROXIMATE YIELDS OF CANNED FRUIT

Fruit	TYPE OF STANDARD CONTAINER (Box, basket, etc.)	Weight of Fruit (pounds)	Approximate Quarts Canned Fruit
APRICOTS	Box (crate)	18	11
BERRIES, except STRAW- BERRIES	12 qt. boxes	15	12
	24 pt. boxes (crate)	15	12
CHERRIES	6 qt. basket (flat)	8	5
	4 basket crate	20	13
	Small box (lug)	15	10
	Large box	25	16
PEACHES	6 qt. basket (heaped)	10	5
	Box (crate)	18	9 - 10
PEARS	6 qt. basket (heaped)	11	5
	11 qt. basket (flat)	15	7
	Box	42	18 - 20
PLUMS and PRUNES	6 qt. basket (flat)	8	5
	6 qt. basket (heaped)	11	7
	Small box (lug)	15	9
STRAW- BERRIES	12 qt. boxes	15	9 - 11
	24 pt. boxes (crate)	15	9 - 11

QUANTITY OF SYRUP TO MAKE

- Using above yield chart, estimate the amount of syrup required for fruit to be canned. Make syrup before preparing fruit by adding water to sugar and bringing to boil. Skim syrup if necessary and keep hot. When canning fruits by the Cold Pack method, for each quart sealer allow:
- $\frac{3}{4}$ to 1 cup syrup for such fruits as blueberries and saskatoons.
 - 1 to $1\frac{1}{2}$ cups syrup for such fruits as raspberries, strawberries, gooseberries, cherries and peaches.
 - $1\frac{1}{2}$ to 2 cups syrup for such fruits as apricots, plums, pears and rhubarb.

When canning fruit by the Hot Pack method, use the minimum amounts of syrup suggested for Cold Pack.

SYRUPS TO USE

Syrups of varying sweetness are used, depending upon the fruit to be canned (see Time Tables, pages 15-17):

- Very thin**—1 cup sugar to 3 cups water . . . makes about $3\frac{1}{2}$ cups syrup.
 - Thin**—1 cup sugar to 2 cups water . . . makes about $2\frac{1}{2}$ cups syrup.
 - Moderately thin**—1 cup sugar to $1\frac{1}{2}$ cups water . . . makes about 2 cups syrup.
 - Medium**—1 cup sugar to 1 cup water . . . makes about $1\frac{1}{2}$ cups syrup.
- In making any of the above syrups, up to $\frac{1}{4}$ of the sugar may be replaced with an equal quantity of honey or corn syrup. A mild-flavoured honey or white corn syrup is suggested for bland or light-coloured fruits.

The aim in canning fruits and vegetables is to retain the natural shape, colour and fresh flavour of the foods.

In order to avoid waste of sugar or fruit through spoilage, care should be taken to follow directions given in this bulletin. If this is done, even the beginner may feel confident of successful results.

**CAN HIGH
QUALITY
FRUITS AND
VEGETABLES**

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, while the tips are compact and the stalks tender. Peas should be freshly picked and not too mature. Corn should be canned while the kernels are milky and tender.

Fruit to be used for canning should be well-formed and mature.

**CHECK
CANNING
EQUIPMENT**

Equipment essential for successful home canning consists of comparatively few articles, most of which are found in the average kitchen. Before commencing to can, it is important to see that the necessary equipment is on hand and in good order.

STEPS IN CANNING

1. Check Containers (page 6).
2. Prepare Containers (page 6).
3. Prepare Fruits and Vegetables (page 7).
4. Pack Containers (page 8).
5. Close Containers (page 9).
6. Process Fruits and Vegetables (pages 10-12).
7. Seal Containers (page 12).
8. Cool Containers (page 12).
9. Store Containers (page 13).

EQUIPMENT FOR CANNING

A boiling water bath, a pressure canner, an oven with automatic heat control or a steamer may be used for processing.

Boiling Water Bath

A large covered kettle, pail or a wash boiler may be used. It should be fitted with a rack which allows circulation of water under sealers or cans. The canner should be deep enough to allow water to cover the containers by at least two 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 portion above the water line may become discoloured.

The boiling water bath is the processor most generally used for fruits, tomatoes and peppers.

Pressure Canner

This canner 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. For this reason, the pressure canner is particularly recommended for all vegetables, except tomatoes.

If using a pressure canner, carefully follow specific directions supplied by the manufacturer.

Oven

An oven with an automatic heat control is the only type which should be used for canning. This control should not be confused with an oven door thermometer. The control must register accurately. If in doubt, have it checked before starting to can.

Make sure sealers stand level on the oven rack to avoid tipping. Tin cans must not be processed in the oven because of the danger of the seams bursting. The use of vacuum-type sealers with metal lids is not recommended for oven canning.

Only fruits and tomatoes should be canned in the oven.

Steamer

A specially constructed steamer is satisfactory for processing fruits and tomatoes. Such a steamer consists of a reservoir for boiling water and, above it, a cooking compartment through which a lively current of steam circulates during the entire processing period. This type of processor is not commonly used. Steamer should not be confused with pressure canner.

Small Utensils

Sharp knives, preferably stainless steel, a colander, bowls, measuring cups and spoons, towels, 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.

EQUIPMENT FOR CANNING

Can Sealing Machines

For canning in tin cans, there are several types of sealing machines available. When buying a machine, choose one that is guaranteed to seal satisfactorily. The machine should be well made, durable and easy to operate.

The machine should be tested occasionally to see that it is sealing perfectly. To do this, 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 a minute or two. If no bubbles are seen coming from the can, the seal is perfect and the sealing machine is operating properly.

Glass Sealers

Screw-top sealer—with glass lid, rubber ring and metal screw band.

Spring-top sealer—with glass lid, rubber ring and wire bails.

Vacuum-type sealer—(1) with metal lid, rubber ring and metal screw band.

(2) with metal lid, edge lined with sealing compound, metal screw band or clamp.

Rubber Rings

These are made in two widths. The narrower ring should be used only on screw-top sealers and the wider ring only on spring-top sealers. The boxes of rings made in Canada are marked with the trade-names of the sealers on which the rings should be used. **Be sure to buy the right sized ring.**

Tin Cans

There are three types of tin cans sold for home canning—Plain, R or Standard and C-enamel. Be sure to use the cans as recommended below:

Plain can—a general-purpose can which may be used for all foods except those for which the R or Standard enamel can is recommended. Use only Plain cans for tomatoes or tomato juice.

R or Standard enamel can—with bright reddish gold lining, should be used for red berries, cherries, red plums, rhubarb and beets. The special enamel lining prevents the fading of the colour which occurs when these foods are canned in plain cans.

C-enamel can—with dull gold lining. This special lining prevents discolouration in corn. C-enamel cans may also be used for peas and pumpkin, but NOT for fruits or tomatoes.

Can covers—Plain, R or Standard enamel and C-enamel, to correspond with the three types of tin cans. The inside edge of the cover is lined with either a rubber compound or a paper gasket.

STEPS IN CANNING

1. CHECK CONTAINERS

Glass Sealers

Carefully examine each part of the sealer. See that the sealer is not cracked and that the rim or glass lid is not chipped. Use new metal screw bands to replace any that have become cracked, bent, stretched or corroded. Be sure that bands can be tightly screwed on sealers. Be sure that the wire bails on the spring-top sealers spring into position with a snap.

Tin Cans

See that the rim of each can is smooth and in good condition. If reusing a can, it is necessary that the rim be carefully reflanged. Follow sealing machine directions for reflanging.

2. PREPARE CONTAINERS

Glass Sealers

Wash sealers and glass lids thoroughly in hot, soapy water and rinse well with clear, hot water.

Half fill each sealer with water. Place glass lids in position and stand sealers on rack in large kettle or boiler, surround with water, bring to boiling point, leave in the water until ready to fill.

If using the oven, put glass lids on empty sealers and place on oven rack. Heat oven to 200°F., using bottom heat only. Remove from oven as needed and place on dry cloth for filling.

Rubber Rings and Metal Lids

Dip rubber rings and metal lids into boiling water before placing on sealers.

Tin Cans

Wash cans thoroughly in hot, soapy water, rinse with boiling water and invert to drain.

Can Covers

Since some covers have paper gaskets, do not put them into water. Simply wipe carefully with clean, slightly dampened cloth.

STEPS IN CANNING

3. PREPARE FRUITS AND VEGETABLES

Sort

Sort fruit or vegetable as to size and maturity. Immature or overmature fruits and vegetables should not be canned.

Unripe fruit and tomatoes should be allowed to ripen before canning. Bruised or spotted fruit should not be canned. If bruises are cut out, the good portion of the fruit may be used for jam or fruit juices.

Wash

Fruits and vegetables must be thoroughly washed. Wash only a small quantity at a time. To remove all sand, lift fruits or vegetables from the water instead of draining it off. A wire basket is excellent for this purpose. Greens should be washed in several waters. Strawberries should be washed before hulling.

Blanch

Blanching consists of placing peaches or tomatoes in boiling water for 15 to 60 seconds, depending on maturity or variety, and then dipping in cold water. Blanching 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 may be used for blanching.

Peel

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

Brine Bath

To prevent discolouration, peaches, pears and apples should be dropped as soon as peeled into a brine bath made in the proportion of 1 teaspoon salt to 1 quart cold water. Put in only sufficient fruit to fill two or three containers. Long standing in brine gives a definitely salty taste. Change brine as it becomes discoloured.

STEPS IN CANNING

- 4. PACK CONTAINERS** Work as quickly as possible when packing prepared fruits and vegetables into containers. To prevent sealers cracking, place the hot, empty sealers on a dry cloth, then fill the containers, one at a time, leaving the necessary head-space. After filling, work out air bubbles by running the blade of a knife down the sides of the container. Do not fill more containers than your processor will hold.

Two methods of packing are commonly used in canning, Hot Pack and Cold Pack. The Hot Pack method must be used for all vegetables except tomatoes. It may be used for tomatoes and all fruits except some berries. The Cold Pack method should be used only for fruits and tomatoes.

Hot Pack Method

Vegetables—Pre-cook vegetables in a covered kettle, then pack hot into containers, cover with the water in which they were cooked or with fresh boiling water and add salt. If there is not sufficient cooking liquid, add boiling water.

Corn, peas, greens and broad beans should be packed loosely to allow the heat to penetrate more readily into the centre of the container during processing.

Fruits—Prepare syrup according to directions on page 2. Simmer fruit in a small amount of the syrup in a large kettle, then pack into containers and cover with the hot syrup, adding extra syrup, if necessary. Only sufficient fruit to fill three or four containers should be simmered at a time, otherwise the fruit may be unevenly cooked.

When processing peaches, pears, apricots or apples in the oven, the Hot Pack method should be used. If these fruits are packed cold and oven-processed, they are apt to discolour.

Cold Pack Method

Fruits—Prepare syrup according to directions on page 2. Pack fruit raw and cold into containers, then completely cover with hot syrup. With peaches, apricots or pears, tilt containers to allow the air under the cups to escape.

Tomatoes—Pack raw tomatoes into containers, cover with hot tomato juice and add salt OR pack raw tomatoes into containers and press down until they are covered with their own juice, adding salt.

STEPS IN CANNING

Headspace

When packing glass sealers, fill to within $\frac{1}{2}$ inch of top except in the case of corn and peas which expand more than other foods during processing. For corn and peas, allow 1 inch headspace.

When packing tin cans, fill to within $\frac{1}{4}$ inch of top except with corn and peas which require $\frac{1}{2}$ inch.

Leaving a headspace prevents loss of liquid from sealers or bursting of tin cans.

- 5. CLOSE CONTAINERS** After filling each container make sure there are no seeds or particles of food adhering to the rim. Close as directed below:

Glass Sealers

Screw-top sealer:—Fit wet rubber ring on sealer, making sure it is flat, then put lid in place. Partially seal by screwing metal band tightly and then loosening slightly, unscrewing not more than one inch.

Spring-top sealer:—Fit wet rubber ring on sealer, making sure it is flat, then put lid in place. Partially seal by pushing the long wire bail into groove on lid, but do not spring down the lower bail.

Vacuum-type sealer:—For the type with separate rubber ring, place wet rubber ring on lid, then put lid in place. For the type having edge of metal lid lined with sealing compound, dip lid in boiling water and put in place. Then screw metal band as tightly as possible or adjust metal clamp.

Tin Cans

Place lid on top of can and close with sealing machine according to manufacturer's directions.

DO NOT USE CHEMICALS OR CANNING COMPOUNDS

Air-tight containers and sufficient processing are all that are needed to preserve fruits and vegetables satisfactorily. Such chemicals as boracic acid, salicylic acid and saccharine are prohibited for commercial canning and may be harmful. Others, such as sulphur compounds, are restricted in commercial use.

STEPS IN CANNING

6. PROCESS FRUITS AND VEGETABLES

Have processor ready so that the containers may be placed in it immediately after closing. Never allow filled sealers or tin cans to stand and cool before processing.

Processing is the heating of filled containers to a sufficiently high temperature for a sufficiently long time to destroy any bacteria, yeasts or moulds that might cause the food to spoil and also to prevent undesirable changes in the food due to the action of enzymes.

Allow exact processing time. Count time from the moment the water in the boiling water bath starts to boil vigorously or the gauge on the pressure canner registers the required pressure or the temperature in the oven returns to 275°F.

When Using a Boiling Water Bath

1. Place filled sealers on rack, 1 inch apart. The water in the bath should be near the temperature of the filled containers. Cans may be stacked but there must be sufficient space for circulation of water around, over and under each can.
2. Add boiling water to cover tops of sealers or cans by at least 2 inches. Do not pour boiling water directly on sealers as tops may crack.
3. Put cover on boiling water bath.
4. Bring water to boiling point. Start to count processing time from moment water is actually boiling vigorously, not just beginning to show bubbles.
5. Keep water boiling until processing is finished. If necessary, add boiling water to keep 2 inch depth over containers.
6. Process the required time for fruit or vegetable (see Time Tables, pages 15-19).
7. Immediately remove sealers or cans from water bath to prevent overcooking.

STEPS IN CANNING

6. PROCESS FRUITS AND VEGETABLES

When Using a Pressure Canner

1. Keep the pressure canner 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 entire processing time . . . usually about 1 inch of water is required.
3. Place filled containers on rack in canner at least 1 inch apart. Tin cans may be stacked, if they are arranged so that there is good circulation of steam around, over and under them.
4. Adjust lid of canner and fasten securely.
5. Open petcock and keep open until steam escapes with a distinctly audible sound. This takes from 5 to 10 minutes.
6. Close petcock and allow pressure to rise slowly until the gauge indicates the required pressure. Start to count processing time at this point.

Regulate heat to keep pressure constant. Liquid will be drawn out of sealers if pressure fluctuates.
7. Process the required time for fruit or vegetable (see note 5, page 15, and Time Tables, pages 18-19).
8. At end of processing time, remove canner from heat and allow pressure to drop gradually to zero of its own accord. Sudden cooling may crack canner or cause loss of liquid from sealers.
9. Slowly open petcock. Let canner cool for 2 or 3 minutes.
10. Remove lid in such a way that the steam will be directed away from the face. Immediately cover open canner with a dish towel and let stand 1 or 2 minutes.
11. Remove towel and leave sealers in canner until bubbling in sealers ceases. Then remove from canner.
12. With tin cans, the petcock may be opened as soon as the gauge registers zero. Remove cans immediately.

STEPS IN CANNING

6. PROCESS FRUITS AND VEGETABLES

When Using An Oven (with Automatic Heat Control)

1. Heat oven to required temperature, 275°F. Do not use top oven burner or element, or a higher temperature than 275°F. since the sealers may break.
2. Be sure that screw-top and spring-top sealers are only partially sealed. Never process tin cans in the oven. Vacuum-type sealers with metal lids are not recommended for oven canning.
3. Place oven rack on second slide from bottom. Arrange sealers 2 inches apart directly on oven rack. Place a shallow pan on bottom oven rack to catch any liquid which might drop from sealers.
4. Start to count processing time from moment temperature returns to 275°F. after placing sealers in the oven (see Time Tables, pages 15-17).
5. After processing time is completed, leave the oven door open for 1 or 2 minutes before removing sealers.

7. SEAL CONTAINERS

1. After removing glass sealers from processor, place on folded dry cloth or newspapers. To avoid cracking, do not place hot sealers in draughts or on metal or porcelain surfaces.
2. Tighten tops on screw-top or spring-top sealers as they are removed from the processor by giving the metal bands a final turn or springing down the lower bail. Vacuum-type sealers require no further tightening since the seal is formed as they cool.

Never open a sealer after processing. Sometimes the contents of a sealer will shrink in processing, leaving space at the top of the sealer. Opening the sealer to fill up the space may cause contamination and spoilage. If the sealer is air-tight and sufficiently processed, the food will keep perfectly.

1. Cool sealers in an upright position, out of draughts and uncovered.
2. Leave space between sealers while cooling.
3. Never tighten or remove the band after a screw-top sealer is cold. This may break the seal.
4. After removing tin cans from processor, plunge them immediately into cold water and leave until cold. Change the water so that they will cool rapidly.

STEPS IN CANNING

Test for Seal

Screw-top or spring-top sealers:—When cold, carefully invert each one for a minute or two to see if there is leakage.

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.

If an air-tight seal has not been formed, use up the food before it spoils. Re-processing is not recommended since the food would be badly overcooked.

9. STORE CONTAINERS

1. Before storing, wipe containers with a damp cloth, then dry thoroughly.
2. Label containers, especially tin cans.
3. After one week examine each sealer for any signs of spoilage and tin cans for leakage or bulging.
4. Store containers 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 cartons since light affects the colour.
5. As each sealer is emptied, wash thoroughly and be sure the sealer is dry before putting top in place and storing. Set aside any sealers with nicks in the rim or glass top. These may be used for jam or pickles. Discard broken or corroded screw bands.
6. Freezing may change the appearance and texture of canned fruits and vegetables. There is no danger, however, in using canned fruits or vegetables which have been frozen so long as there is no sign of leakage or spoilage.
7. If tin cans are stored in a damp place the outside of the cans may rust. There is no danger, however, in using the food from rusted cans so long as there is no sign of leakage.

SPECIAL METHODS OF CANNING FRUITS

DRY SUGAR METHOD Half fill sealer or can with fruit, then add sugar and fruit in alternate layers. Cover fruit with boiling water, leaving headspace. Close container and tilt several times to dissolve sugar. Process as for Cold Pack (see Time Tables, pages 15-17).

QUANTITIES OF SUGAR TO USE IN DRY SUGAR METHOD

For 1 quart sealer (large fruit)		For 1 quart sealer (small fruit)	
Sugar	Equivalent Syrup	Sugar	Equivalent Syrup
1/2 cup	Very thin	1/3 cup	Very thin
2/3 cup	Thin	1/2 cup	Thin
3/4 cup	Moderately thin	2/3 cup	Moderately thin
1 cup	Medium	3/4 cup	Medium

SOLID PACK METHOD This method is especially recommended for rhubarb, blueberries and cherries for making pies or puddings, but may also be used for other fruits.

Wash, prepare fruit and crush part of it in the bottom of a 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 in sealers or cans, crushing fruit down slightly so that it is covered with its own juice, and sprinkling between layers of fruit the amount of sugar recommended for dry-sugar canning. Leave headspace and process as for Cold Pack (see Time Tables, pages 15-17).

SUGARLESS METHOD Follow Solid Pack method but omit 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 containers. However, the colour and flavour of some fruits are retained better when some sugar is added.

RAW CANNING METHOD This method may be used for raspberries, strawberries and rhubarb. Pack raw fruit in sterilized sealers or cans and cover with boiling syrup, leaving headspace. Completely seal. Place on several layers of newspapers in a tub and pour in enough boiling water to cover tops of containers by at least 3 inches. When adding boiling water, care should be taken not to pour it directly on sealers. Place a blanket or rug over the tub, tucking it in well around the sides. Leave 10 to 12 hours.

PROCESSING TIME TABLE FOR FRUITS

- (1) See page 14 for Special Methods.
- (2) See page 2 for directions for making syrups.
- (3) Allow ½ inch headspace when using glass sealers, and ¼ inch headspace when using tin cans.
- (4) Do not process tin cans in the oven. When processing tin cans in boiling water bath, allow same time for 20-oz. tins as for pints, and same time for 28-oz. tins as for quarts.
- (5) If pressure canner is used for fruits or tomatoes, use the Cold Pack method and allow 5 minutes at 5 pounds pressure for all sealers and tin cans.

	DIRECTIONS	Pints	Quarts
		Mins.	Mins.
APPLES	Syrup to use—Thin HOT PACK —Wash, peel, slice or quarter, drop in brine bath. Drain. Bring to boil in syrup and simmer 3 minutes. Pack hot, leaving headspace.		
	Boiling Water Bath Oven—275°F.	15 25	15 25
APPLE- SAUCE	HOT PACK —Make applesauce, sweeten if desired. Pack hot, leaving headspace.	15 25	15 25
APRICOTS	Syrup to use—Moderately thin COLD PACK —Wash, halve and pit or leave whole. Pack, cups down if halved. Cover with boiling syrup, leaving headspace.	15	20
	HOT PACK —Wash, halve and pit or leave whole. Bring to boil in syrup and simmer 3 minutes. Pack hot, leaving headspace.	10 20	10 20
BERRIES except STRAW- BERRIES	Syrup to use— Blueberries—Very thin. Blackberries, saskatoons—Thin Raspberries—Moderately thin or Medium Gooseberries, loganberries—Medium or heavier COLD PACK —Wash. (Top and tail gooseberries.) Pack. Cover with boiling syrup, leaving headspace.	15 25	20 30
CHERRIES	Syrup to use— Sweet Cherries—Thin Sour Cherries—Medium or heavier COLD PACK —Wash, stem, pit if desired. Pack. Cover with boiling syrup, leaving headspace.	20 30	25 35
	HOT PACK —Wash, stem, pit if desired. Bring to boil in syrup and simmer 3 minutes. Pack hot, leaving headspace.	15 20	15 20

READ ALL DIRECTIONS CAREFULLY — PAGES 2-13

PROCESSING TIME TABLE FOR FRUITS

	DIRECTIONS	Pints	
		Mins.	Quarts
PEACHES	Syrup to use—Moderately thin COLD PACK —Blanch 15 to 60 seconds, cold dip. Remove skins and pit. Drop in brine bath. Drain. Leave in halves or slice. Pack, cups down if halved. Cover with boiling syrup, leaving headspace. Boiling Water Bath	20	25
	HOT PACK —Blanch 15 to 60 seconds, cold dip. Remove skins and pit. Drop in brine bath. Drain. Leave in halves or slice. Bring to boil in syrup and simmer 3 minutes. Pack hot, leaving headspace. Boiling Water Bath Oven—275°F.	15 25	15 25
PEARS	Syrup to use—Very thin COLD PACK —Wash, peel, halve or quarter, remove core. Drop in brine bath. Drain. Pack, cups down. Cover with boiling syrup, leaving headspace. Boiling Water Bath	20	25
	HOT PACK —Wash, peel, halve or quarter, remove core. Drop in brine bath. Drain. Bring to boil in syrup and simmer tender-fleshed varieties 3 minutes; firm-fleshed varieties 5 minutes. Pack hot, leaving headspace. Boiling Water Bath Oven—275°F.	15 25	15 25
PLUMS	Syrup to use— Sour Plums—Moderately thin Prune Plums—Thin COLD PACK —Wash. Leave whole, or halve and pit. Pack. Cover with boiling syrup, leaving headspace. Boiling Water Bath Oven—275°F.	15 30	20 35
	HOT PACK —Wash. Bring to boil in syrup and simmer 2 minutes. Pack hot, leaving headspace. Boiling Water Bath Oven—275°F.	10 20	10 20
RHUBARB	Syrup to use—Medium COLD PACK —Wash, cut in ½-inch pieces. Pack. Cover with boiling syrup, leaving headspace. Boiling Water Bath Oven—275°F.	10 20	15 25
STRAW- BERRIES	Syrup to use—Medium or heavier COLD PACK —Wash, hull. Bring slowly to boil in syrup. Cover, remove from heat and let stand 1 hour. Pack, leaving headspace. Boiling Water Bath Oven—275°F.	15 30	20 35
	HOT PACK —Wash, hull. Bring syrup to boil in kettle, add strawberries. Cover, remove from heat and let stand 1 hour. Bring to boil. Pack hot, leaving headspace. Boiling Water Bath Oven—275°F.	10 20	10 20
SWEET RED PEPPERS	COLD PACK —Wash. Cover peppers with boiling water, bring to boil and boil, covered, for 10 minutes; OR place in very hot oven (450°F.) for 6 to 8 minutes, turning several times, until skins blister. Cold dip. Remove skins, cores and seeds. Pack cold. Add ½ teaspoon salt per pint, but no liquid. Boiling Water Bath	40	—

READ ALL DIRECTIONS CAREFULLY — PAGES 2-13

PROCESSING TIME TABLE FOR FRUITS

	DIRECTIONS	Pints	Quarts
		Mins.	Mins.
TOMATOES	COLD PACK 1. Blanch 15 to 60 seconds, cold dip, remove stem end, peel. Pack. Add 1 teaspoon salt per quart. Cover with hot tomato juice, leaving headspace. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	25 35	30 45
	2. Blanch, cold dip, remove stem end, peel. Quarter or leave whole. Pack, pressing down until tomatoes are covered with their own juice, leaving headspace. Add 1 teaspoon salt per quart. <div style="text-align: right; font-size: small;">Boiling Water Bath</div>	30	35
	HOT PACK —Blanch, cold dip, remove stem end, peel. Quarter or leave whole. Heat to boiling point. Pack hot, leaving headspace. Add 1 teaspoon salt per quart. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	15 20	15 20
TOMATO JUICE	1. Wash tomatoes, remove core, cut into pieces. Bring to boil and boil, covered, 5 minutes. Press through sieve or pureer. Bring juice to boiling point. Pour into containers, leaving headspace. Add 1 teaspoon salt per quart. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	15 20	15 20
	2. Wash, remove core. Extract juice, using juice extractor. Heat juice to boiling point. Pour into containers, leaving headspace. Add 1 teaspoon salt per quart. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	15 20	15 20
CURRANT JUICE	HOT PACK —Wash, measure and crush thoroughly. Add 1 cup water per cup of currants. Bring to boil and boil, covered, 10 minutes. Strain through moistened jelly bag. Add sugar if desired. Reheat to boiling point. Pour into hot containers, leaving headspace. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	10 15	10 15
GRAPE JUICE	HOT PACK —Wash, stem and crush. Add water, allowing 2½ cups per 6-quart basket of grapes. Bring to boil, and boil, covered, 15 minutes. Strain through moistened jelly bag. Add sugar if desired. Reheat to boiling point. Pour into hot containers, leaving headspace. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	10 15	10 15
RHUBARB JUICE	HOT PACK —Wash, cut in small pieces. Add 1 cup water per quart of rhubarb. Bring to boil and boil, covered, 5 minutes OR steam without adding water. Strain through moistened jelly bag. Add sugar if desired. Reheat to boiling point. Pour into hot containers, leaving headspace. <div style="text-align: right; font-size: small;">Boiling Water Bath Oven—275°F.</div>	10 15	10 15

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

READ ALL DIRECTIONS CAREFULLY — PAGES 2-13

PROCESSING TIME TABLE FOR VEGETABLES

When using glass sealers, allow 1 inch headspace for corn and peas and $\frac{1}{2}$ inch headspace for all other vegetables.

When using tin cans, allow $\frac{1}{2}$ inch headspace for corn and peas and $\frac{1}{4}$ inch headspace for all other vegetables.

	DIRECTIONS	10 lbs Pressure	Pints and 20-oz. Tins	Quarts and 28-oz. Tins
ASPARAGUS	Wash, break off tough ends of stalks. Remove scales if necessary. Cut in lengths to fit containers. Tie in uniform bundles, stand upright in 2 inches of boiling water. Cover, bring to boil and boil 3 minutes. Pack hot, all tips up, except 3 with tips down, in centre. Add 1 teaspoon salt per quart. Cover with boiling water, leaving headspace.	PRESSURE CANNER Boiling Water Bath	30 mins. 2 hrs.	35 mins. 2 hrs.
BEANS Green or Wax	Wash young tender beans. Trim ends, string if necessary. Leave whole or cut in pieces. Cover with boiling water. Bring to boil and boil, covered, 3 minutes. Pack hot. Add 1 teaspoon salt per quart container. Cover with hot cooking liquid from beans, leaving headspace.	PRESSURE CANNER Boiling Water Bath	30 mins. 2 hrs.	35 mins. 2 hrs.
BEETS	Wash small, young beets. Leave on roots and 2 inches of stem. Cover with boiling water. Bring to boil and boil, covered, until skins slip off easily, about 15 minutes. Remove skins and roots. Pack hot. Add 1 teaspoon salt per quart. Cover with boiling water, leaving headspace.	PRESSURE CANNER Boiling Water Bath	30 mins. 2 hrs.	35 mins. 2 hrs.
CARROTS	Wash and scrape young tender carrots. Cover with boiling water. Bring to boil and boil, covered, 5 minutes. Pack hot in upright position, alternating stem and root ends. Add 1 teaspoon salt per quart. Cover with boiling water, leaving headspace.	PRESSURE CANNER Boiling Water Bath	30 mins. 2 hrs.	35 mins. 2 hrs.
CORN Whole Kernel	Cover cobs with boiling water. Bring to boil and boil, covered, 4 minutes. Cold dip. Cut whole kernels from cob. Add boiling water, using half as much water as corn. Bring to boil and pack hot, very loosely, leaving headspace. Add 1 teaspoon salt per quart.	PRESSURE CANNER Boiling Water Bath	55 mins. 3 hrs.	65 mins. 3 hrs.

READ ALL DIRECTIONS CAREFULLY — PAGES 2-13

PROCESSING TIME TABLE FOR VEGETABLES

	DIRECTIONS	10 lbs Pressure	Pints and 20-oz. Tins	Quarts and 28-oz. Tins
CORN Cream Style	Wash cobs. Slice thin layer from kernels of cob. Next, slice remainder of kernels from cob and finally scrape cob to remove any cream or juice. Add boiling water, using half as much water as corn. Bring to boil, stirring to prevent scorching. Pack hot, very loosely, leaving headspace. Add 1 teaspoon salt per quart.	PRESSURE CANNER Boiling Water Bath	65 mins. 3 hrs.	— —
GREENS Spinach Chard Beet Tops Kale	Wash thoroughly. Cook, covered, in very little water until thoroughly wilted, about 5 to 8 minutes, turning several times during cooking. Pack hot, loosely. Cut greens crosswise with a sharp knife to bottom of container. Add 1 teaspoon salt per quart. Cover with boiling water, leaving headspace.	PRESSURE CANNER Boiling Water Bath	50 mins. 3 hrs.	60 mins. 3 hrs.
PEAS	Shell and wash young tender peas. Cover with boiling water. Bring to boil and boil, covered, 1 minute. Pack hot, loosely. Add 1 teaspoon salt per quart. Cover with hot cooking liquid from peas, leaving headspace.	PRESSURE CANNER Boiling Water Bath	40 mins. 3 hrs.	45 mins. 3 hrs.
PUMPKIN and SQUASH	Cut or break apart. Remove seeds and stringy fibres. Cut into pieces. Steam, bake or boil in small amount of water until tender. Scrape from skins and mash or sieve. Bring to boiling point, adding a little water, if necessary, to prevent scorching. Pack hot, leaving headspace.	PRESSURE CANNER Boiling Water Bath	70 mins. 3 hrs.	80 mins. 3 hrs.
MUSH-ROOMS	Wash and peel. Drop into acidulated water (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 water). Pack hot. Cover with boiling water, leaving headspace.	PRESSURE CANNER Boiling Water Bath	30 mins. 2 hrs.	35 mins. 2 hrs.

NOTE: If a pressure canner is not available, the boiling water bath may be used for vegetables, but great care must be taken to allow the full processing time.

Any vegetable (except tomatoes) processed in the boiling water bath should be boiled for 10 minutes in an uncovered saucepan before using or even tasting.

When using the pressure canner, increase the pressure by 1 pound for each 2,000 feet above sea level.

READ ALL DIRECTIONS CAREFULLY — PAGES 2-13

JAMS AND CONSERVES

STEPS IN MAKING JAM

1. Wash, rinse and sterilize jars. Jars may be sterilized in one of several ways:
 - (a) Cover the rinsed jars with hot water, or invert them in 1 to 2 inches of hot water, bring to boil and boil 15 minutes. Leave in hot water until needed.
 - (b) Set jars on rack in oven. Heat at 225°F. for at least 10 minutes. Remove from oven as needed, allowing to cool slightly before using.
2. Select firm, ripe fruit.
3. Prepare fruit according to directions given in recipes.
4. Measure prepared fruit accurately, using not more than 3 quarts for one lot of jam.
5. Put fruit in uncovered preserving kettle, adding water where indicated in recipe.
6. Precook all fruits, except apricots, peaches and pears, before adding sugar. Bring to the boil and precook, uncovered, for required time. Count time from the moment fruit begins to boil vigorously, stirring frequently to prevent sticking. With apricots, peaches and pears, mix sugar with fruit and allow to stand at least 1 hour before boiling to the jam stage.
7. After precooking, add sugar, bring to the boil and boil, uncovered, for required time. Count time from the moment jam begins to boil vigorously.
8. As final temperatures of jams vary considerably, depending on fruits used, and as recommended boiling times can be only approximate, the jam should be tested for consistency. To test jam, remove kettle from heat, place a teaspoon of jam on a cold saucer and chill quickly. If jam does not set to proper thickness, cook a few minutes longer and test again.

Since gooseberry and Damson plum jams thicken considerably on cooling completely, care must be taken not to cook jam to too thick a consistency.
9. Pour hot jam into hot sterilized jars, leaving at least $\frac{1}{4}$ inch headspace at top of jar. Using a slightly moistened clean cloth, carefully remove any jam clinging to inside of jar above the jam level. This ensures a better seal when paraffin is added.
10. Cool slightly, then pour a thin layer of melted paraffin over the jam and leave until hardened, then add a second layer of melted wax, rotating the jar so that the wax will adhere to the side of the glass to form a close seal. Cover with paper or metal lid and store in a cool, dry place.

Honey or corn syrup may be added to replace up to one-third the amount of sugar called for in the jam recipes.

If using commercial pectin to make jams, follow the manufacturer's directions exactly.

JAMS AND CONSERVES

Fruit	Amount of Prepared Fruit	DIRECTIONS	Water	Pre-cook Time	Sugar	Bolling Time	Approx. Yield
			Cups	Mins.	Cups	Mins.	Cups
APRICOT	12 cups, quartered or cut in pieces	Wash, remove pits and cut into quarters or small pieces. Add sugar, let stand 1 hour. Add 1 tablespoon vinegar or lemon juice. Bring to boil and boil, uncovered, to jam stage.	-	-	7	10 to 12	9
BLACK CURRANT	6 cups	Wash, top and tail. Add water, bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	5	15	6½	5 to 8	7½
BLACK CURRANT and RHUBARB	4 cups 4 cups, cut	Wash, top and tail black currants. Wash, trim and cut rhubarb into ½-inch pieces. Combine fruit, add water and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	2½	10	6½	4 to 7	7
BLUE-BERRY and RHUBARB	8 cups 4 cups, cut	Wash fruit. Cut rhubarb into ½-inch pieces. Combine fruit, add water and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	1	10	4	7 to 10	7
GREEN GOOSE-BERRY	12 cups (3 quart-boxes)	Wash, top and tail. Add water, bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	3	15	7½	5 to 7	8
PEACH	12 cups, cut in pieces	Wash, blanch 15 to 60 seconds, cold dip. Remove skins, pit and cut into pieces. Add sugar and let stand 1 hour. Add 1 tablespoon vinegar or lemon juice. Bring to boil and boil, uncovered, to jam stage.	-	-	6	15 to 20	9
PLUM (except Damson)	12 cups, quartered	Wash, remove pits and cut into quarters. Add water, bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	½	10	7	6 to 8	9½
PLUM, DAMSON	8 cups	Wash. Add water, bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage. Remove as many pits as possible as they rise to the surface.	3	15	7	6 to 8	7½
RASP-BERRY	8 cups, crushed (4 quart-boxes)	Wash, crush and measure. Bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	-	15	6	12 to 15	7
STRAW-BERRY	8 cups, crushed (4 quart-boxes)	Wash, hull, crush and measure. Bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	-	15	6	12 to 15	6½
STRAW-BERRY and RHUBARB	6 cups, crushed (3 quart-boxes) 4 cups, cut	Wash, hull, crush and measure strawberries. Wash, trim stalks and cut rhubarb into ½-inch pieces. Combine fruit, bring to boil and precook, uncovered. Add sugar, bring to boil and boil, uncovered, to jam stage.	-	15	6	10 to 12	6½

JAMS AND CONSERVES

Cantaloupe and Peach Jam

5 cups peeled, diced cantaloupe 3 medium oranges, grated rind and juice
5 cups peeled, diced peaches 5 cups sugar

Mix all ingredients and let stand until sugar is dissolved—about 1 hour. Bring to boil and boil, uncovered, to jam stage—about 30 minutes. Pour into hot, sterilized jars. Cool and seal. Yield: about 6½ cups.

Grape Jam

Wash and stem grapes. Press pulp from skins. Cook pulp 10 minutes and put through a sieve to remove seeds. Add skins to pulp and measure the mixture. Measure the sugar to be added later, allowing ⅔ cup to each cup of fruit. Bring skins and pulp to boil and boil, uncovered, about 10 minutes or until skins are tender. Add sugar, bring to boil and boil to jam stage—about 20 minutes, stirring frequently. Pour into hot, sterilized jars. Cool and seal.

Grape and Pear Jam

8 cups blue grapes 10 cups chopped pears
3 cups water 4½ cups sugar

Wash grapes, separate skins from pulp. Add 1½ cups water to skins and 1½ cups to pulp. Simmer skins and pulp separately until tender—about 15 minutes. Press pulp through a sieve to remove seeds. Add cooked grape skins, chopped pears and sugar to the pulp. Bring to boil and boil, uncovered, to jam stage—about 45 minutes, stirring frequently. Pour into hot, sterilized jars. Cool and seal. Yield: about 8½ cups.

Jewel Jam

4 cups pitted cherries 4 cups red currants
 (6 cups unpitted) 4 cups raspberries
4 cups gooseberries 8 cups sugar

Wash fruit. Pit cherries, top and tail gooseberries, stem currants. Combine the fruits, crush slightly, bring to boil and boil, uncovered, 15 minutes. Add sugar, bring to boil and boil, uncovered, to jam stage—10 to 12 minutes. Pour into hot, sterilized jars. Cool and seal. Yield: about 10 cups.

Pear Marmalade

10 cups sliced pears 2 lemons, grated rind and juice
6 cups sugar ¼ cup preserved or candied ginger

Place pears in preserving kettle in alternate layers with sugar, lemon rind and juice. Let stand 2 to 3 hours. Add ginger, bring to boil and boil, uncovered, stirring frequently, until thick and clear—about 45 minutes. Pour into hot, sterilized jars. Cool and seal. Yield: about 6 cups.

JAMS AND CONSERVES—JELLIES

Plum Gumbo

2 quarts plums (whole)	1/2 cup raisins
1 orange	1/4 cup walnuts
3 cups sugar	

Cut plums into pieces, removing pits. Slice orange very thinly. Combine and cook slowly, uncovered, 15 minutes. Add sugar and raisins, bring to boil and boil, uncovered, about 10 minutes. Add nuts and cook to jam stage—3 to 4 minutes. Pour into hot, sterilized jars. Cool and seal. Yield: about 7 cups.

Rhubarb Conserve

14 cups rhubarb (4 lb.) cut in 1/2-inch pieces	Juice of 2 oranges Rind of 2 oranges, thinly sliced
3 cups raisins	1/2 to 1 cup walnuts
7 cups sugar	

Combine rhubarb, raisins, sugar, orange rind and juice. Let stand 1/2 hour. Bring to boil and boil, uncovered, 40 minutes, stirring frequently. Add walnuts, coarsely chopped, and boil to jam stage—about 5 minutes. Pour into hot, sterilized jars. Cool and seal. Yield: about 12 cups.

Citron Preserve

Cut citron in 1/2-inch slices, peel, remove seeds and cut into cubes. Cover with weak brine, allowing 1 teaspoon of salt to 1 quart of water, and let stand overnight. In the morning drain thoroughly, place over a very low heat, adding a little water if necessary to prevent scorching, and cook until tender. Measure citron and, for every 6 cups of the fruit, add 2 cups sugar and grated rind and juice of 1 lemon. If desired, 1/4 cup chopped, preserved or candied ginger may be added. Bring slowly to a boil and cook until clear. Pour into hot, sterilized jars. Cool and seal.

JELLIES

To make a perfect jelly, pectin, acid, sugar and water must be in the right proportions. Fruits vary in the amounts of pectin and acid they contain.

Fruits rich in both pectin and acid:—crabapples, sour apples, cranberries, currants, gooseberries, sour plums, grapes.

Fruits rich in pectin, but low in acid:—quinces, sweet apples.

Fruits rich in acid, but low in pectin:—strawberries, cherries, rhubarb, pineapple, raspberries, loganberries.

Fruits low in both pectin and acid:—peaches, pears, blueberries.

If a fruit is low in either pectin or acid, it may be combined with one or more fruits rich in the needed pectin or acid.

Pectin and acid change with the maturity of the fruit, both decreasing as the fruit ripens. For best results, therefore, use a mixture of slightly under-ripe and ripe fruit. Never use over-ripe fruit for making jelly.

If using commercial pectin to make jelly, follow the manufacturer's directions exactly.

JELLIES

STEPS IN MAKING JELLY

1. Sterilize jelly glasses or jars as for jam making.
2. Select sound fruit, using about equal parts of ripe and slightly under-ripe fruit.
3. Wash thoroughly and discard any damaged spots.
4. Prepare fruit according to directions given below.
5. Add cold water, using proportion of water to prepared fruit, as given below.

Fruit	PREPARATION	Amount of Cold Water
APPLE	Wash, stem, cut into eighths, or slice.	To completely cover prepared fruit.
CHOCHECHERRY and APPLE	Wash and stem chokecherries, crush in bottom of kettle. Wash apples, stem, cut into eighths. Prepare equal quantities of both fruits.	To come just below top layer of prepared fruit.
CRABAPPLE	Wash, stem, cut into quarters.	To completely cover prepared fruit.
CURRENT, RED	Wash, stem.	$\frac{3}{4}$ cup water for each cup prepared fruit.
CURRENT, BLACK	Wash, stem.	$1\frac{1}{4}$ cups water for each cup prepared fruit.
GOOSEBERRY (GREEN)	Wash, stem.	$\frac{3}{4}$ cup water for each cup prepared fruit.
GRAPE	Wash, stem.	To come just below top layer of prepared fruit.
PLUM, SOUR	Wash, stem, cut into halves or quarters, leave in pits.	To come just below top layer of prepared fruit.
QUINCE and APPLE	Wash quinces and apples thoroughly, remove stems and blossom ends, cut into quarters. Prepare equal quantities of both fruits.	To completely cover prepared fruit.
QUINCE and GRAPE	Wash quinces, remove stems and blossom ends, cut into quarters. Wash and stem grapes. Prepare equal quantities of both fruits.	To come just below top layer of prepared fruit.
RASPBERRY and RED CURRENT	Wash raspberries. Wash and stem currants. Prepare equal quantities of both fruits.	$\frac{3}{4}$ cup water for each cup prepared fruit.

6. Simmer fruit and water in a covered kettle until fruit is soft and mushy, crushing during cooking.
7. Pour hot cooked fruit into moistened jelly bag made of flannel or several thicknesses of cheesecloth. Hang up over a bowl and allow to drip.
Squeezing the bag increases the quantity of juice, but the jelly will not be so clear.

JELLIES

STEPS IN MAKING JELLY

8. Work with small amounts of extracted juice at a time—not more than 8 cups. Measure each lot accurately to determine the amount of sugar to be added after boiling.
9. Boil juice, uncovered, in a broad saucepan for 3 minutes. Remove saucepan from heat and test for pectin. If clot does not form, continue boiling, testing frequently, until pectin test is satisfactory.

PECTIN TEST

Measure 1 teaspoon fruit juice and 1 teaspoon alcohol (rubbing alcohol may be used) into a cup or small dish. Blend quickly together and let stand 30 seconds. Do not taste. If a jelly-like mass or clot is formed, the juice contains sufficient pectin. Sugar may then be added.

10. Measure sugar, allowing $\frac{3}{4}$ cup sugar for each cup of extracted juice, except when a heavy solid clot forms when pectin test is made at the end of the 3-minute boiling period. This heavy clot indicates that the juice is so rich in pectin that 1 cup of sugar for each cup of extracted juice should be used.
11. Add measured sugar slowly to juice. Boil briskly, uncovered, removing scum as it forms.
12. To test when jelly is done, dip up the boiling hot syrup with a metal spoon and allow it to run off the edge. When two drops form and then flow together to form a "sheet," the jelly stage has been reached. Immediately remove from the heat. Longer boiling will give a stiff, tough jelly.
13. Let hot juice stand in kettle for 30 seconds and remove last bit of scum with a cold fork.
14. Pour into hot sterilized jelly glasses, filling to within $\frac{1}{4}$ -inch of the top. Using a slightly moistened clean cloth, carefully remove any jelly clinging to inside of jelly glass above the jelly level.
15. Cool until partially set, then pour a thin layer of hot, melted paraffin wax over the jelly and leave until hardened. Then add a second layer of hot melted wax, rotating the jar so that the wax will adhere to the side of the glass to form a close seal. Cover with paper or metal lid and store in a cool, dry place.

PICKLES AND RELISHES

POINTS ON PICKLING

1. Use firm, fresh vegetables and fruits for making pickles. Fruits may be slightly under-ripe.
2. Some vegetables, such as cucumbers, require soaking in salted water before covering with vinegar. This soaking helps to keep the vegetables firm during the succeeding pickling process.

Use common table (bag) or dairy salt. Salt treated to make it free-running causes cloudiness in the brine. Iodized salt is not recommended for pickling because it may cause a brownish scum or sediment to form.

When making brine, use the proportion of 1 cup salt to 2 quarts (10 cups) water. If not enough salt is used, pickles will be soft or slippery; if too much salt is used, they may shrivel and become tough.
3. Use good quality pickling vinegar. If vinegar is too weak, pickles will be soft. Both cider and blended vinegars have good flavour, but white, spirit vinegar gives better colour where light-coloured foods, such as onions, cauliflower or pears, are used.
4. The addition of a small amount of alum during the pickling process develops a crisp quality in certain pickles.
5. Spices should be used with caution. This is particularly true of cloves, allspice and hot peppers, since they are exceptionally strong-flavoured. A dark colour or bitter flavour may result from using too much spice, or from boiling the spice too long with the vinegar.

Whole spices give better colour and flavour than ground spices. Whole spices should be tied loosely in a cheesecloth bag, cooked with the vinegar or pickle and then removed. The bag should be large enough to allow the vinegar to boil through the spices.

6. In making pickles, use enamel, aluminum or stainless steel cooking utensils. Since vinegar and salt react with iron, copper and brass, causing discolouration, utensils made of these metals should not be used.
7. Pickles should be stored in clean glass jars, sealers or crocks. If kept in crocks, pickles should be well covered with vinegar solution to prevent moulding. A plate or wooden board, cut to fit inside the crock, should be placed on top of the pickles and weighted down with a clean stone or other weight.

Relishes and sauces should be packed in hot, sterilized jars and completely sealed.

PICKLES AND RELISHES

Sweet Gherkins or Mixed Pickles

(Cucumber, onions, cauliflower and green tomato)

4 quarts gherkins or prepared mixed vegetables	2 quarts white vinegar
1 cup table (bag) salt	2 teaspoons powdered alum
2 quarts water	2 cups sugar
	3 tablespoons whole mixed pickling spice

Wash and prepare vegetables, cutting into pieces where necessary. Cover vegetables with cold brine made from salt and water. Let stand for 24 hours. Drain. Wash in cold water. Drain. Heat vinegar, add alum, sugar and spice tied loosely in cheesecloth bag. Boil 10 minutes. Remove spice bag. Pack gherkins or mixed pickles in clean jars, cover with the boiling vinegar mixture and seal. Yield: about 4 quarts.

Mustard Pickles

3 quarts pickling cucumbers	$\frac{3}{4}$ cup flour
1 medium cauliflower	$\frac{1}{2}$ cup dry mustard
1 quart pickling onions	1 tablespoon turmeric
2 sweet red peppers	$2\frac{1}{2}$ cups sugar
2 cups table (bag) salt	$2\frac{1}{2}$ quarts vinegar
4 quarts water	

Peel onions and cut other vegetables into desired sizes. Make a brine of the salt and water. Cool and pour over vegetables. Let stand overnight. In the morning, drain. Make a paste of flour, mustard, turmeric, sugar and a little vinegar. Add remaining vinegar, stirring until well blended. Bring to boiling point, stirring constantly until the sauce is slightly thickened. Cook 10 minutes. Add prepared vegetables, bring to boiling point and pack in clean, hot jars and seal. Yield: about $4\frac{1}{2}$ quarts.

Dill Pickles

Cucumbers 3 inches to 4 inches long are best for dill pickles. Wash, prick with a fork and soak overnight in cold water. Drain, dry thoroughly. Place pieces of dill in the bottom of clean jars. Pack cucumbers in jars. Put more dill on top. Prepare the following pickle mixture:

2 cups vinegar	1 cup table (bag) salt	10 cups water
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Bring to boil. Pour over the cucumbers while hot. Then seal. Let stand in a cool place about 6 weeks before using. Yield: sufficient liquid for 4 to 5 quarts pickles.

Sweet Pickled Fruit

(Peaches, pears, sweet apples, crabapples, etc.)

4 cups sugar	1 ounce stick cinnamon
2 cups vinegar	1 ounce whole cloves
1 cup water	4 quarts prepared fruit

Boil sugar, vinegar, water and spices for 20 minutes. Peel peaches, pears or apples. Crabapples may be pickled with skins and stems on. Add to syrup and cook until soft, cooking a quarter of the fruit at one time. Pack into air-tight sealers, cover with hot syrup and seal. Yield: 4 quarts.

PICKLES AND RELISHES

Pickled Cherries

Select and wash 2 pints firm, ripe, sweet white or black cherries. Pack unpitted, with stems attached, in clean jars. Cover with the following cold vinegar mixture:

1 cup cider vinegar	3 tablespoons brown sugar
1 cup water	2 tablespoons whole cloves (1/2 tsp. ground)
1 teaspoon salt	1/8 ounce stick cinnamon (1/2 tsp. ground)

Tie whole spices in cheesecloth bag. Mix all ingredients together and boil for 5 minutes. Cool and remove spice bag. Pour cold syrup over cherries in jars and seal.

Bread and Butter Pickles

6 quarts small cucumbers, 1 to 1 1/2 inches in diameter	9 cups water
1 quart small white onions	2 quarts vinegar
4 green peppers	4 cups sugar
1 sweet red pepper	1 tablespoon turmeric
1 cup table (bag) salt	1 teaspoon mustard seed
	1 teaspoon celery seed

Wash all vegetables. Slice cucumbers and onions thinly. Remove seeds and dice peppers. Make a brine of the salt and water. Cool and pour over vegetables. Let stand overnight. Drain thoroughly. Combine vinegar, sugar and spices. Bring to boil and add vegetables. When thoroughly heated, pack in clean, hot jars and seal. Yield: about 6 quarts.

Chili Sauce

1 tablespoon whole cloves	2 1/2 cups chopped, seeded green or sweet red peppers (6 medium)
3 tablespoons whole allspice	
1 gallon chopped, skinned, ripe tomatoes (8 lbs.)	1 1/2 cups sugar
2 1/2 cups chopped, peeled onions (6 medium)	2 tablespoons salt
	4 cups vinegar

Tie spices in a cheesecloth bag. Combine with remaining ingredients in saucepan. Cook, uncovered, 2 1/2 to 3 hours or until quite thick, stirring frequently. Remove spice bag. Pour into sterilized sealers or jars and seal. Yield: about 6 pints.

Corn Relish

6 cups corn (cut from cob)	4 cups chopped onions
4 cups coarsely chopped cucumber	3 tablespoons salt
4 cups coarsely chopped ripe tomatoes	2 tablespoons dry mustard
4 cups coarsely chopped celery	1 tablespoon turmeric
1 cup chopped green pepper	4 cups vinegar
1 cup chopped sweet red pepper	2 1/2 cups brown sugar

Mix ingredients well. Simmer, uncovered, until thickened—about 50 minutes, stirring frequently. Pour into hot sterilized jars. Cool and seal. Yield: about 4 quarts.

PICKLES AND RELISHES

Green Tomato Pickles

30 medium green tomatoes (7½ lb.)	1	tablespoon dry mustard
6 large onions	1	tablespoon peppercorns
½ cup salt	½	lemon
1 tablespoon mustard seed	2	sweet red peppers
1 tablespoon whole allspice	2½	cups brown sugar
1 tablespoon celery seed	3	cups pickling vinegar
1 tablespoon whole cloves		

Slice tomatoes and onions thinly and place in a crock or enamel vessel in alternate layers with the salt. Let stand overnight. In the morning, drain thoroughly, rinse in cold water and drain well again. Tie all spices loosely in a cheesecloth bag; slice lemon thinly; remove stem and seed cores from peppers and slice thinly. Add spice bag and sugar to vinegar, bring to boiling point, then add tomatoes, onions, lemon and peppers. Cook for ½ hour, stirring gently to prevent sticking. Remove spice bag and pack pickles in hot, sterilized jars; cool and seal. Yield: about 5 pints.

Fruit Tamale

8 large or 12 medium ripe tomatoes (3 lb.)	2½	cups brown sugar
1½ cups coarsely chopped peaches	2	teaspoons salt
1½ cups chopped pears	1½	cups vinegar
2 cups chopped apples	1	small hot red pepper (2 tbsps. chopped) or 6 small dried chili peppers
1½ cups chopped onions		
1 cup chopped celery		
2 tablespoons whole mixed pickling spice		

Combine chopped vegetables and fruits. Tie spices (including dried chili peppers if used) loosely in a cheesecloth bag. Add spice bag, sugar and salt to vinegar, bring to boiling point and add other ingredients. Cook, uncovered, until thickened—about 45 minutes, stirring occasionally. Remove spice bag; pack in hot sterilized jars. Cool and seal. Yield: about 4 pints.

Pepper Relish

3½ lb. (15-18) sweet red peppers	1	teaspoon mustard seed
3 lb. (12-15) green peppers	1	tablespoon dry mustard
3 lb. (12-15) medium onions	1	tablespoon celery seed
4 cups vinegar	2	tablespoons salt
1 cup sugar		

Wash peppers, remove seed cores. Peel onions. Put vegetables through food chopper, using coarse blade. Place in large preserving kettle, cover with boiling water and let stand 5 minutes. Drain thoroughly. Add vinegar, sugar, spices and salt; cook until vegetables are tender—about 10 minutes, stirring occasionally. Pour into hot sterilized jars. Cool and seal. Yield: about 6 pints.

QUESTIONS AND ANSWERS

Spoilage

Q. What causes canned food to spoil?

A. Spoilage from moulds, yeasts and bacteria is due to insufficient sterilization, incomplete seal of containers, lack of care in handling food and equipment, allowing containers to stand and cool before processing, or too slow cooling after processing. Another form of deterioration may be caused by the action of enzymes.

Q. How can one detect the various types of spoilage? Is it safe to use the food?

A. **MOULD** is easily recognized, since it appears on the surface of canned food. A light growth of mould may be removed from fruits, the contents of the sealer brought to boiling point and used immediately.

YEASTS cause fermentation which is detected by active bubbling in the sealer or bulging of the tin can. Fermentation is not harmful but it gives the food a sharp flavour. Boiling slightly fermented canned fruit with a small amount of additional sugar generally makes it palatable.

BACTERIA cause spoilage which in some cases is readily detected by odour, gas or cloudiness of the liquid, but in other cases it is not apparent. The two main types of bacterial spoilage are: flat sour and botulism.

FLAT SOUR is recognized by a sour flavour and slightly rancid odour. The liquid is generally cloudy. This type of spoilage sometimes occurs in peas, beans, corn or tomatoes. Flat sour gives the food an unpalatable flavour which cannot be remedied.

BOTULISM gives no sign of its presence. It is caused by bacteria which produce spores 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 all vegetables which are non-acid should be processed at the higher temperature obtained in the pressure canner. If the spores are not destroyed in the canning process, they produce an extremely poisonous toxin in the food. If vegetables (except tomatoes) are not processed under pressure, they must be boiled for 10 minutes before even tasting so that the toxin, if present, will be destroyed.

ENZYMES cause the gradual darkening of canned fruits, particularly peaches, pears and apricots, if they are not sufficiently processed. For this reason, the Hot Pack method is preferred. This type of spoilage is not harmful and the fruit may be used if the darkening is detected before colour and flavour become objectionable.

Preparing Containers

Q. Why is it not necessary to sterilize sealers for canning?

A. The processing of the packed sealer sterilizes not only the food but the container. However, it is essential that sealers be thoroughly washed and rinsed. Heating the sealers helps to prevent breakage when packing with hot food.

QUESTIONS AND ANSWERS

Packing

- Q. Should the Hot Pack method be used for all vegetables?
A. Yes, with the exception of tomatoes. Pre-cooking and packing hot permits more rapid heat penetration during processing. This is important since it is more difficult to destroy spoilage organisms in non-acid vegetables.
- Q. Why are both the Cold and Hot Pack methods recommended for fruits?
A. The pre-cooking shrinks the fruit and therefore more can be packed into the containers. The Cold Pack method is better for berries.

Headspace

- Q. Why is there sometimes more headspace in sealers after processing than when they are packed?
A. This may be due to loss of liquid or excessive shrinkage during processing or to insufficient pre-cooking, as with spinach. Never open a sealer to fill up the space.

Closing

- Q. Why do you only partially tighten screw-top and spring-top sealers, but completely tighten the vacuum-type sealer?
A. Tightening the top completely on the vacuum-type sealer does not create a seal, but allows escape of air from the sealer as does the partial seal on the spring-top or screw-top sealer. If the air in the sealer could not escape, it would expand and possibly cause the sealer to break.

Processing

- Q. Why is the open kettle method not recommended for canning fruit?
A. When the open kettle method is used, you depend entirely on the cooking of the fruit in the kettle to completely sterilize it, and on the packing of the fruit and syrup in sterilized sealers. Very heavy syrups quickly reach a sufficiently high temperature to sterilize the fruit, but with the thinner syrups popular today, very long cooking would be necessary to reach a temperature which would guarantee complete sterilization. In the long cooking, fruit would break up and also lose colour and flavour. There is also the danger of contamination in transferring the food from the kettle to the sealer.
- Q. Why are processing times for the oven longer than those in the boiling water bath?
A. Heat is conducted less readily by air than water, consequently the temperature in the sealers is raised more slowly in the oven than in the boiling water bath.
- Q. Why is a longer processing time required for quarts than for pints done by the Cold Pack method, but not when the Hot Pack method is used?
A. When the food is packed cold, it takes longer for the heat to reach the centre of a quart sealer. With the Hot Pack method the food at the centre of both pint and quart sealers is equally hot when packed. The same applies to 20-ounce and 28-ounce tin cans.

QUESTIONS AND ANSWERS

- Q. Why is raw canning not recommended for fruits other than raspberries, strawberries and rhubarb?
- A. Because it takes longer for heat to penetrate larger, more solid fruits. Raspberries and strawberries are tender and more easily heated. Rhubarb is very acid and will keep even without processing, but colour and texture are better when processed.
- Q. Are cloudy peas always a sign of spoilage?
- A. No, not necessarily. If there is no odour or other sign of spoilage, the cloudiness is probably due to over-processing or to using too mature peas.
- Q. Why do fruits, particularly berries, float in the sealers?
- A. This may be due to too heavy a syrup or to over-cooking.

Cooling

- Q. Why should sealers be left in the pressure canner for a few minutes before removing?
- A. If the sealers are cooled too rapidly, vigorous boiling will continue inside the sealer with considerable loss of liquid.
- Q. Why should sealers not be inverted during cooling?
- A. The weight of the food against the lid may prevent a seal from forming, or may break a seal which has already been formed.

Jelly

- Q. Why does jelly sometimes fail to set?
- A. There may be several reasons for this: (1) Using over-ripe fruit or fruit lacking in pectin. (2) Too short a boiling time before or after adding the sugar. (3) Using too much sugar in proportion to the pectin and acid in the fruit juice. (4) Making the jelly on a very damp day.
- NOTE: Sometimes jelly does not completely set until the second or third day.
- Q. What makes jelly tough?
- A. (1) Boiling the juice too long after adding the sugar. (2) Using too little sugar in proportion to the pectin and acid in the juice. Some fruits, such as currants and crabapples, which are high in pectin and acid, require a high proportion of sugar to make a tender jelly. If more water is added to these fruits, a smaller amount of sugar may be used.
- Q. What makes crystals form in jelly?
- A. Sugar crystals may result from any one of four different causes: (1) A excess of sugar. (2) Insufficient acid. (3) Over-cooking of the jelly. (4) Too great a delay in sealing it.
- Crystals in grape jelly may be greatly reduced by letting the juice stand for several hours in a cold place before making the jelly. The crystals will settle to the bottom of the container and the juice may be poured off.
- Q. Why is jelly not always clear?
- A. (1) Squeezing the jelly bag forces particles of fruit into the juice. (2) Using too great a proportion of under-ripe fruit. (3) Not completely removing the scum from the jelly before pouring into jelly glasses.
- Q. What makes jelly "weep"?
- A. Weeping is usually caused by too much acid in the fruit juice and may be prevented by mixing a juice high in acid with one low in acid.